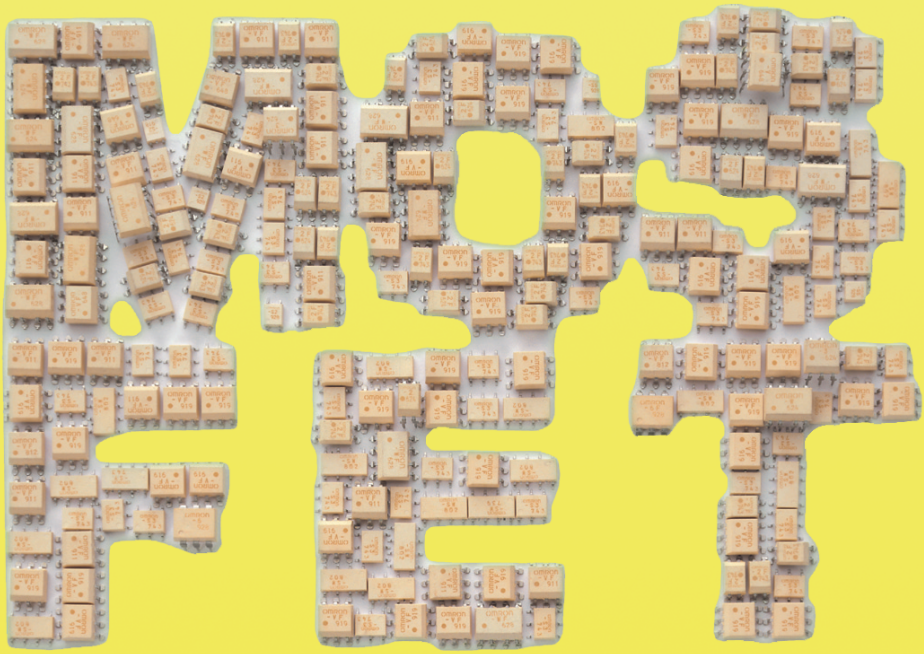
OMRON

MOS FET Relay General Catalog

G3VM Series

A wide range of contact forms and functions
Over 180 different models available



What's NEW !

The Very small package "S-VSON series" is now available
Expansion of the package "DIP/SOP" with High-current and Low-ON-resistance Type
Expansion of the Package "SOP" with General-purpose Type

2018

OMRON MOS FET Relay General Catalog 2018 G3VM Series

To the customer who buys Omron products

Warranty and Limited Warranty

(As of September, 2015. Please check Omron Corporation's homepage for the latest version of Terms and Conditions.)

Thank you for using Omron Corporation ("*Omron*") products. The Terms and Conditions hereunder are applied to *Omron products* regardless of where they are purchased. When you place an order, you are expected to agree to the Terms and Conditions described below.

1. Definition

The definition of terms used in these Terms and Conditions are as follows:

(1) *Omron products*: FA system equipment, general-purpose control devices, sensors, and electronic/mechanism components under *Omron* brand

(2) *Catalogues*: *Omron* general catalogue, FA system equipment general catalogue, safety component general catalogue, electronic/mechanism components general catalogue and other catalogues, specifications, instructions and manuals of *Omron products*, including electronically provided information available on the Omron electronic components information website, etc.

(3) *Usage conditions*: Usage conditions, rating, performance, operating environment, handling instructions, cautions, prohibited use, etc. of Omron products described in catalogues.

(4) *Customer application*: Application of *Omron products* by customers which include embedding and/or using Omron products in their parts/components, electronic substrates, devices, equipment or systems manufactured by customers.

(5) *Fitness*: (a) fitness, (b) performance, (c) non-infringement of third-party intellectual property, (d) compliance with laws and regulations and (e) conformity to standards.

2. Caution on Descriptions

Attention is required to the following points on descriptions in catalogues.

(1) Rated values and performance values are the product of tests performed for separate single conditions, including but not limited to temperature and humidity. It is not intended to warrant rated values and performance values for multiple combined conditions.

(2) Reference data are provided for reference only. *Omron* does NOT warrant that *Omron products* work properly at all time in the range of reference data.

(3) Application examples are provided for reference only. *Omron* does NOT warrant the fitness of *Omron products* under such application.

(4) *Omron* may discontinue the production of *Omron products* or change the specifications of them for the purpose of improving such products or other reasons entirely at its own discretion.

3. Precautions

Please be aware of and accept the following when you introduce or use *Omron products*:

(1) Please use *Omron products* in compliance with usage conditions including rating and performance.

(2) Please confirm fitness of *Omron products* in your application and use your own judgment to determine the appropriateness of using them in such application. *Omron* shall not warrant the fitness of Omron products in customer application.

(3) Please confirm that *Omron products* are properly wired and installed for their intended use in your overall system.

(4) When using *Omron products*, please make sure to (i) maintain a margin of safety vis-à-vis the published rated and performance values, (ii) design to minimize risks to customer application in case of failure of *Omron products*, such as introducing redundancy, (iii) introduce system-wide safety measures to notify risks to users, and (iv) conduct regular maintenance on *Omron products* and customer application.

(5) Omron products are designed and manufactured as general-purpose products for use in general industrial products. They are not intended to be used in the following applications. If you are using *Omron products* in the following applications, *Omron* shall not provide any warranty for such *Omronproducts*. Even in the case of the following applications to elevator/lift equipment and medical devices, etc, some case are likely applied to an usual guarantee prescribed on next article as general-purpose products used for general industrial products. So, please contact our sales person in charge.

(a) Applications with stringent safety requirements, including but not limited to nuclear power control equipment, combustion equipment, aerospace equipment, railway equipment, elevator/lift equipment, amusement park equipment, medical equipment, safety devices and other applications that could cause danger/harm to people's body and life.

(b) Applications that require high reliability, including but not limited to supply systems for gas, water and electricity, etc., 24 hour continuous operating systems, financial settlement systems and other applications that handle rights and property.

(c) Applications under severe conditions or in severe environment, including but not limited to outdoor equipment, equipment exposed to chemical contamination, equipment exposed to electromagnetic interference and equipment exposed to vibration and shocks.

(d) Applications under conditions and environment not described in catalogues.

(6) In addition to the applications listed from (a) to (d) above, *Omron products* are not intended for use in automotive applications (including two wheel vehicles). Please do NOT use *Omron products* for automotive applications. Please contact *Omron* sales staff for products for automotive use.

4. Warranty Terms and Conditions

The terms and conditions for warranty of *Omron products* are as follows:

(1) Warranty period: One year after the purchase from *Omron* or Omron's agency.

(2) Coverage: *Omron* will provide either of the following two services for the malfunctioning *Omron products* at its own discretion:

(a) Free repair of malfunctioning *Omron products* at an *Omron* maintenance service location (Repair service is not available for electronic/mechanism parts.), or

(b) Free replacement of the malfunctioning *Omron products* with the same number of replacement/alternative products.

(3) Exceptions: *Omron* will not cover *Omron products* under its warranty if the cause of the malfunction falls under any of the following:

(a) Usage in a manner other than the original intended use for the *Omron products*.

(b) Usage outside of the usage conditions.

(c) Modification or repair made to the *Omron products* by other than *Omron* personnel.

(d) Software program embedded by other than Omron or usage of such software.

(e) Causes which could not have been foreseen with the level of science and technology at the time of shipping from *Omron*.

(f) Causes originating from other than *Omron* or *Omron products* (including force majeure such as but not limited to natural disasters).

5. Limitation of Liability

The warranty set out in these Terms and Conditions is the whole and sole liability for *Omron products*. There are no other warranties, expressed or implied. *Omron* and the distributors of *Omron products* are not liable for any damages which may arise from or be related to *Omron products*.

6. Export Controls

Customers of *Omron products* shall comply with all applicable laws and regulations of Japan and/or other relevant countries with regard to security export control, when exporting *Omron products* and/or technical documents or providing such products and/or documents to a non-resident. *Omron*may not provide customers with *Omron products* and/or technical documents should they fail to comply with such laws and regulations.

(EC300E)

Overall Contents

MOS FET Relay General Catalog 2018

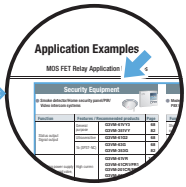
Using this Catalog

There are the following three ways to search for products in this catalog.

1 Searching by Application

Recommended products are listed by typical industries and applications, such as security or communications, or by typical functions.
You can select products based on applications or functions.

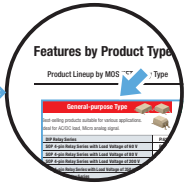
P.7



2 Searching by Product Feature

Products are classified by features, such as general purpose or small with high dielectric strength.
You can select products for each application based on product features.

P.8



3 Searching by Product Model Number

The products are listed in a product index.
You can select products by model number while checking specifications, such as the rated voltage or continuous load current.

P.10

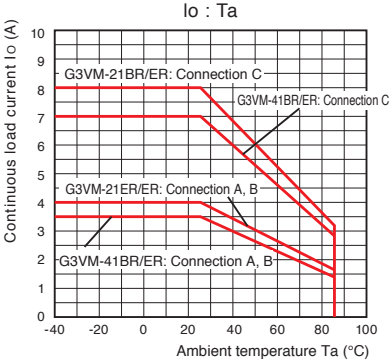
Improved Features of the MOS FET Relay General Catalog

Similar models are grouped together so that you can select models while comparing detailed performances.

Examples

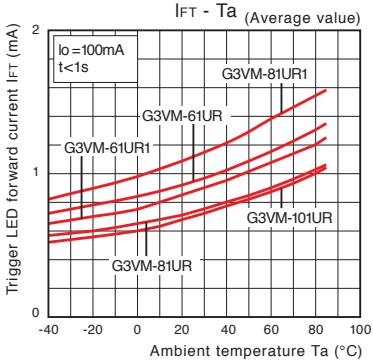
●Continuous load current vs. Ambient temperature

G3VM-21BR/21ER/41BR/41ER



●Trigger LED forward current vs. Ambient temperature

G3VM-61UR/61UR1/81UR/81UR1/101UR



Website

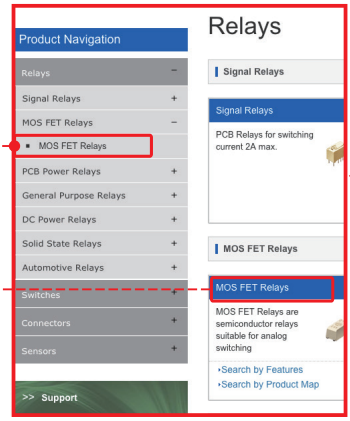
OMRON Electronic Components Website

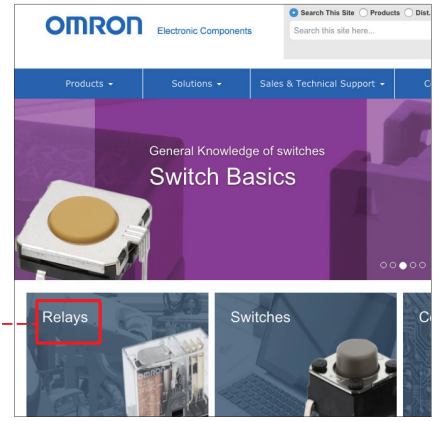
www.omron.com/ecb/

OMRON Electronic Components Web OMRON E-WEB

OMRON Electronic Components Search

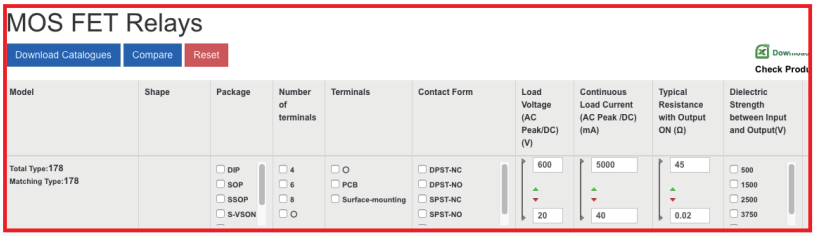
This website is dedicated to OMRON electronic components.
You can search for products based on model numbers, specifications, or product category.
The convenient interface also lets you view new product information and all of our services.
Note: The contents of this website are subject to change.





MOS FET Relay Select from Product Table

Please select MOSFET relay by checking the necessary items.



MOS FET Relays: G3VM Features

G3VM Relays will help you downsize and reduce the energy consumption of a wide range of equipment.

Ultra Small Size and Weight

In addition to the SSOP and USOP, we have introduced the ultra-compact VSON and S-VSON packages, contributing to downsizing of equipment.

Low driving current

Realizing energy saving with standard driving current of 2 to 15mA. Ultrasensitive models are also available featuring Drive Currents as low as 0.2 mA (max).

Long operating life

MOS FET Relays use light signal instead of moveable contacts; avoiding reduction of life caused by contact wear, substantially increasing operational life.

Small leakage current

Can withstand external surge current without addition of snubber circuit. Under normal conditions, the typical leakage current is about 1 nA or below.

Excellent shock resistance

All the internal parts use casting method, and there is no movable parts in it, so it has excellent shock and vibration resistance.

High Insulation

MOS FET relays offer great I/O isolation due to its operational principle. It turns the voltage into the light and transfers by the light signal; Therefore input and output are isolated. The standard models offer 2,500 Vrms between input and output. Superior 5,000 VAC products are also available. 3,750 VAC products have also been added to the SOP package series.

Silent operation

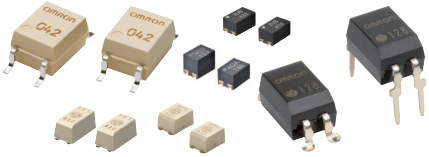
As MOS FET Relays do not have mechanical contacts, by using a MOS FET instead of an electromechanical relay, it is possible to eliminate switching noise in your applications.

High-speed switching

Comparing with the switching time of 3 to 5 ms of a mechanical relay, its switching time is shortened to 0.2 ms(SSOP, USOP, VSON). Achieving quick response performance.

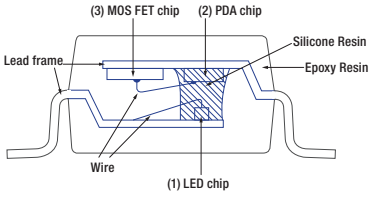
Control the micro analog signal correctly

Comparing with the triac, MOS FET greatly reduces the dead zone. The input waveform of micro analog signal does not suffer distortion as it does with a triac and is basically converted into output waveform without distortion.



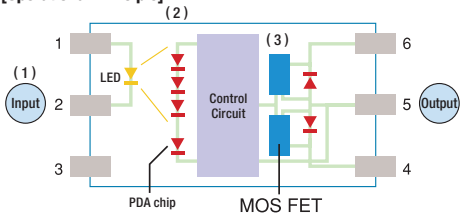
Structure and operational principle of MOS FET relays

[Internal structure]



MOS FET relay consists of the following three components:
(1) LED (light emitting diode)
(2) Photodiode dome array (PDA)
(3) MOS FET

[Operational Principle]



(1) The LED lights up when the current is connected at the input side.
(2) The light sent by the LED will be converted into voltage when it is received by the Photodiode dome array.
(3) This voltage will be the gate voltage to drive the MOS FET via control circuit.

Application Examples

MOS FET Relay Application Examples

Security Equipment

- Smoke detector/Home security panel/PIR/ Video intercom systems

Function	Features / Recommended products		Page
Status output Signal output	General purpose	G3VM-61VY3 G3VM-351VY	68 82
	Ultrasensitive	G3VM-61G2	68
	1b (SPST-NC)	G3VM-63G G3VM-353G	68 82
Switching power supply of small solenoid valve, small light External output	High curren	G3VM-61VR G3VM-61CR1/FR1 G3VM-201CR/FR G3VM-601CR/FR	127 121 121 121
	High dielectric strength	G3VM-61AY1/DY1 G3VM-351AY1/DY1	147

FA/Industrial Equipment

- Machine tool/Customized power supply/Factory automation (PLC/Thermostat/Timer)

Function	Features / Recommended products		Page
Status output Signal output	General purpose	G3VM-61VY3 G3VM-61A1/D1 G3VM-351VY G3VM-351A/D	68 62 82 62
Switching power supply of small solenoid valve, small motor External output	High current	G3VM-61VR G3VM-61CR1/FR1 G3VM-201CR/FR G3VM-601CR/FR	127 121 121 121
	High dielectric strength	G3VM-61AY1/DY1 G3VM-351AY1/DY1	147

Test & Measurement Equipment

- Semi-conductor test equipment(ATE)/ Semi-conductor test equipment Interface board/ Tester for cars/PXI module/Data logger/ I/O board

Function	Features / Recommended products		Page
Switching test signal	Low C × R	G3VM-21UR1/UR10/UR11 G3VM-41UR10/UR11/UR12 G3VM-41QR10 G3VM-51UR G3VM-61QR	190 195 200 195 200
	Small and High-load-voltage	G3VM-61UR1	213
	High current	G3VM-31QR	143
Switching power supply	High current	G3VM-31QR G3VM-61QR2 G3VM-101QR1	143

Communication Equipment

- Modems, Fax machines, network devices, and PBX transfer devices

Function	Features / Recommended products		Page
Short-circuit line switching	General purpose	G3VM-61VY3 G3VM-351VY	68 82
Line switching	1b (SPST-NC)	G3VM-63G G3VM-353G	68 82

Energy-related Equipment

- BMS's (business management systems), power meters, smart meters, secondary power supplies, and photovoltaic systems

Function	Features / Recommended products		Page
External communications Charge voltage monitoring	High dielectric strength	G3VM-61AY1/DY1 G3VM-351AY1/DY1 G3VM-601AY1/DY1	147
	General purpose	G3VM-61VY3 G3VM-351VY	68 82
Storage battery charging	High current	G3VM-61CR1/FR1	121

Amusement Equipment

- Currency Sensing Modules Coin dispenser / Information system

Function	Features / Recommended products		Page
Status output Signal output	General purpose	G3VM-61VY3 G3VM-351VY	68 82
	1b (SPST-NC)	G3VM-63G G3VM-353G	68 82

Medical Equipment

Office automation/AV Equipment

Broadcasting Equipment

There are many other usages beyond the above applications.

Features by Product Type

Product Lineup by MOS FET Relay Type

General-purpose Type

Best-selling products suitable for various applications.
Ideal for AC/DC load, Micro analog signal.

DIP Relay Series	P.62
SOP 4-pin Relay Series with Load Voltage of 60 V	P.68
SOP 4-pin Relay Series with Load Voltage of 80 V	P.73
SOP 4-pin Relay Series with Load Voltage of 200 V	P.77
SOP 4-pin Relay Series with Load Voltage of 350 and 400 V	P.82
SOP 6 -pin Relay Series	P.88

High-dielectric-strength Type

These MOS FET Relays come in DIP 6-pin packages and achieve a dielectric strength of 5,000 VAC between I/O.

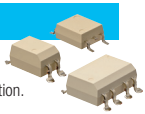
Relay Series with Load Voltage of 400/600 V	P.155

High-load-voltage Type

These MOS FET Relays come in SOP 4-pin packages and are for high load voltages.

Relay Series with Load Voltage of 600 V	P.94

Current-limiting Type



These MOS FET Relays protect themselves from overcurrents with a current-limiting protection function.

Relay Series with Load Voltage of 350 V	P.159

Multi-contact-pair Type (2a, 2b, and 1a1b)

These MOS FET Relays provide multiple contact pairs (2a (DPST-NO), 2b (DPST-NC), and 1a1b (SPST-NO/SPST-NC)) for a wide range of circuits.

DIP 8-pin Relay Series	P.98
SOP 8-pin Relay Series	P.104

Low-output-capacitance and Low-ON-resistance Type (with Low C × R)

Ideal for semi-conductor test equipment.
low C (capacitance between terminals) × R (output on-resistance) type.
Models are also available that give priority to a low C or a low R.

SOP 4-pin Relay Series	P.165
SSOP Relay Series with Load Voltage of 20 V	P.170
SSOP Relay Series with Load Voltage of 40 V	P.175
USOP Relay Series with Load Voltage of 20 V	P.180
USOP Relay Series with Load Voltage of 40, 50 V	P.185
VSON Relay Series with Load Voltage of 20 V	P.190
VSON Relay Series with Load Voltage of 50 V	P.195
S-VSON Relay Series (New small package)	P.200

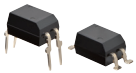
High-current and Low-ON-resistance Type

These MOS FET Relays achieve the low ON resistance and high switching capacity of a mechanical relay.

DIP 4-pin Relay Series	P.110
DIP 6-pin Relay Series	P.115
DIP8-pin Relay Series	P.121
SOP 4-pin Relay Series	P.127
SOP 6-pin Relay Series	P.131
S-VSON Relay Series (New small package)	P.143

Small and High-dielectric-strength Type

Dielectric Strength between I/O 5,000 Vrms with small DIP4.
Models with high sensitivity are also available.



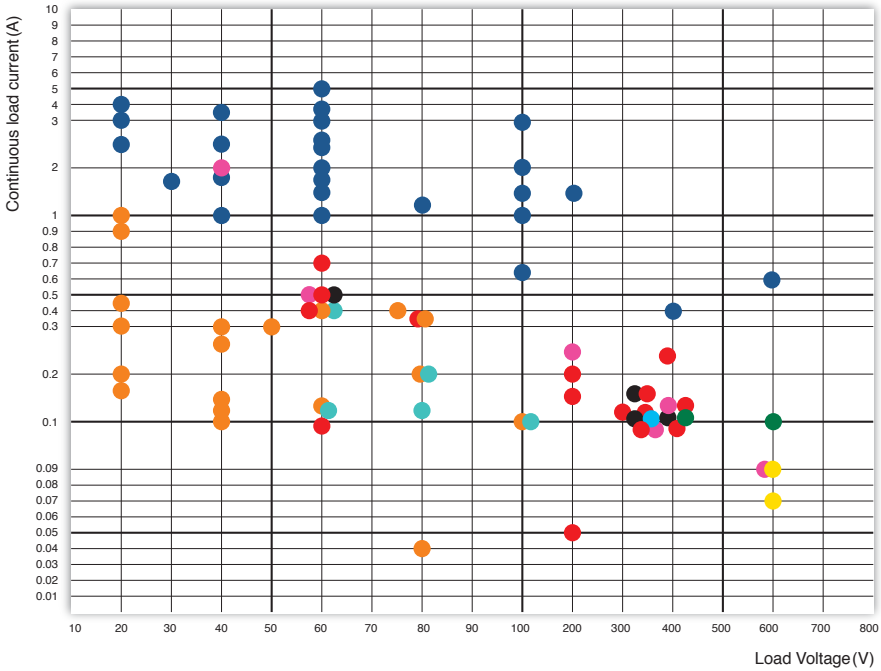
DIP 4-pin Relay Series	P.147

Small and High-load-voltage Type

These ultra-compact MOS FET Relays are for high load voltages.

SSOP Relay Series with Load Voltage of 60, 80, and 100 V	P.204
USOP Relay Series with Load Voltage of 60, 75, 80, and 100 V	P.208
VSON Relay Series with Load Voltage of 60, 80, 100V	P.213

Product Map by features



- General-purpose Type
- High-load-voltage Type
- Multi-contact-pair Type (2a, 2b, and 1a1b)
- High-current and Low-ON-resistance Type
- Small and High-dielectric-strength Type
- High-dielectric-strength Type
- Current-limiting Type
- Low-output-capacitance and Low-ON-resistance Type (with Low C × R)
- Small and High-load-voltage Type

Product Index

■DIP (Dual Inline Package)

Load Voltage (V) Max.	Model	Number of terminals	Contact form	Continuous load current (mA) Max.	Maximum resistance with output ON (Ohm) Typ.	Current leakage when the relay is open (nA) Max.	Capacitance between terminals (pF) Typ.	Turn-ON time (ms) Max.	Turn-OFF time (ms) Max.	Dielectric strength between I/O (Vrms)	Page
20	G3VM-21AR/DR	4	1a	3000	0.04	1000	300	5	1	2500	110
20	G3VM-21BR/ER	6	1a	4000 (8000) *1	0.02	1000	1000	5	1	2500	115
40	G3VM-41AY/DY	4	1a	2000	0.09	1000	300	5	1	5000	147
40	G3VM-41AY1/DY1	4	1a	2000	0.09	1000	300	5	1	5000	147
40	G3VM-41AR/DR	4	1a	2500	0.05	1000	300	5	1	2500	110
40	G3VM-41BR/ER	6	1a	3500 (7000) *1	0.03	1000	1000	5	1	2500	115
60	G3VM-61A1/D1	4	1a	500	1	1000	130	2	0.5	2500	62
60	G3VM-61AY/DY	4	1a	500	0.6	1000	130	1	1	5000	147
60	G3VM-61AY1/DY1	4	1a	500	0.6	1000	130	3	1	5000	147
60	G3VM-61AR/DR	4	1a	2000	0.08	1000	250	5	1	2500	110
60	G3VM-61B1/E1	6	1a	500 (1000) *1	1	1000	130	2	0.5	2500	62
60	G3VM-61BR/ER	6	1a	2500	0.065	10	400	1.5	0.4	2500	115
60	G3VM-61BR1/ER1	6	1a	3000 (6000) *1	0.04	1000	1000	5	1	2500	115
60	G3VM-61CR1/FR1 *NEW*	8	1a	5000(10000)*1	0.022	10000	850	5	1	2500	121
60	G3VM-62C1/F1	8	2a	500	1	1000	130	2	0.5	2500	98
100	G3VM-101AR/DR	4	1a	1000	0.25	1000	200	5	1	2500	110
100	G3VM-101BR/ER	6	1a	2000 (4000) *1	0.1	1000	1000	5	1	2500	115
100	G3VM-101CR/FR *NEW*	8	1a	3000(6000)*1	0.06	1000	720	5	1	2500	121
200	G3VM-201AY/DY	4	1a	250	5	1000	90	1	1	5000	147
200	G3VM-201AY1/DY1	4	1a	250	5	1000	90	3	1	5000	147
200	G3VM-201CR/FR *NEW*	8	1a	1500(3000)*1	0.25	1000	400	5	1	2500	121
350	G3VM-351AY/DY	4	1a	100	35	1000	30	1	1	5000	147
350	G3VM-351AY1/DY1	4	1a	100	35	1000	30	2	1	5000	147
350	G3VM-2L/2FL	4	1a	120 *2	22	1000	40	1	1	2500	159
350	G3VM-351A/D	4	1a	120	35	1000	30	1	1	2500	62
350	G3VM-353A/D	4	1b	150	15	1000	85	1	3	2500	62
350	G3VM-351B/E	6	1a	120 (240) *1	35	1000	30	1	1	2500	62
350	G3VM-353B/E	6	1b	150 (300) *1	15	1000	85	1	3	2500	62
350	G3VM-355CR/FR	8	1a1b	120	15	1000	65	1	3	2500	98
350	G3VM-352C/F	8	2a	120	35	1000	30	1	1	2500	98
350	G3VM-WL/WFL	8	2a	120 *2	22	1000	40	1	1	2500	159
350	G3VM-354C/F	8	2b	150	15	1000	85	1	3	2500	98
400	G3VM-401A/D	4	1a	120	18	1000	40	1	1	2500	62
400	G3VM-401AY/DY	4	1a	120	22	1000	80	1	1	5000	147
400	G3VM-401AY1/DY1	4	1a	120	22	1000	80	2	1	5000	147
400	G3VM-401B/E	6	1a	120 (240) *1	17	1000	40	1	1	2500	62
400	G3VM-401BY/EY	6	1a	120 (240) *1	17	1000	40	1	1	5000	155
400	G3VM-401CR/FR *NEW*	8	1a	400(800)*1	3	1000	410	1	1	2500	121
400	G3VM-402C/F	8	2a	120	18	1000	40	1	1	2500	98
600	G3VM-601AY/DY	4	1a	90	45	1000	75	1	1	5000	147
600	G3VM-601AY1/DY1	4	1a	90	45	1000	75	2	1	5000	147
600	G3VM-601BY/EY	6	1a	100 (200) *1	30	1000	120	1.5	1	5000	155
600	G3VM-601CR/FR *NEW*	8	1a	600(1200)*1	1.3	10000	4300	3	1	2500	121

*1 Load current in case of connection C is shown in parentheses (DC load only) *2 Current-Limiting function (Limit current 150 mA Min. 300 mA Max.)

■SOP (Small Outline Package)

Load Voltage (V) Max.	Model	Number of terminals	Contact form	Continuous load current (mA) Max.	Maximum resistance with output ON (Ohm) Typ.	Current leakage when the relay is open (nA) Max.	Capacitance between terminals (pF) Typ.	Turn-ON time (ms) Max.	Turn-OFF time (ms) Max.	Dielectric strength between I/O (Vrms)	Page
20	G3VM-21GR	4	1a	160	5	1	1	0.5	0.5	1500	165
20	G3VM-21GR1	4	1a	300	1	1	5	0.5	0.5	1500	165
20	G3VM-21HR	6	1a	2500 (5000) *1	0.02	10	1000	5	1	1500	131
30	G3VM-31HR *NEW*	6	1a	4000(8000)*1	0.02	1000	1100	5	1	1500	131
40	G3VM-41GR6	4	1a	120	10	1	1	0.5	0.5	1500	165
40	G3VM-41GR4	4	1a	250	2	1	5	0.5	0.5	1500	165
40	G3VM-41GR5	4	1a	300	1	1	10	0.5	0.5	1500	165
40	G3VM-41GR8	4	1a	1000	0.1	1	300	3	0.5	1500	127
40	G3VM-41HR	6	1a	2500 (5000) *1	0.03	10	1000	5	1	1500	131
60	G3VM-61VY1	4	1a	100	25	1000	10	5	5	3750	68
60	G3VM-61G1	4	1a	400	1	1000	130	2	0.5	1500	68
60	G3VM-61G2	4	1a	400	1	1000	130	8	3	1500	68
60	G3VM-61G3	4	1a	400	1	1000	130	10	5	1500	68
60	G3VM-61VY2 *NEW*	4	1a	500	1	1000	20	2	0.5	3750	68
60	G3VM-61VY3 *NEW*	4	1a	700	0.15	1000	100	3	0.5	3750	68
60	G3VM-61GR1	4	1a	1000	0.25	100	90	3	1	1500	127
60	G3VM-61GR2 *NEW*	4	1a	1700	0.08	10	250	3	0.5	1500	127
60	G3VM-61VR *NEW*	4	1a	1400	0.13	1000	100	3	1	3750	127
60	G3VM-63G *NEW*	4	1b	500	1	1000	100	1	3	1500	68
60	G3VM-61H1	6	1a	400 (800) *1	1	1000	130	2	0.5	1500	88
60	G3VM-61HR	6	1a	2300 (4600) *1	0.04	10	1000	5	1	1500	131
60	G3VM-61HR1 *NEW*	6	1a	3300 (6600)*1	0.03	20	700	5	1	1500	131

*1 Load current in case of connection C is shown in parentheses (DC load only) *2 Current-Limiting function (Limit current 150 mA Min. 300 mA Max.)

Product Index

■SOP (Small Outline Package)

Load Voltage (V) Max.	Model	Number of terminals	Contact form	Continuous load current (mA) Max.	Maximum resistance with output ON (Ohm) Typ.	Current leakage when the relay is open (nA) Max.	Capacitance between terminals (pF) Typ.	Turn-ON time (ms) Max.	Turn-OFF time (ms) Max.	Dielectric strength between I/O (Vrms)	Page
60	G3VM-62J1	8	2a	400	1	1000	130	2	0.5	1500	104
80	G3VM-81GR	4	1a	40	16	1	2.5	0.5	0.5	1500	165
80	G3VM-81GR1	4	1a	200	5	1	6.5	0.5	0.5	1500	165
80	G3VM-81G1	4	1a	350	1	1	30	0.5	0.5	1500	73
80	G3VM-81HR	6	1a	1250 (2500) *1	0.11	1.5	460	3	1	1500	137
100	G3VM-101HR	6	1a	1400 (2800) *1	0.1	10	1000	5	1	1500	137
100	G3VM-101HR1 *NEW*	6	1a	2000 (4000)*1	0.045	1000	500	5	1	1500	137
200	G3VM-201G	4	1a	50	40	1	15	0.5	0.2	1500	77
200	G3VM-201G1	4	1a	200	5	1000	90	8	3	1500	77
200	G3VM-201G2	4	1a	200	5	1000	90	10	5	1500	77
200	G3VM-S5	4	1a	200	5	1000	100	1.5	1	1500	77
200	G3VM-201H1	6	1a	200 (400) *1	5	1000	100	1.5	1	1500	88
200	G3VM-202J1	8	2a	200	5	1000	100	1.5	1	1500	104
350	G3VM-351G1	4	1a	100	35	1000	35	5	3	1500	82
350	G3VM-351G	4	1a	110	35	1000	30	1	1	1500	82
350	G3VM-351VY *NEW*	4	1a	110	35	1000	60	1	0.5	3750	82
350	G3VM-351GL	4	1a	120 *2	15	1000	70	1	1	1500	159
350	G3VM-353G	4	1b	120	15	1000	65	1	3	1500	82
350	G3VM-351H	6	1a	110 (220) *1	35	1000	30	1	1	1500	88
350	G3VM-353H	6	1b	120 (240) *1	15	1000	65	1	3	1500	88
350	G3VM-355JR	8	1a1b	120	15	1000	65	1	3	1500	104
350	G3VM-352J	8	2a	110	35	1000	30	1	1	1500	104
350	G3VM-354J	8	2b	120	15	1000	65	1	3	1500	104
400	G3VM-401G1	4	1a	100	18	1000	70	10	5	1500	82
400	G3VM-401G	4	1a	120	17	1000	70	1	1	1500	82
400	G3VM-401H	6	1a	120 (240) *1	17	1000	70	1	1	1500	88
400	G3VM-402J	8	2a	120	17	1000	70	1	1	1500	104
600	G3VM-601G1	4	1a	70	35	1000	75	10	5	1500	94
600	G3VM-601G	4	1a	90	45	1000	75	8	3	1500	94

*1 Load current in case of connection C is shown in parentheses (DC load only) *2 Current-Limiting function (Limit current 150 mA Min. 300 mA Max.)

■SSOP (Shrink Small Outline Package)

Load Voltage (V) Max.	Model	Number of terminals	Contact form	Continuous load current (mA) Max.	Maximum resistance with output ON (Ohm) Typ.	Current leakage when the relay is open (nA) Max.	Capacitance between terminals (pF) Typ.	Turn-ON time (ms) Max.	Turn-OFF time (ms) Max.	Dielectric strength between I/O (Vrms)	Page
20	G3VM-21LR	4	1a	160	5	1	1	0.5	0.5	1500	170
20	G3VM-21LR10	4	1a	200	3	0.2	0.8	0.2	0.2	1500	170
20	G3VM-21LR1	4	1a	450	0.8	1	5	0.5	0.5	1500	170
20	G3VM-21LR11	4	1a	900	0.18	1	40	2	1	1500	170
40	G3VM-41LR10	4	1a	120	12	0.2	0.45	0.2	0.3	1500	175
40	G3VM-41LR6	4	1a	120	10	1	1	0.5	0.5	1500	175
40	G3VM-41LR11	4	1a	140	7	0.2	0.7	0.2	0.2	1500	175
40	G3VM-41LR4	4	1a	250	2	1	5	0.5	0.5	1500	175
40	G3VM-41LR5	4	1a	300	1	1	10	0.5	0.5	1500	175
60	G3VM-61LR	4	1a	400	1	1000	20	1	1	1500	204
80	G3VM-81LR	4	1a	120	7.5	0.2	5	0.25	0.2	1500	204
100	G3VM-101LR	4	1a	80	8	0.2	6	0.3	0.3	1500	204

■USOP (Ultra Small Outline Package)

Load Voltage (V) Max.	Model	Number of terminals	Contact form	Continuous load current (mA) Max.	Maximum resistance with output ON (Ohm) Typ.	Current leakage when the relay is open (nA) Max.	Capacitance between terminals (pF) Typ.	Turn-ON time (ms) Max.	Turn-OFF time (ms) Max.	Dielectric strength between I/O (Vrms)	Page
20	G3VM-21PR10	4	1a	200	3	1	0.8	0.2	0.2	500	180
20	G3VM-21PR1	4	1a	450	0.6	1	5	0.5	0.5	500	180
20	G3VM-21PR11	4	1a	900	0.18	1	40	2	1	500	180
40	G3VM-41PR12	4	1a	100	15	1	0.3	0.2	0.2	500	185
40	G3VM-41PR6	4	1a	120	10	0.2	1	0.2	0.3	500	185
40	G3VM-41PR10	4	1a	120	12	1	0.45	0.2	0.3	500	185
40	G3VM-41PR11	4	1a	140	7	1	0.7	0.2	0.2	500	185
40	G3VM-41PR5	4	1a	300	1	1	10	0.5	0.3	500	185
50	G3VM-51PR	4	1a	300	1	1	12	0.5	0.4	500	185
60	G3VM-61PR1	4	1a	120	10	1	0.7	0.2	0.2	500	208
60	G3VM-61PR	4	1a	400	1	1	20	0.5	0.5	500	208
75	G3VM-71PR	4	1a	400	1	1	30	2	1	500	208
80	G3VM-81PR	4	1a	120	7	0.02	5	0.5	0.2	500	208
100	G3VM-101PR	4	1a	100	8	0.2	6	0.3	0.3	500	208

Product Index

■VSON (Very Small Outline Package Non-leaded)

Load Voltage (V) Max.	Model	Number of terminals	Contact form	Continuous load current (mA) Max.	Maximum resistance with output ON (Ohm) Typ.	Current leakage when the relay is open (nA) Max.	Capacitance between terminals (pF) Typ.	Turn-ON time (ms) Max.	Turn-OFF time (ms) Max.	Dielectric strength between I/O (Vrms)	Page
20	G3VM-21UR10	4	1a	200	3	1	0.8	0.2	0.2	500	190
20	G3VM-21UR1	4	1a	450	0.8	1	5	0.4	0.4	500	190
20	G3VM-21UR11	4	1a	1000	0.18	1	40	2	1	500	190
40	G3VM-41UR12	4	1a	100	15	1	0.3	0.2	0.2	500	195
40	G3VM-41UR10	4	1a	120	12	1	0.45	0.2	0.3	500	195
40	G3VM-41UR11	4	1a	140	7	1	0.7	0.2	0.2	500	195
50	G3VM-51UR	4	1a	300	1	1	12	0.5	0.4	500	195
60	G3VM-61UR1	4	1a	120	10	1	0.7	0.2	0.2	500	213
60	G3VM-61UR	4	1a	400	1	1	20	0.5	0.5	500	213
80	G3VM-81UR	4	1a	120	7	0.02	5	0.5	0.2	500	213
80	G3VM-81UR1	4	1a	200	6	1	6.5	0.4	0.4	500	213
100	G3VM-101UR	4	1a	100	8	0.2	6	0.3	0.3	500	213

■S-VSON (Super-Very Small Outline Package Non-leaded)

Load Voltage (V) Max.	Model	Number of terminals	Contact form	Continuous load current (mA) Max.	Maximum resistance with output ON (Ohm) Typ.	Current leakage when the relay is open (nA) Max.	Capacitance between terminals (pF) Typ.	Turn-ON time (ms) Max.	Turn-OFF time (ms) Max.	Dielectric strength between I/O (Vrms)	Page
30	G3VM-31QR *NEW*	4	1a	1500	0.1	1	120	2	1	500	143
40	G3VM-41QR10 *NEW*	4	1a	120	11	1	0.45	0.2	0.3	500	200
60	G3VM-61QR *NEW*	4	1a	400	1.1	1	12	0.5	0.3	500	200
60	G3VM-61QR2 *NEW*	4	1a	1000	0.2	1	80	2	0.3	500	143
100	G3VM-101QR1 *NEW*	4	1a	650	0.4	1	50	2	0.3	500	143

G3VM Model Number Legend

G3VM- □□ □ □ □ □
(1) (2) (3) (4) (5)

(1) Load voltage

2: 20 V
3: 30 V
4: 40 V
5: 50 V
6: 60 V
7: 75V
8: 80 V
10: 100 V
20: 200 V
35: 350 V
40: 400 V
60: 600 V

(2) Contact form

1: 1a (SPST-NO)
2: 2a (DPST-NO)
3: 1b (SPST-NC)
4: 2b (DPST-NC)
5: 1a1b (SPST-NO/SPST-NC)

(3) Package

A: DIP 4-pin PCB Terminals
B: DIP 6-pin PCB Terminals
C: DIP 8-pin PCB Terminals
D: DIP 4-pin Surface-mounting Terminals
E: DIP 6-pin Surface-mounting Terminals
F: DIP 8-pin Surface-mounting Terminals
G: SOP 4-pin
H: SOP 6-pin
J: SOP 8-pin
L: SSOP 4-pin
P: USOP 4-pin
Q: S-VSON 4-pin
U: VSON 4-pin
V: Special SOP 4-pin

(4) Additional functions

L: Current limit
R: Low ON-resistance type
Y: Dielectric strength between I/O above 2.5 kV type

(5) Other information

When specifications overlap, serial code is added in the recorded order.

Note: 1. Some products may have a different model number structure.
Note: 2. In order to avoid the confusion of I (English letter) and 1 (number), l (English letter) is not used here.
Note: 3. For SOP 4-pin models, where the available marking space is insufficient to clearly differentiate model numbers with 6 or more suffix digits, the package type code (3) is omitted.

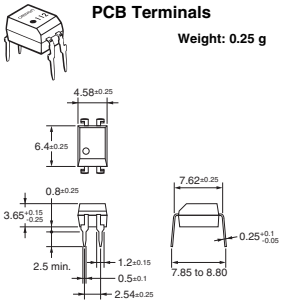
Dimensions and Appearance Examples

■DIP4

(Unit: mm)

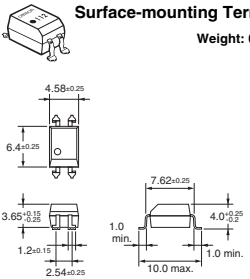
PCB Terminals

Weight: 0.25 g

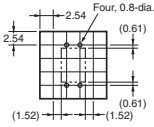


Surface-mounting Terminals

Weight: 0.25 g

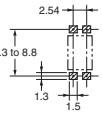


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

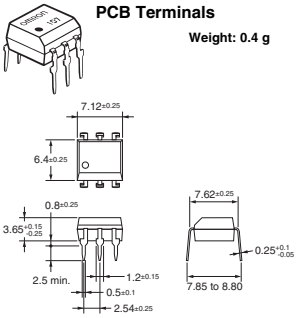


■DIP6

(Unit: mm)

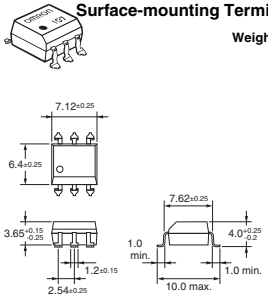
PCB Terminals

Weight: 0.4 g

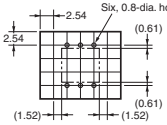


Surface-mounting Terminals

Weight: 0.4 g

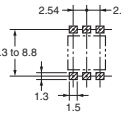


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

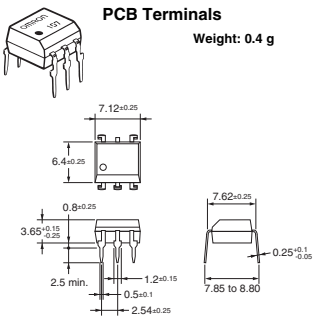


■Special DIP6 * (G3VM-61BR/ER)

(Unit: mm)

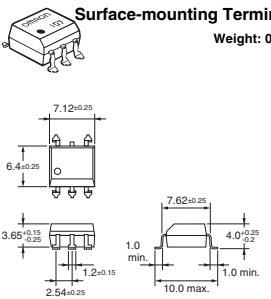
PCB Terminals

Weight: 0.4 g

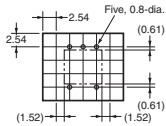


Surface-mounting Terminals

Weight: 0.4 g

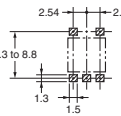


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



* The external dimensions of the standard DIP 6-pin are the same, but the number of terminals is different.

Note: The actual product is marked differently from the image shown here.

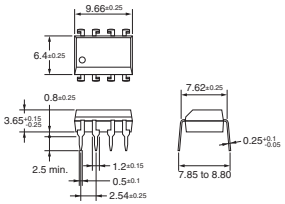
Dimensions and Appearance Examples

■DIP8

(Unit: mm)

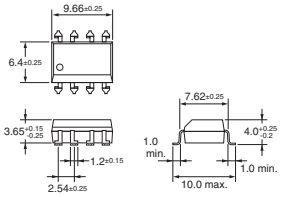
PCB Terminals

Weight: 0.54 g

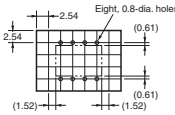


Surface-mounting Terminals

Weight: 0.54 g

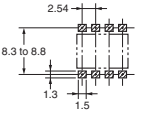


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

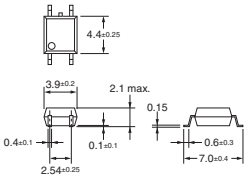


■SOP4

(Unit: mm)

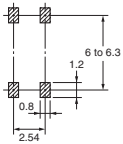
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

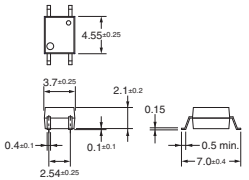


■Special SOP6 * (G3VM-61VY1)

(Unit: mm)

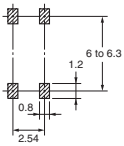
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



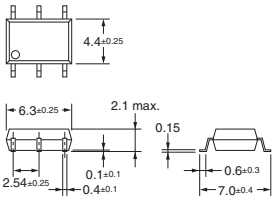
* The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same.

■SOP6

(Unit: mm)

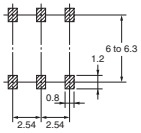
Surface-mounting Terminals

Weight: 0.13 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

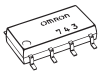


Note: The actual product is marked differently from the image shown here.

Dimensions and Appearance Examples

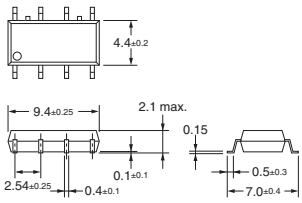
■SOP8

(Unit: mm)



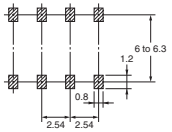
Surface-mounting Terminals

Weight: 0.2 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

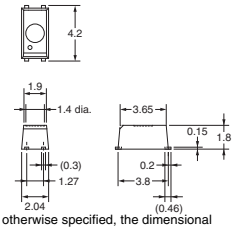


■SSOP4

(Unit: mm)

Surface-mounting Terminals

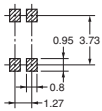
Weight: 0.03 g



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)

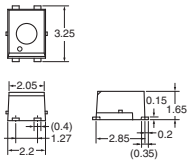


■USOP4

(Unit: mm)

Surface-mounting Terminals

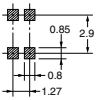
Weight: 0.03 g



Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)

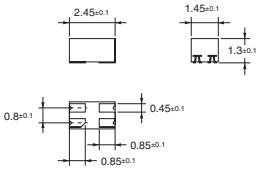


■VSON4

(Unit: mm)

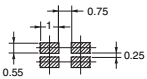
Surface-mounting Terminals

Weight: 0.01 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

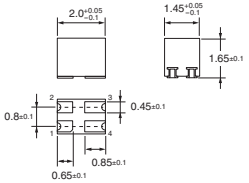
Dimensions and Appearance Examples

■S-VSON4

(Unit: mm)

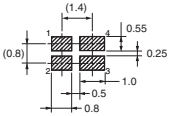
Surface-mounting Terminals

Weight: 0.01 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

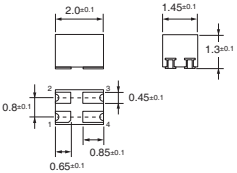
■S-VSON(L)*4

(Unit: mm)

Surface-mounting Terminals

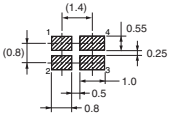
Weight: 0.01 g

* (L): Low profile type



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

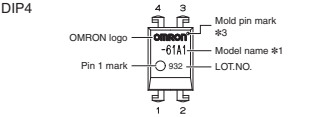


Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

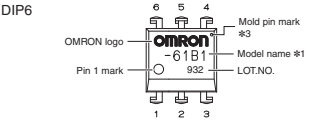
Appearance Examples

DIP (Dual Inline Package)

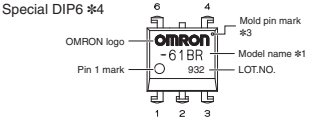
DIP4



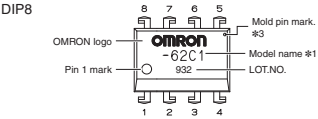
DIP6



Special DIP6 ✻4

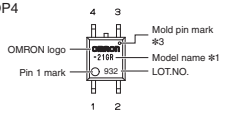


DIP8

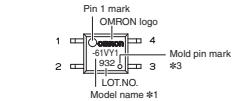


SOP (Small Outline Package)

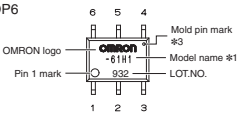
SOP4



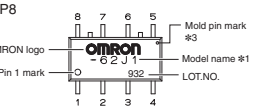
Special SOP4 ✻5



SOP6

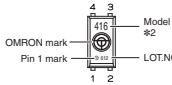


SOP8



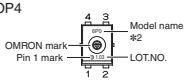
SSOP (Shrink Small Outline Package)

SSOP4



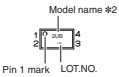
USOP (Ultra Small Outline Package)

USOP4



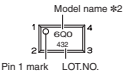
VSON (Very Small Outline Non-leaded)

VSON4



S-VSON (Super-Very Small Outline Non-leaded)

S-VSON4 pin / S-VSON(L)4 pin



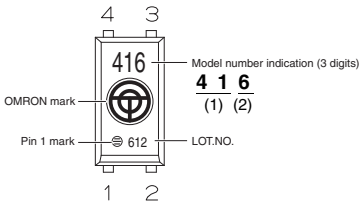
✻1. "G3VM" does not appear in the model numbers on DIP or SOP Relays.
✻2. Model numbers are given on SSOP4, USOP4, and VSON4 Relays according to the Model Number Indication Standards.
✻3. The indentation may appear in the corner diagonally opposite from the pin 1 mark due to extrusion by metal casting.
✻4. The external dimensions of the standard DIP 6-pin are the same, but the number of terminals is different.
✻5. The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same.

Dimensions and Appearance Examples

■Model Number Indication Standards for SSOP4, USOP4 and VSON4 Relays

* Only three digits are given for the model number due to the small package size.

●SSOP4



(1) Load voltage

21: 20 V
41: 40 V
51: 50 V
61: 60 V
81: 80 V
10: 100 V

Examples

416: G3VM-41LR6
21B: G3VM-21LR11

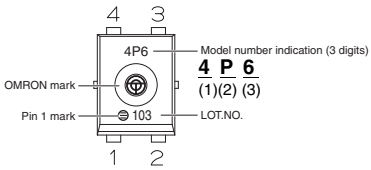
(2) Characters for Serial Numbers at the Ends of Model Numbers

0: Indicates no number at the end of the model number.
1 to 9: Indicate the given number.
Numbers 10 and higher indicate letters of the alphabet (A, B, C, etc.).

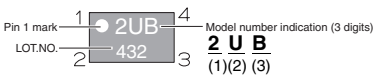
However, "101" is given for the G3VM-101LR

●USOP4,VSON4,S-VSON4

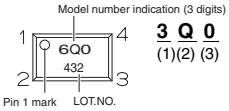
USOP4



VSON4



S-VSON 4/S-VSON(L) 4



USOP4,VSON4,S-VSON4 Relay

(1) Load voltage

2: 20 V
3: 30 V
4: 40 V
5: 50 V
6: 60 V
7: 75 V
8: 80 V
A: 100 V

(2) Package

P: USOP4
U: VSON4
Q: S-VSON4 4 pin
S-VSON(L)* 4 pin
* (L): Low profile type

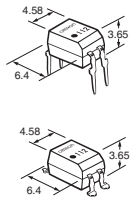
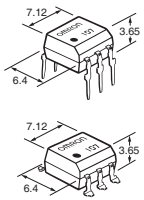
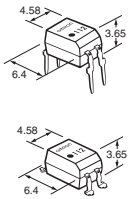
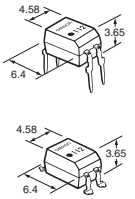
(3) Characters for Serial Numbers at the Ends of Model Numbers

0: Indicates no number at the end of the model number.
1 to 9: Indicate the given number.
Numbers 10 and higher indicate letters of the alphabet (A, B, C, etc.).

Examples

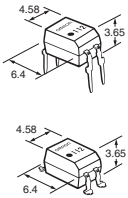
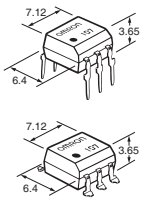
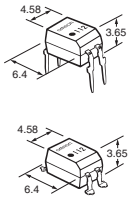
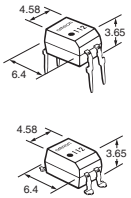
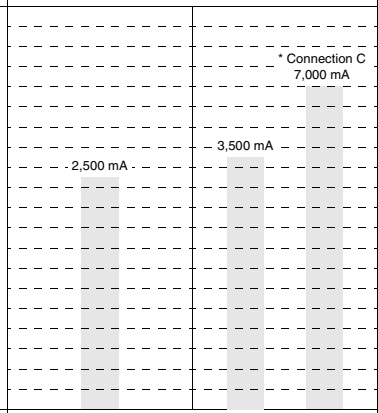
4P6: G3VM-41PR6
2UB: G3VM-21UR11

Product Table

Application			**For PCBs**		
Model		**G3VM-21AR G3VM-21DR**	**G3VM-21BR G3VM-21ER**	**G3VM-41AY G3VM-41DY**	**G3VM-41AY1 G3VM-41DY1**
Contact form		1a (SPST-NO)			
Package (Unit : mm, Average)		 DIP4	 DIP6	 DIP4	 DIP4
Features		• High-current and Low-ON-resistance Type • Load voltage: 20 V • Continuous load current : 3 A max.	• High-current and Low-ON-resistance Type • Load voltage: 20 V • Continuous load current: 4 A (8 A) max.* * Values in parentheses are for connection C.	• Small and High-dielectric-strength Type • Load voltage: 40 V • Dielectric strength between I/O: 5,000 VAC • Trigger LED forward current : 2 mA max.	• Small and High-dielectric-strength Type • Load voltage: 40 V • Dielectric strength between I/O: 5,000 VAC
Isolation method		Photodiode coupler			
Absolute maximum ratings	**Output** Load voltage: **AC peak / DC**	20 V		40 V	
	Output Continuous load current AC peak/ DC * 6-pin type connection C: DC	3,000 mA	*Connection C 8,000 mA 4,000 mA	2,000 mA	2,000 mA
	Input LED forward current	30 mA			
	Dielectric strength between I/O	2,500 VAC 50/60 Hz for 1 min.		5,000 VAC 50/60 Hz for 1 min.	
	Ambient operating temperature	-40 to +85°C (with no icing or condensation)			
Electrical characteristics	**Output** Maximum output ON resistance	0.08 Ω	Connection A: 0.05 Ω Connection B: 0.01 Ω (typical) Connection C: 0.005 Ω (typical)	0.15 Ω	
	Output Maximum OFF leakage current	1 μA (at 20 VDC)		1 μA (at 40 VDC)	
Terminal structure	Surface-mounting terminals	●			
	PCB terminals	●			
Mounting method		PCB mounting or Surface mounting			
Applicable standards		UL			
RoHS compliance		Compliant			
Weight		0.25 g	0.4 g	0.25 g	
Page		**110**	**115**	**147**	**147**

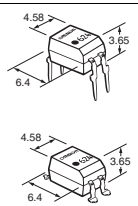
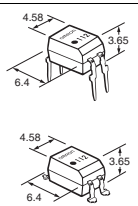
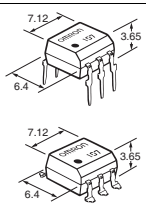
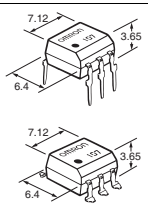
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

For PCBs				Application
G3VM-41AR G3VM-41DR	G3VM-41BR G3VM-41ER	G3VM-61A1 G3VM-61D1	G3VM-61AY G3VM-61DY	Model
1a (SPST-NO)				Contact form
 DIP4	 DIP6	 DIP4	 DIP4	Package (Unit : mm, Average)
• High-current and Low-ON-resistance Type • Load voltage: 40 V • Continuous load current : 2.5 A max.	• High-current and Low-ON-resistance Type • Load voltage: 40 V • Continuous load current: 3.5 A (7 A) max. * * Values in parentheses are for connection C.	• General-purpose Type • Load voltage: 60 V	• Small and High-dielectric-strength Type • Load voltage: 60 V • Dielectric strength between I/O: 5,000 VAC • Trigger LED forward current : 2 mA max.	Features
Photodiode coupler				Isolation method
40 V		60 V		AC peak / DC: Load voltage
				Continuous load current AC peak/ DC * 6-pin type connection C: DC Output Absolute maximum ratings
30 mA		50 mA	30 mA	LED forward current Input
2,500 VAC 50/60 Hz for 1 min.			5,000 VAC 50/60 Hz for 1 min.	Dielectric strength between I/O
-40 to +85°C (with no icing or condensation)				Ambient operating temperature
0.15 Ω	Connection A: 0.06 Ω Connection B: 0.015 Ω (typical) Connection C: 0.008 Ω (typical)	2 Ω		Maximum output ON resistance Output Electrical characteristics
1 μA (at 40 VDC)		1 μA (at 60 VDC)		Maximum OFF leakage current Output Electrical characteristics
●				Surface-mounting terminals Terminal structure
●				PCB terminals Terminal structure
PCB mounting or Surface mounting				Mounting method
UL				Applicable standards
Compliant				RoHS compliance
Approx. 0.25 g	Approx. 0.4 g	Approx. 0.25 g		Weight
110	**115**	**62**	**147**	Page

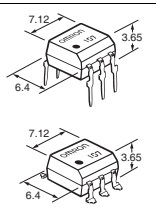
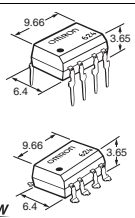
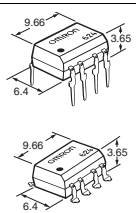
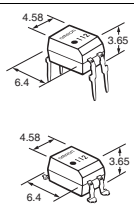
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			**For PCBs**			
Model			**G3VM-61AY1 G3VM-61DY1**	**G3VM-61AR G3VM-61DR**	**G3VM-61B1 G3VM-61E1**	**G3VM-61BR G3VM-61ER**
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 DIP4	 DIP4	 DIP6	 Special DIP6
Features			• Small and High-dielectric-strength Type • Load voltage: 60 V • Dielectric strength between I/O: 5,000 VAC	• High-current and Low-ON-resistance Type • Load voltage: 60 V • Continuous load current : 2 A max.	• General-purpose Type • Load voltage: 60 V	• High-current and Low-ON-resistance Type • Load voltage: 60 V • Continuous load current: 2.5 A max.
Isolation method			Photodiode coupler			
Absolute maximum ratings	**Output**	**Load voltage** AC peak / DC	60 V			
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	500 mA	2,000 mA	500 mA * Connection C 1,000 mA	2,500 mA
	Input	**LED forward current**	30 mA		50 mA	30 mA
	Dielectric strength between I/O		5,000 VAC 50/60 Hz for 1 min.	2,500 VAC 50/60 Hz for 1 min.		
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)			
Electrical characteristics	**Output**	**Maximum output ON resistance**	2 Ω	0.2 Ω	Connection A: 2 Ω Connection B: 1 Ω Connection C: 0.25 Ω (typical)	0.1 Ω
		Maximum OFF leakage current	1 μA (at 60 VDC)			10 nA (at 60 VDC)
Terminal structure	**Surface-mounting terminals**		●			
	PCB terminals		●			
Mounting method			PCB mounting or Surface mounting			
Applicable standards			UL			
RoHS compliance			Compliant			
Weight			Approx. 0.25 g		Approx. 0.4 g	
Page			**147**	**110**	**62**	**115**

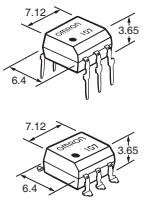
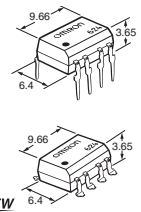
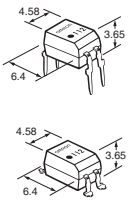
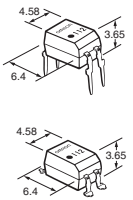
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

	For PCBs				Application		
	G3VM-61BR1 G3VM-61ER1	G3VM-61CR1 G3VM-61FR1	G3VM-62C1 G3VM-62F1	G3VM-101AR G3VM-101DR	Model		
	1a (SPST-NO)		2a (DPST-NO)	1a (SPST-NO)	Contact form		
					Package (Unit : mm, Average)		
	DIP6	*NEW* DIP8	DIP8	DIP4			
	• High-current and Low-ON-resistance Type • Load voltage: 60 V • Continuous load current : 3 A (6 A) max. * * Values in parentheses are for connection C.	• High-current and Low-ON-resistance Type • Load voltage: 60 V • Continuous load current : 5 A (10 A) max. * * Values in parentheses are for connection C.	• Multi-contact-pair Type • Load voltage: 60 V • Contact form: 2a (DPST-NO)	• High-current and Low-ON-resistance Type • Load voltage: 100 V • Continuous load current: 1 A max.	Features		
	Photodiode coupler				Isolation method		
	60 V			100 V	AC peak / DC	Load voltage	
	*Connection C 10,000 mA * Connection C 6,000 mA 5,000 mA 3,000 mA 1,000 mA 500 mA				10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000 2,000 1,000 900 800 700 600 500 400 300 200 100 Continuous load current AC peak/ DC * 6-pin type connection C: DC	Output	Absolute maximum ratings
	30 mA		50 mA	30 mA	LED forward current	Input	
	2,500 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O		
	-40 to +85°C (with no icing or condensation)				Ambient operating temperature		
	Connection A: 0.07 Ω Connection B: 0.02 Ω (typical) Connection C: 0.01 Ω (typical)	Connection A: 0.05 Ω Connection B: 0.025 Ω Connection C: 0.013 Ω	2 Ω	0.7 Ω	Maximum output ON resistance	Output	Electrical characteristics
	1 μA (at 60 VDC)	10 μA (at 60 VDC)	1 μA (at 60 VDC)	1 μA (at 100 VDC)	Maximum OFF leakage current		
	●				Surface-mounting terminals		Terminal structure
	●				PCB terminals		
	PCB mounting or Surface mounting				Mounting method		
	UL				Applicable standards		
	Compliant				RoHS compliance		
	Approx. 0.4 g	Approx. 0.54 g		Approx. 0.25 g	Weight		
	115	**121**	**98**	**110**	Page		

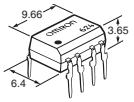
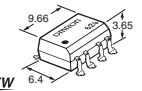
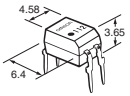
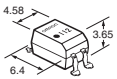
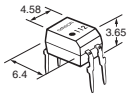
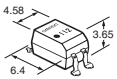
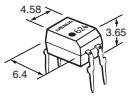
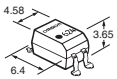
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs			
Model			G3VM-101BR G3VM-101ER	G3VM-101CR G3VM-101FR	G3VM-201AY G3VM-201DY	G3VM-201AY1 G3VM-201DY1
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 DIP6	 *NEW* DIP8	 DIP4	 DIP4
Features			• High-current and Low-ON-resistance Type • Load voltage: 100 V • Continuous load current : 2 A (4 A) max. * * Values in parentheses are for connection C.	• High-current and Low-ON-resistance Type • Load voltage: 100 V • Continuous load current : 3 A (6 A) max. * * Values in parentheses are for connection C.	• Small and High-dielectric-strength Type • Load voltage: 200 V • Dielectric strength between I/O: 5,000 VAC • Trigger LED forward current : 2 mA max.	• Small and High-dielectric-strength Type • Load voltage: 200 V • Dielectric strength between I/O: 5,000 VAC
Isolation method			Photodiode coupler			
Absolute maximum ratings	**Output**	**Load voltage** AC peak / DC	100 V		200 V	
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	2,000 mA * Connection C 4,000 mA	3,000 mA *Connection C 6,000 mA	250 mA	250 mA
	Input	**LED forward current**	30 mA			
	Dielectric strength between I/O		2,500 VAC 50/60 Hz for 1 min.		5,000 VAC 50/60 Hz for 1 min.	
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)	-40 to +110°C (with no icing or condensation)	-40 to +85°C (with no icing or condensation)	
Electrical characteristics	**Output**	**Maximum output ON resistance**	Connection A: 0.2 Ω Connection B: 0.05 Ω (typical) Connection C: 0.025 Ω (typical)	Connection A: 0.15 Ω Connection B: 0.075 Ω Connection C: 0.075 Ω	8 Ω	
		Maximum OFF leakage current	1 μA (at 100 VDC)		1 μA (at 200 VDC)	
Terminal structure		**Surface-mounting terminals**	●			
		PCB terminals	●			
Mounting method			PCB mounting or Surface mounting			
Applicable standards			UL			
RoHS compliance			Compliant			
Weight			Approx. 0.4 g	Approx. 0.54 g	Approx. 0.25 g	
Page			**115**	**121**	**147**	**147**

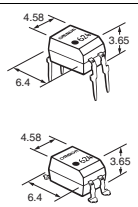
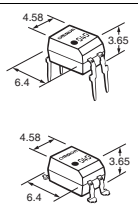
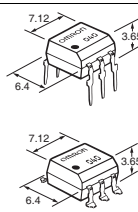
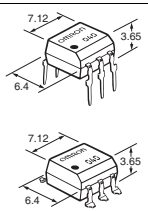
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

For PCBs				Application
G3VM-201CR G3VM-201FR	G3VM-351AY G3VM-351DY	G3VM-351AY1 G3VM-351DY1	G3VM-2L G3VM-2FL	Model
1a (SPST-NO)				Contact form
  NEW DIP8	  DIP4	  DIP4	  DIP4	Package (Unit : mm, Average)
• High-current and Low-ON-resistance Type • Load voltage: 200 V • Continuous load current : 1.5 A (3 A) max. * * Values in parentheses are for connection C.	• Small and High-dielectric-strength Type • Load voltage: 350 V • Dielectric strength between I/O: 5,000 VAC • Trigger LED forward current : 2 mA max.	• Small and High-dielectric-strength Type • Load voltage: 350 V • Dielectric strength between I/O: 5,000 VAC	• Current-limiting Type • Load voltage: 350 V • Current limit: 150 to 300 mA	Features
Photodiode coupler				Isolation method
200 V	350 V			AC peak / DC — Load voltage
* Connection C 3,000 mA 1,500 mA			Current limiting (Current limit: 150 to 300 mA) 120 mA	10,000 / 9,000 / 8,000 / 7,000 / 6,000 / 5,000 / 4,000 / 3,000 / 2,000 / 1,000 / 900 / 800 / 700 / 600 / 500 / 400 / 300 / 200 / 100 — Continuous load current AC peak/ DC * 6-pin type connection C: DC — Output — Absolute maximum ratings
	100 mA	100 mA		
30 mA			50 mA	LED forward current — Input
2,500 VAC 50/60 Hz for 1 min.	5,000 VAC 50/60 Hz for 1 min.		2,500 VAC 50/60 Hz for 1 min.	Dielectric strength between I/O
-40 to +85°C (with no icing or condensation)				Ambient operating temperature
Connection A: 0.5 Ω Connection B: 0.25 Ω Connection C: 0.25 Ω	50 Ω		35 Ω	Maximum output ON resistance — Output — Electrical characteristics
1 μA (at 200 VDC)	1 μA (at 350 VDC)			Maximum OFF leakage current
●				Surface-mounting terminals — Terminal structure
●				PCB terminals
PCB mounting or Surface mounting				Mounting method
UL				Applicable standards
Compliant				RoHS compliance
Approx. 0.54 g	Approx. 0.25 g			Weight
121	**147**	**147**	**159**	Page

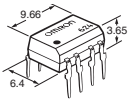
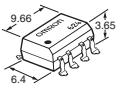
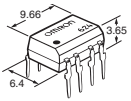
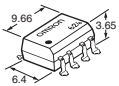
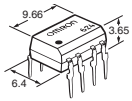
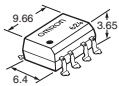
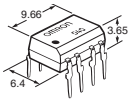
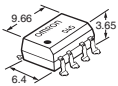
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs			
Model			G3VM-351A G3VM-351D	G3VM-353A G3VM-353D	G3VM-351B G3VM-351E	G3VM-353B G3VM-353E
Contact form			1a (SPST-NO)	1b (SPST-NC)	1a (SPST-NO)	1b (SPST-NC)
Package (Unit : mm, Average)			 DIP4	 DIP4	 DIP6	 DIP6
Features			• General-purpose Type • Load voltage: 350 V	• General-purpose Type • Load voltage: 350 V • Contact form: 1b (SPST-NC)	• General-purpose Type • Load voltage: 350 V	• General-purpose Type • Load voltage: 350 V • Contact form: 1b (SPST-NC)
Isolation method			Photodiode coupler			
Absolute maximum ratings	Output	Load voltage: AC peak / DC	350 V			
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000 2,000 1,000 900 800 700 600 500 400 300 200 100 120 mA	150 mA	* Connection C 240 mA 120 mA	* Connection C 300 mA 150 mA
	Input	LED forward current	50 mA			
	Dielectric strength between I/O		2,500 VAC 50/60 Hz for 1 min.			
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)			
Electrical characteristics	Output	Maximum output ON resistance	50 Ω	25 Ω	Connection A: 50 Ω Connection B: 40 Ω Connection C: 20 Ω	Connection A: 25 Ω Connection B: 14 Ω Connection C: 7 Ω
		Maximum OFF leakage current	1 μA (at 350 VDC)			
Terminal structure	Surface-mounting terminals		●			
	PCB terminals		●			
Mounting method			PCB mounting or Surface mounting			
Applicable standards			UL and BSI (EN 60950)	UL		
RoHS compliance			Compliant			
Weight			Approx. 0.25 g		Approx. 0.4 g	
Page			62	62	62	62

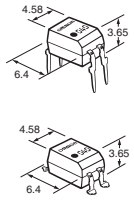
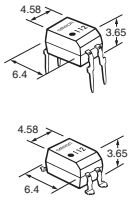
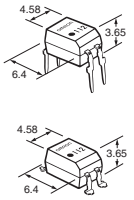
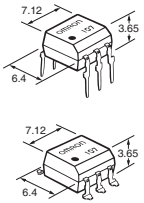
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

For PCBs				Application	
G3VM-355CR G3VM-355FR	G3VM-352C G3VM-352F	G3VM-WL G3VM-WFL	G3VM-354C G3VM-354F	Model	
1a1b (SPST-NO/SPST-NC)	2a (DPST-NO)			Contact form	
  DIP8	  DIP8	  DIP8	  DIP8	Package (Unit : mm, Average)	
• Multi-contact-pair Type • Load voltage: 350 V • Contact form: 1a1b (SPST-NO/SPST-NC)	• Multi-contact-pair Type • Load voltage: 350 V • Contact form: 2a (DPST-NO)	• Current-limiting Type • Load voltage: 350 V • Current limit: 150 to 300 mA	• Multi-contact-pair Type • Load voltage: 350 V • Contact form: 2b (DPST-NC)	Features	
Photodiode coupler				Isolation method	
350 V				AC peak / DC	Load voltage
120 mA	120 mA	Current limiting (Current limit: 150 to 300 mA) 120 mA	150 mA	10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000 2,000 1,000 900 800 700 600 500 400 300 200 100 **Continuous load current AC peak/ DC** * 6-pin type connection C: DC	Output
50 mA				LED forward current	Input
2,500 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O	Absolute maximum ratings
-40 to +85°C (with no icing or condensation)				Ambient operating temperature	
25 Ω	50 Ω	35 Ω	25 Ω	Maximum output ON resistance	Output
1 μA (at 350 VDC)				Maximum OFF leakage current	Electrical characteristics
●				Surface-mounting terminals	Terminal structure
●				PCB terminals	
PCB mounting or Surface mounting				Mounting method	
---	UL and BSI (EN 60950)	UL		Applicable standards	
Compliant				RoHS compliance	
Approx. 0.54 g				Weight	
98	**98**	**159**	**98**	Page	

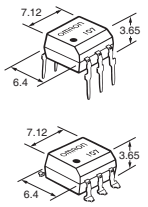
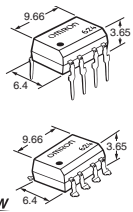
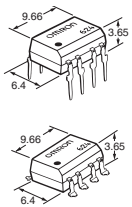
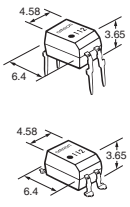
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs			
Model			G3VM-401A G3VM-401D	G3VM-401AY G3VM-401DY	G3VM-401AY1 G3VM-401DY1	G3VM-401B G3VM-401E
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 DIP4	 DIP4	 DIP4	 DIP6
Features			• General-purpose Type • Load voltage: 400 V	• Small and High-dielectric-strength Type • Load voltage: 400 V • Dielectric strength between I/O: 5,000 VAC • Trigger LED forward current : 2 mA max.	• Small and High-dielectric-strength Type • Load voltage: 400 V • Dielectric strength between I/O: 5,000 VAC	• General-purpose Type • Load voltage: 400 V
Isolation method			Photodiode coupler			
Absolute maximum ratings	**Output**	**Load voltage** AC peak / DC	400 V			
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	120 mA	120 mA	120 mA	120 mA * Connection C 240 mA
	Input	**LED forward current**	50 mA	30 mA		50 mA
	Dielectric strength between I/O		2,500 VAC 50/60 Hz for 1 min.	5,000 VAC 50/60 Hz for 1 min.		2,500 VAC 50/60 Hz for 1 min.
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)			
Electrical characteristics	**Output**	**Maximum output ON resistance**	35 Ω			Connection A: 35 Ω Connection B: 20 Ω Connection C: 10 Ω
		Maximum OFF leakage current	1 μA (at 400 VDC)			
Terminal structure	**Surface-mounting terminals**		●			
	PCB terminals		●			
Mounting method			PCB mounting or Surface mounting			
Applicable standards			UL			
RoHS compliance			Compliant			
Weight			Approx. 0.25 g			Approx. 0.4 g
Page			**62**	**147**	**147**	**62**

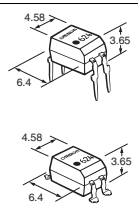
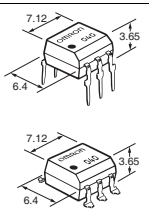
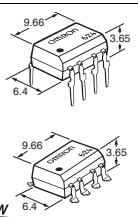
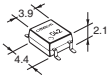
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

For PCBs				Application
G3VM-401BY G3VM-401EY	G3VM-401CR G3VM-401FR	G3VM-402C G3VM-402F	G3VM-601AY G3VM-601DY	Model
1a (SPST-NO)		2a (DPST-NO)	1a (SPST-NO)	Contact form
				Package (Unit : mm, Average)
DIP6	*NEW* DIP8	DIP8	DIP4	
• High-dielectric-strength Type • Load voltage: 400 V • Dielectric strength between I/O: 5,000 VAC	• High-current and Low-ON-resistance Type • Load voltage: 400 V • Continuous load current : 0.4 A (0.8 A) max. * * Values in parentheses are for connection C.	• Multi-contact-pair Type • Load voltage: 400 V • Contact form: 2a (DPST-NO)	• Small and High-dielectric-strength Type • Load voltage :600 V • Dielectric strength between I/O: 5,000 VAC • Trigger LED forward current : 2 mA max.	Features
Photodiode coupler				Isolation method
400 V			600 V	AC peak / DC — Load voltage — Output — Absolute maximum ratings
120 mA (Connection C 240 mA)	400 mA (* Connection C 800 mA)	120 mA	90 mA	Continuous load current AC peak/ DC (* 6-pin type connection C: DC) — Output — Absolute maximum ratings
50 mA	30 mA	50 mA	30 mA	LED forward current — Input — Absolute maximum ratings
5,000 VAC 50/60 Hz for 1 min.	2,500 VAC 50/60 Hz for 1 min.		5,000 VAC 50/60 Hz for 1 min.	Dielectric strength between I/O — Absolute maximum ratings
-40 to +85°C (with no icing or condensation)				Ambient operating temperature — Absolute maximum ratings
Connection A: 35 Ω Connection B: 20 Ω Connection C: 10 Ω	Connection A: 5 Ω Connection B: 2.5 Ω Connection C: 1.3 Ω	35 Ω	65 Ω	Maximum output ON resistance — Output — Electrical characteristics
1 μA (at 400 VDC)			1 μA (at 600 VDC)	Maximum OFF leakage current — Output — Electrical characteristics
●				Surface-mounting terminals — Terminal structure
●				PCB terminals — Terminal structure
PCB mounting or Surface mounting				Mounting method
UL				Applicable standards
Compliant				RoHS compliance
Approx. 0.4 g	Approx. 0.54 g		Approx. 0.25 g	Weight
155	**121**	**98**	**147**	Page

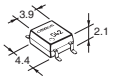
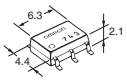
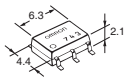
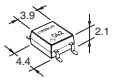
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			**For PCBs**			
Model			**G3VM-601AY1 G3VM-601DY1**	**G3VM-601BY G3VM-601EY**	**G3VM-601CR G3VM-601FR**	**G3VM-21GR**
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 DIP4	 DIP6	 *NEW* DIP8	 SOP4
Features			• Small and High-dielectric-strength Type • Load voltage: 600 V • Dielectric strength between I/O: 5,000 VAC	• High-dielectric-strength Type • Load voltage: 600 V • Dielectric strength between I/O: 5,000 VAC	• High-current and Low-ON-resistance Type • Load voltage: 600 V • Continuous load current : 0.6 A (1.2 A) max. * * Values in parentheses are for connection C.	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 5 pF · Ω • C_{OFF} (typical) = 1 pF
Isolation method			Photodiode coupler			
Absolute maximum ratings	**Output**	**Load voltage** AC peak / DC	600 V			20 V
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	90 mA	100 mA * Connection C 200 mA	600 mA * Connection C 1,200 mA	160 mA
	Input	**LED forward current**	30 mA	50 mA	30 mA	50 mA
	Dielectric strength between I/O		5,000 VAC 50/60 Hz for 1 min.		2,500 VAC 50/60 Hz for 1 min.	1,500 VAC 50/60 Hz for 1 min.
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)			-20 to +85°C (with no icing or condensation)
Electrical characteristics	**Output**	**Maximum output ON resistance**	60 Ω	Connection A: 45 Ω Connection B: 35 Ω Connection C: 18 Ω	Connection A: 2 Ω Connection B: 1 Ω Connection C: 0.5 Ω	8 Ω
		Maximum OFF leakage current	1 μA (at 600 VDC)		10 μA (at 600 VDC)	1 nA (at 20 VDC)
Terminal structure	**Surface-mounting terminals**		●			● (SOP)
	PCB terminals		●			
Mounting method			PCB mounting or Surface mounting			Surface mounting
Applicable standards			UL			
RoHS compliance			Compliant			
Weight			Approx. 0.25 g	Approx. 0.4 g	Approx. 0.54 g	Approx. 0.1 g
Page			**147**	**155**	**121**	**165**

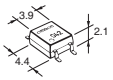
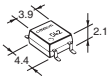
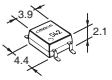
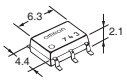
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

For PCBs				Application
G3VM-21GR1	G3VM-21HR	G3VM-31HR	G3VM-41GR6	Model
1a (SPST-NO)				Contact form
 SOP4	 SOP6	 NEW SOP6	 SOP4	Package (Unit : mm, Average)
• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 5 pF · Ω • RON (typical) = 1 Ω	• High-current and Low-ON-resistance Type • Load voltage: 20 V • Continuous load current : 2.5 A (5 A) max. * * Values in parentheses are for connection C.	• High-current and Low-ON-resistance Type • Load voltage: 30 V • Continuous load current : 4 A (8 A) max. * * Values in parentheses are for connection C.	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 10 pF · Ω • COFF (typical) = 1 pF	Features
Photodiode coupler				Isolation method
20 V		30 V	40 V	AC peak / DC — Load voltage — Absolute maximum ratings
300 mA	* Connection C 5,000 mA 2,500 mA	* Connection C 8,000 mA 4,000 mA	120 mA	10,000 / 9,000 / 8,000 / 7,000 / 6,000 / 5,000 / 4,000 / 3,000 / 2,000 / 1,000 / 900 / 800 / 700 / 600 / 500 / 400 / 300 / 200 / 100 Continuous load current AC peak/ DC * 6-pin type connection C: DC — Output
50 mA	30 mA		50 mA	LED forward current — Input
1,500 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O
-20 to +85°C (with no icing or condensation)	-40 to +85°C (with no icing or condensation)		-20 to +85°C (with no icing or condensation)	Ambient operating temperature
1.5 Ω	Connection A: 0.05 Ω Connection B: 0.025 Ω Connection C: 0.005 Ω (typical)	Connection A: 0.02 Ω Connection B: 0.008 Ω Connection C: 0.004 Ω (typical)	15 Ω	Maximum output ON resistance — Output — Electrical characteristics
1 nA (at 20 VDC)	10 nA (at 20 VDC)	1 μA (at 30 VDC)	1 nA (at 30 VDC)	Maximum OFF leakage current — Output — Electrical characteristics
● (SOP)				Surface-mounting terminals — Terminal structure
				PCB terminals — Terminal structure
Surface mounting				Mounting method
UL				Applicable standards
Compliant				RoHS compliance
Approx. 0.1 g	Approx. 0.13 g		Approx. 0.1 g	Weight
165	**131**	**131**	**165**	Page

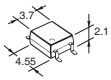
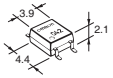
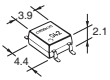
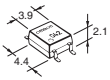
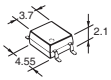
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			**For PCBs**			
Model			**G3VM-41GR4**	**G3VM-41GR5**	**G3VM-41GR8**	**G3VM-41HR**
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 SOP4	 SOP4	 SOP4	 SOP6
Features			• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 10 pF · Ω • R_{ON} (typical) = 2 Ω	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 10 pF · Ω • R_{ON} (typical) = 1 Ω	• High-current and Low-ON-resistance Type • Load voltage: 40 V • Continuous load current: 1 A max.	• High-current and Low-ON-resistance Type • Load voltage: 40 V • Continuous load current : 2.5 A (5 A) max. * * Values in parentheses are for connection C.
Isolation method			Photodiode coupler			
Absolute maximum ratings	**Output**	**Load voltage** AC peak / DC	40 V			
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	250 mA	300 mA	1,000 mA	2,500 mA * Connection C 5,000 mA
	Input	**LED forward current**	50 mA		30 mA	
	Dielectric strength between I/O		1,500 VAC 50/60 Hz for 1 min.			
	Ambient operating temperature		-20 to +85°C (with no icing or condensation)		-40 to +85°C (with no icing or condensation)	
Electrical characteristics	**Output**	**Maximum output ON resistance**	3 Ω	1.5 Ω	0.13 Ω	Connection A: 0.06 Ω Connection B: 0.03 Ω Connection C: 0.008 Ω (typical)
		Maximum OFF leakage current	1 nA (at 30 VDC)			10 nA (at 40 VDC)
Terminal structure	**Surface-mounting terminals**		● (SOP)			
	PCB terminals					
Mounting method			Surface mounting			
Applicable standards			UL			
RoHS compliance			Compliant			
Weight			Approx. 0.1 g			Approx. 0.13 g
Page			**165**	**165**	**127**	**131**

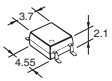
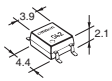
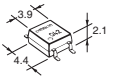
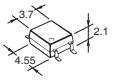
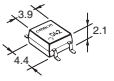
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

	For PCBs					Application	
	G3VM-61VY1	G3VM-61G1	G3VM-61G2	G3VM-61G3	G3VM-61VY2	Model	
	1a (SPST-NO)					Contact form	
	 Special SOP4	 SOP4	 SOP4	 SOP4	 ***NEW*** Special SOP4	Package (Unit : mm, Average)	
	• General-purpose Type • Load voltage: 60 V • Dielectric strength between I/O: 3,750 VAC	• General-purpose Type • Load voltage: 60 V	• General-purpose Type • Load voltage: 60 V • Trigger LED forward current : 1 mA max.	• General-purpose Type • Load voltage: 60 V • Trigger LED forward current : 0.2 mA max.	• General-purpose Type • Continuous load current : 0.5A max. • Dielectric strength between I/O: 3,750 VAC • High Ambient operating temperature: -40 to +110°C	Features	
	Photodiode coupler					Isolation method	
	60 V					AC peak / DC	Load voltage
	100 mA	400 mA	400 mA	400 mA	500 mA	Continuous load current AC peak/ DC * 6-pin type connection C: DC	Output
	30 mA	50 mA		30 mA		LED forward current	Input
	3,750 VAC 50/60 Hz for 1 min.	1,500 VAC 50/60 Hz for 1 min.			3,750 VAC 50/60 Hz for 1 min.	Dielectric strength between I/O	Absolute maximum ratings
	-40 to +85°C (with no icing or condensation)				-40 to +110°C (with no icing or condensation)	Ambient operating temperature	
	50 Ω	2 Ω				Maximum output ON resistance	Output
	1 μA (at 60 VDC)					Maximum OFF leakage current	Electrical characteristics
	● (SOP)					Surface-mounting terminals	Terminal structure
						PCB terminals	
	Surface mounting					Mounting method	
	UL					Applicable standards	
	Compliant					RoHS compliance	
	Approx. 0.1 g					Weight	
	68	68	68	68	68	Page	

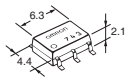
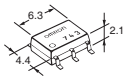
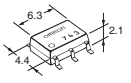
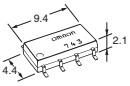
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs					
Model			G3VM-61VY3	G3VM-61GR1	G3VM-61GR2	G3VM-61VR	G3VM-63G	
Contact form			1a (SPST-NO)				1b (SPST-NC)	
Package (Unit : mm, Average)			 NEW Special SOP4	 SOP4	 NEW SOP4	 NEW Special SOP4	 NEW SOP4	
Features			• General-purpose Type • Continuous load current : 0.7A max. • Dielectric strength between I/O: 3,750 VAC • High Ambient operating temperature: -40 to +110°C	• High-current and Low-ON-resistance Type • Load voltage: 60 V • Continuous load current : 1 A max.	• High-current and Low-ON-resistance Type • Load voltage: 60 V • Continuous load current : 1.7 A max.	• High-current and Low-ON-resistance Type • Continuous load current : 1.4 A max. • Dielectric strength between I/O: 3,750 VAC • High Ambient operating temperature: -40 to +110°C	• General-purpose Type • Load voltage: 60 V • Contact form: 1b (SPST-NC)	
Isolation method			Photodiode coupler					
Absolute maximum ratings	Output	Load voltage: AC peak / DC	60 V					
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	700 mA	1,000 mA	1,700 mA	1,400 mA	500 mA	
	Input	LED forward current	30 mA	50 mA	30 mA	50 mA		
		Dielectric strength between I/O	3,750 VAC 50/60 Hz for 1 min.	1,500 VAC 50/60 Hz for 1 min.		3,750 VAC 50/60 Hz for 1 min.	1,500 VAC 50/60 Hz for 1 min.	
		Ambient operating temperature	-40 to +110°C (with no icing or condensation)	-20 to +85°C (with no icing or condensation)	-40 to +85°C (with no icing or condensation)	-40 to +110°C (with no icing or condensation)	-40 to +85°C (with no icing or condensation)	
Electrical characteristics	Output	Maximum output ON resistance	2 Ω	0.7 Ω	0.13 Ω	0.25 Ω	2.5 Ω	
		Maximum OFF leakage current	1 μA (at 60 VDC)	0.1 μA (at 60 VDC)	0.01 μA (at 60 VDC)	1 μA (at 60 VDC)		
Terminal structure	Surface-mounting terminals		● (SOP)					
	PCB terminals							
Mounting method			Surface mounting					
Applicable standards			UL					
RoHS compliance			Compliant					
Weight			Approx. 0.1 g	Approx. 0.13 g	Approx. 0.1 g			
Page			68	127	127	127	68	

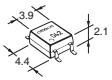
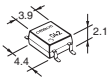
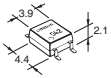
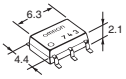
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

	For PCBs				Application	
	G3VM-61H1	G3VM-61HR	G3VM-61HR1	G3VM-62J1	Model	
	1a (SPST-NO)			2a (DPST-NO)	Contact form	
					Package (Unit : mm, Average)	
	SOP6	SOP6	***NEW*** SOP6	SOP8		
	• General-purpose Type • Load voltage: 60 V	• High-current and Low-ON-resistance Type • Load voltage: 60 V • Continuous load current: 2.3 A (4.6 A) max. * * Values in parentheses are for connection C.	• High-current and Low-ON-resistance Type • Load voltage: 60 V • Continuous load current: 3.3 A (6.6 A) max. * * Values in parentheses are for connection C.	• General-purpose Type • Load voltage: 60 V	Features	
	Photodiode coupler				Isolation method	
	60 V				AC peak / DC — Load voltage	Absolute maximum ratings
	* Connection C 800 mA; 400 mA	* Connection C 4,600 mA; 2,300 mA	* Connection C 6,600 mA; 3,300 mA	400 mA	Continuous load current AC peak/ DC * 6-pin type connection C: DC — Output	Absolute maximum ratings
	50 mA	30 mA		50 mA	LED forward current — Input	Absolute maximum ratings
	1,500 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O	
	-40 to +85°C (with no icing or condensation)				Ambient operating temperature	
	Connection A: 2 Ω Connection B: 1 Ω Connection C: 0.25 Ω (typical)	Connection A: 0.07 Ω Connection B: 0.04 Ω Connection C: 0.01 Ω (typical)	Connection A: 0.06 Ω Connection B: 0.015 Ω (typical) Connection C: 0.008 Ω (typical	2 Ω	Maximum output ON resistance — Output	Electrical characteristics
	1 μA (at 60 VDC)	10 nA (at 60 VDC)	0.02 μA (at 60 VDC)	1 μA (at 60 VDC)	Maximum OFF leakage current — Output	Electrical characteristics
	● (SOP)				Surface-mounting terminals	Terminal structure
					PCB terminals	Terminal structure
	Surface mounting				Mounting method	
	UL				Applicable standards	
	Compliant				RoHS compliance	
	Approx. 0.1 g	Approx. 0.13 g		Approx. 0.2 g	Weight	
	88	**131**	**131**	**104**	Page	

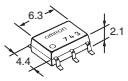
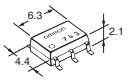
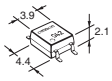
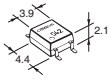
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs			
Model			G3VM-81GR	G3VM-81GR1	G3VM-81G1	G3VM-81HR
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 SOP4	 SOP4	 SOP4	 SOP6
Features			• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 80 V	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 80 V	• General-purpose Type • Load voltage: 80 V	• High-current and Low-ON-resistance Type • Load voltage: 80 V • Continuous load current: 1.25 A (2.5 A) max. * * Values in parentheses are for connection C.
Isolation method			Photodiode coupler			
Absolute maximum ratings	Output	Load voltage: AC peak / DC	80 V			
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	10,000 – 9,000 – 8,000 – 7,000 – 6,000 – 5,000 – 4,000 – 3,000 – 2,000 – 1,000 – 900 – 800 – 700 – 600 – 500 – 400 – 300 – 200 – 100 40 mA	200 mA	350 mA	* Connection C: 2,500 mA 1,250 mA
	Input	LED forward current	50 mA			
Dielectric strength between I/O			1,500 VAC 50/60 Hz for 1 min.			
Ambient operating temperature			-20 to +85°C (with no icing or condensation)			
Electrical characteristics	Output	Maximum output ON resistance	25 Ω	8 Ω	1.2 Ω	Connection A: 0.15 Ω Connection B: 0.08 Ω Connection C: 0.04 Ω
		Maximum OFF leakage current	1 nA (at 80 VDC)		1 nA (at 30 VDC)	1.5 nA (at 20 VDC)
Terminal structure	Surface-mounting terminals		● (SOP)			
	PCB terminals					
Mounting method			Surface mounting			
Applicable standards			UL			
RoHS compliance			Compliant			
Weight			Approx. 0.1 g			
Page			**165**	**165**	**73**	**137**

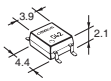
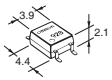
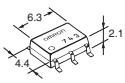
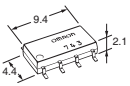
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

	For PCBs				Application
	G3VM-101HR	G3VM-101HR1	G3VM-201G	G3VM-201G1	Model
	1a (SPST-NO)				Contact form
	 SOP6	 ***NEW*** SOP6	 SOP4	 SOP4	Package (Unit : mm, Average)
	• High-current and Low-ON-resistance Type • Load voltage: 100 V • Continuous load current: 1.4 A (2.8 A) max. * * Values in parentheses are for connection C.	• High-current and Low-ON-resistance Type • Load voltage: 100 V • Continuous load current: 2 A (4 A) max. * * Values in parentheses are for connection C.	• General-purpose Type • Load voltage: 200 V	• General-purpose Type • Load voltage: 200 V • Trigger LED forward current : 1 mA max.	Features
	Photodiode coupler				Isolation method
	100 V		200 V		AC peak / DC — Load voltage — Output — Absolute maximum ratings
	* Connection C 2,800 mA; 1,400 mA	* Connection C 4,000 mA; 2,000 mA	50 mA	200 mA	Continuous load current AC peak/ DC * 6-pin type connection C: DC — Output — Absolute maximum ratings
	30 mA		50 mA		LED forward current — Input — Absolute maximum ratings
	1,500 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O — Absolute maximum ratings
	-40 to +85°C (with no icing or condensation)				Ambient operating temperature — Absolute maximum ratings
	Connection A: 0.2 Ω Connection B: 0.1 Ω Connection C: 0.025 Ω (typical)	Connection A: 0.045 Ω Connection B: 0.022 Ω Connection C: 0.011 Ω (typical)	50 Ω	8 Ω	Maximum output ON resistance — Output — Electrical characteristics
	10 nA (at 100 VDC)	1 μA (at 100 VDC)	1 nA (at 160 VDC)	1 μA (at 200 VDC)	Maximum OFF leakage current — Output — Electrical characteristics
	● (SOP)				Surface-mounting terminals — Terminal structure
					PCB terminals — Terminal structure
	Surface mounting				Mounting method
	UL				Applicable standards
	Compliant				RoHS compliance
	Approx. 0.13 g		Approx. 0.1 g		Weight
	137	**137**	**77**	**77**	Page

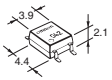
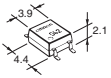
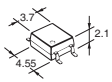
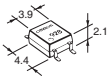
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs			
Model			G3VM-201G2	G3VM-S5	G3VM-201H1	G3VM-201H1
Contact form			1a (SPST-NO)			2a (DPST-NO)
Package (Unit : mm, Average)			 SOP4	 SOP4	 SOP6	 SOP8
Features			• General-purpose Type • Load voltage: 200 V • Trigger LED forward current : 0.2 mA max.	• General-purpose Type • Load voltage: 200 V	• General-purpose Type • Load voltage: 200 V	• Multi-contact-pair Type • Load voltage: 200 V • Contact form: 2a (DPST-NO)
Isolation method			Photodiode coupler			
Absolute maximum ratings	Output	Load voltage: AC peak / DC	200 V			
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	200 mA	200 mA	200 mA * Connection C 400 mA	200 mA
	Input	LED forward current	30 mA	50 mA		
	Dielectric strength between I/O		1,500 VAC 50/60 Hz for 1 min.			
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)			
Electrical characteristics	Output	Maximum output ON resistance	8 Ω		Connection A: 8 Ω Connection B: 5 Ω Connection C: 1.5 Ω (typical)	8 Ω
		Maximum OFF leakage current	1 μA (at 200 VDC)			
Terminal structure	Surface-mounting terminals		● (SOP)			
	PCB terminals					
Mounting method			Surface mounting			
Applicable standards			UL			
RoHS compliance			Compliant			
Weight			Approx. 0.1 g		Approx. 0.13 g	Approx. 0.2 g
Page			**77**	**77**	**88**	**88**

* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

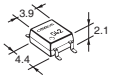
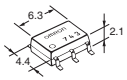
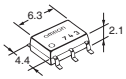
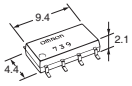
Product Table

For PCBs				Application	
G3VM-351G1	G3VM-351G	G3VM-351VY	G3VM-351GL	Model	
1a (SPST-NO)				Contact form	
 SOP4	 SOP4	 ***NEW*** Special SOP4	 SOP4	Package (Unit : mm, Average)	
• General-purpose Type • Load voltage: 350 V • Trigger LED forward current : 1 mA max.	• General-purpose Type • Load voltage: 350 V	• General-purpose Type • Load voltage: 350 V • Dielectric strength between I/O: 3,750 VAC • High Ambient operating temperature: -40 to +110°C	• Current-limiting Type • Load voltage: 350 V • Current limit: 150 to 300 mA	Features	
Photodiode coupler				Isolation method	
350 V				AC peak / DC	Load voltage
10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000 2,000 1,000 900 800 700 600 500 400 300 200 100				Continuous load current AC peak/ DC * 6-pin type connection C: DC	Output
100 mA	110 mA	110 mA	Current limiting (Current limit: 150 to 300 mA) 120 mA		
50 mA		30 mA	50 mA	LED forward current	Input
1,500 VAC 50/60 Hz for 1 min.		3,750 VAC 50/60 Hz for 1 min.	1,500 VAC 50/60 Hz for 1 min.	Dielectric strength between I/O	
-40 to +85°C (with no icing or condensation)		-40 to +110°C (with no icing or condensation)	-40 to +85°C (with no icing or condensation)	Ambient operating temperature	
50 Ω			35 Ω	Maximum output ON resistance	Output
1 μA (at 350 VDC)				Maximum OFF leakage current	
● (SOP)				Surface-mounting terminals	Terminal structure
				PCB terminals	
Surface mounting				Mounting method	
UL			---	Applicable standards	
Compliant				RoHS compliance	
Approx. 0.1 g		Approx. 0.03 g	Approx. 0.1 g	Weight	
82	**82**	**82**	**159**	Page	

Absolute maximum ratings / Electrical characteristics

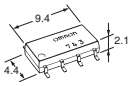
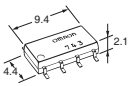
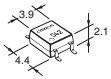
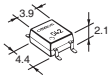
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs			
Model			G3VM-353G	G3VM-351H	G3VM-353H	G3VM-355JR
Contact form			1b (SPST-NC)	1a (SPST-NO)	1b (SPST-NC)	1a1b (SPST-NO/SPST-NC)
Package (Unit : mm, Average)			 SOP4	 SOP6	 SOP6	 SOP8
Features			• General-purpose Type • Load voltage: 350 V • Contact form: 1b (SPST-NC)	• General-purpose Type • Load voltage: 350 V	• General-purpose Type • Load voltage: 350 V • Contact form: 1b (SPST-NC)	• Multi-contact-pair Type • Load voltage: 350 V • Contact form: 1a1b (SPST-NO/SPST-NC)
Isolation method			Photodiode coupler			
Absolute maximum ratings	Output	Load voltage: AC peak / DC	350 V			
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	120 mA	110 mA * Connection C: 220 mA	120 mA * Connection C: 240 mA	120 mA
	Input	LED forward current	50 mA			
	Dielectric strength between I/O		1,500 VAC 50/60 Hz for 1 min.			
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)			
Electrical characteristics	Output	Maximum output ON resistance	25 Ω	Connection A: 50 Ω Connection B: 40 Ω Connection C: 20 Ω	Connection A: 25 Ω Connection B: 14 Ω Connection C: 4 Ω (typical)	25 Ω
		Maximum OFF leakage current	1 μA (at 350 VDC)			
Terminal structure	Surface-mounting terminals		● (SOP)			
	PCB terminals					
Mounting method			Surface mounting			
Applicable standards			UL			
RoHS compliance			Compliant			
Weight			Approx. 0.1 g	Approx. 0.13 g		Approx. 0.2 g
Page			82	88	88	104

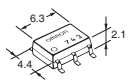
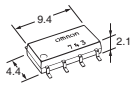
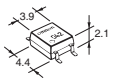
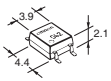
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

For PCBs				Application
G3VM-352J	G3VM-354J	G3VM-401G1	G3VM-401G	Model
2a (DPST-NO)	2b (DPST-NC)	1a (SPST-NO)		Contact form
 SOP8	 SOP8	 SOP4	 SOP4	Package (Unit : mm, Average)
• Multi-contact-pair Type • Load voltage: 350 V • Contact form: 2a (DPST-NO)	• Multi-contact-pair Type • Load voltage: 350 V • Contact form: 2b (DPST-NC)	• General-purpose Type • Load voltage: 400 V • Trigger LED forward current : 0.2 mA max.	• General-purpose Type • Load voltage: 400 V	Features
Photodiode coupler				Isolation method
350 V		400 V		AC peak / DC — Load voltage — Absolute maximum ratings
110 mA	120 mA	100 mA	120 mA	Continuous load current AC peak/ DC (10,000 … 100) * 6-pin type connection C: DC — Output
50 mA		30 mA	50 mA	LED forward current — Input
1,500 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O
-40 to +85°C (with no icing or condensation)				Ambient operating temperature
50 Ω	25 Ω	35 Ω		Maximum output ON resistance — Output — Electrical characteristics
1 μA (at 350 VDC)		1 μA (at 400 VDC)		Maximum OFF leakage current — Output — Electrical characteristics
● (SOP)				Surface-mounting terminals — Terminal structure
				PCB terminals — Terminal structure
Surface mounting				Mounting method
UL		UL certification is pending	UL and BSI (EN 60950)	Applicable standards
Compliant				RoHS compliance
Approx. 0.2 g		Approx. 0.1 g		Weight
104	104	82	82	Page

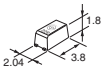
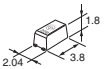
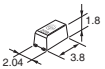
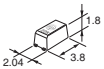
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs			
Model			G3VM-401H	G3VM-402J	G3VM-601G1	G3VM-601G
Contact form			1a (SPST-NO)	2a (DPST-NO)	1a (SPST-NO)	
Package (Unit : mm, Average)			 SOP6	 SOP8	 SOP4	 SOP4
Features			• General-purpose Type • Load voltage: 400 V	• Multi-contact-pair Type • Load voltage: 400 V • Contact form: 2a (DPST-NO)	• General-purpose Type • Load voltage: 600 V • Trigger LED forward current : 0.2 mA max.	• General-purpose Type • Load voltage: 600 V
Isolation method			Photodiode coupler			
Absolute maximum ratings	Output	Load voltage: AC peak / DC	400 V		600 V	
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	120 mA (* Connection C 240 mA)	120 mA	70 mA	90 mA
	Input	LED forward current	50 mA		30 mA	50 mA
		Dielectric strength between I/O	1,500 VAC 50/60 Hz for 1 min.			
		Ambient operating temperature	-40 to +85°C (with no icing or condensation)			
Electrical characteristics	Output	Maximum output ON resistance	Connection A: 35 Ω Connection B: 20 Ω Connection C: 6 Ω (typical)	35 Ω	60 Ω	
		Maximum OFF leakage current	1 μA (at 400 VDC)		1 μA (at 600 VDC)	
Terminal structure		Surface-mounting terminals	● (SOP)			
		PCB terminals				
Mounting method			Surface mounting			
Applicable standards			UL and BSI (EN 60950)		UL	
RoHS compliance			Compliant			
Weight			Approx. 0.13 g	Approx. 0.2 g	Approx. 0.1 g	
Page			88	104	94	94

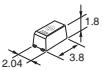
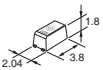
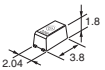
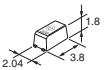
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

	For PCBs				Application	
	G3VM-21LR	G3VM-21LR10	G3VM-21LR1	G3VM-21LR11	Model	
	1a (SPST-NO)				Contact form	
	 SSOP4	 SSOP4	 SSOP4	 SSOP4	Package (Unit : mm, Average)	
	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 5 pF · Ω • C_{OFF} (typical) = 1 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 2.4 pF · Ω • C_{OFF} (typical) = 0.8 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 4 pF · Ω • R_{ON} (typical) = 0.8 Ω	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 7.2 pF · Ω • R_{ON} (typical) = 0.18 Ω	Features	
	Photodiode coupler				Isolation method	
	20 V				AC peak / DC (Load voltage)	Absolute maximum ratings
	160 mA	200 mA	450 mA	900 mA	10,000 / 9,000 / 8,000 / 7,000 / 6,000 / 5,000 / 4,000 / 3,000 / 2,000 / 1,000 / 900 / 800 / 700 / 600 / 500 / 400 / 300 / 200 / 100 Continuous load current AC peak/ DC * 6-pin type connection C: DC	Output
	50 mA	30 mA	50 mA		LED forward current	Input
	1,500 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O	
	-20 to +85°C (with no icing or condensation)				Ambient operating temperature	
	8 Ω	5 Ω	1.2 Ω	0.22 Ω	Maximum output ON resistance	Output / Electrical characteristics
	1 nA (at 20 VDC)	0.2 nA (at 20 VDC)	1 nA (at 20 VDC)		Maximum OFF leakage current	Output / Electrical characteristics
	● (SSOP)				Surface-mounting terminals	Terminal structure
					PCB terminals	Terminal structure
	Surface mounting				Mounting method	
	UL				Applicable standards	
	Compliant				RoHS compliance	
	Approx. 0.03 g				Weight	
	170	170	170	170	Page	

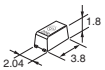
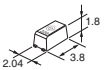
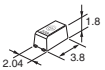
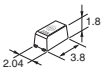
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs			
Model			G3VM-41LR10	G3VM-41LR6	G3VM-41LR11	G3VM-41LR4
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 SSOP4	 SSOP4	 SSOP4	 SSOP4
Features			• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 5.4 pF · Ω • COFF (typical) = 0.45 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 10 pF · Ω • COFF (typical) = 1 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 4.9 pF · Ω • COFF (typical) = 0.7 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 10 pF · Ω • RON (typical) = 2 Ω
Isolation method			Photodiode coupler			
Absolute maximum ratings	Output	Load voltage	AC peak / DC	40 V		
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	10,000 to 100	120 mA	120 mA	140 mA	250 mA
	Input	LED forward current		30 mA	50 mA	30 mA	50 mA
	Dielectric strength between I/O			1,500 VAC 50/60 Hz for 1 min.			
	Ambient operating temperature			-20 to +85°C (with no icing or condensation)			
Electrical characteristics	Output	Maximum output ON resistance		14 Ω	15 Ω	10 Ω	3 Ω
		Maximum OFF leakage current		0.2 nA (at 35 VDC)	1 nA (at 30 VDC)	0.2 nA (at 35 VDC)	1 nA (at 30 VDC)
Terminal structure	Surface-mounting terminals			● (SSOP)			
	PCB terminals						
Mounting method				Surface mounting			
Applicable standards				UL			
RoHS compliance				Compliant			
Weight				Approx. 0.03 g			
Page				175	175	175	175

* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

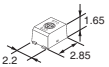
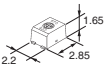
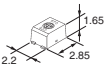
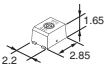
For PCBs				Application	
G3VM-41LR5	G3VM-61LR	G3VM-81LR	G3VM-101LR	Model	
1a (SPST-NO)				Contact form	
 SSOP4	 SSOP4	 SSOP4	 SSOP4	Package (Unit : mm, Average)	
• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 10 pF · Ω • R_{ON} (typical) = 1 Ω	• Small and High-load-voltage Type • Load voltage: 60 V • R_{ON} (typical) = 1 Ω	• Small and High-load-voltage Type • Load voltage: 80 V	• Small and High-load-voltage Type • Load voltage: 100 V	Features	
Photodiode coupler				Isolation method	
40 V	60 V	80 V	100 V	AC peak / DC	Load voltage
300 mA	400 mA	120 mA	80 mA	Continuous load current AC peak/ DC * 6-pin type connection C: DC	Output
50 mA				LED forward current	Input
1,500 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O	
-20 to +85°C (with no icing or condensation)				Ambient operating temperature	
1.5 Ω		12 Ω	14 Ω	Maximum output ON resistance	Output
1 nA (at 30 VDC)	1 μA (at 60 VDC)	0.2 nA (at 80 VDC)		Maximum OFF leakage current	Output
● (SSOP)				Surface-mounting terminals	Terminal structure
				PCB terminals	Terminal structure
Surface mounting				Mounting method	
UL				Applicable standards	
Compliant				RoHS compliance	
Approx. 0.03 g				Weight	
175	204	204	204	Page	

Absolute maximum ratings

Electrical characteristics

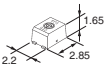
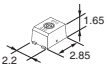
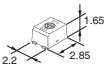
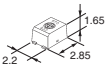
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			**For PCBs**			
Model			**G3VM-21PR10**	**G3VM-21PR1**	**G3VM-21PR11**	**G3VM-41PR12**
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 USOP4	 USOP4	 USOP4	 USOP4
Features			• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 2.4 pF · Ω • COFF (typical) = 0.8 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 3 pF · Ω • RON (typical) = 0.6 Ω	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 7.2 pF · Ω • RON (typical) = 0.18 Ω	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 4.5 pF · Ω • COFF (typical) = 0.3 pF
Isolation method			Photodiode coupler			
Absolute maximum ratings	**Output**	**Load voltage** AC peak / DC	20 V			40 V
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	200 mA	450 mA	900 mA	100 mA
	Input	**LED forward current**	50 mA			
	Dielectric strength between I/O		500 VAC 50/60 Hz for 1 min.			
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)			
Electrical characteristics	**Output**	**Maximum output ON resistance**	5 Ω	1.2 Ω	0.22 Ω	20 Ω
		Maximum OFF leakage current	1 nA (at 20 VDC)			1 nA (at 40 VDC)
Terminal structure	**Surface-mounting terminals**		● (USOP)			
	PCB terminals					
Mounting method			Surface mounting			
Applicable standards			UL			
RoHS compliance			Compliant			
Weight			Approx. 0.03 g			
Page			**180**	**180**	**180**	**185**

* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

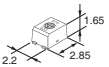
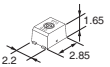
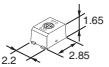
Product Table

For PCBs				Application	
G3VM-41PR10	G3VM-41PR6	G3VM-41PR11	G3VM-41PR5	Model	
1a (SPST-NO)				Contact form	
 USOP4	 USOP4	 USOP4	 USOP4	Package (Unit : mm, Average)	
• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 5.4 pF · Ω • C_{OFF} (typical) = 0.45 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 4 pF · Ω • R_{ON} (typical) = 0.8 Ω	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 4.9 pF · Ω • C_{OFF} (typical) = 0.7 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 10 pF · Ω • R_{ON} (typical) = 1 Ω	Features	
Photodiode coupler				Isolation method	
40 V				AC peak / DC	Load voltage
120 mA	120 mA	140 mA	300 mA	10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000 2,000 1,000 900 800 700 600 500 400 300 200 100	Continuous load current AC peak/ DC * 6-pin type connection C: DC
					Output
50 mA				LED forward current	Input
500 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O	
-40 to +85°C (with no icing or condensation)				Ambient operating temperature	
14 Ω	15 Ω	10 Ω	1.5 Ω	Maximum output ON resistance	Output
1 nA (at 40 VDC)	0.2 nA (at 40 VDC)	1 nA (at 40 VDC)		Maximum OFF leakage current	Output
● (USOP)				Surface-mounting terminals	Terminal structure
				PCB terminals	Terminal structure
Surface mounting				Mounting method	
UL				Applicable standards	
Compliant				RoHS compliance	
Approx. 0.03 g				Weight	
185	185	185	185	Page	

Absolute maximum ratings | Electrical characteristics

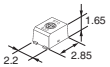
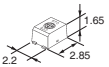
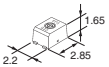
* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs		
Model			G3VM-51PR	G3VM-61PR1	G3VM-61PR
Contact form			1a (SPST-NO)		
Package (Unit : mm, Average)			 USOP4	 USOP4	 USOP4
Features			• Low-output-capacitance and Low-ON-resistance Type (with Low C x R) • Load voltage: 50 V • Low C × R = 12 pF · Ω • R_{ON} (typical) = 1 Ω	• Small and High-load-voltage Type • Load voltage: 60 V • Low C × R = 7 pF · Ω • C_{OFF} (typical) = 0.7 pF	• Small and High-load-voltage Type • Load voltage: 60 V
Isolation method			Photodiode coupler		
Absolute maximum ratings	Output	Load voltage: AC peak / DC	50 V	60 V	
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	300 mA	120 mA	400 mA
	Input	LED forward current	50 mA		
	Dielectric strength between I/O		500 VAC 50/60 Hz for 1 min.		
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)		
Electrical characteristics	Output	Maximum output ON resistance	1.5 Ω	15 Ω	1.5 Ω
		Maximum OFF leakage current	1 nA (at 50 VDC)	1 nA (at 60 VDC)	
Terminal structure	Surface-mounting terminals		● (USOP)		
	PCB terminals				
Mounting method			Surface mounting		
Applicable standards			UL		
RoHS compliance			Compliant		
Weight			Approx. 0.03 g		
Page			**185**	**208**	**208**

* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

	For PCBs			Application
	G3VM-71PR	G3VM-81PR	G3VM-101PR	Model
	1a (SPST-NO)			Contact form
	 USOP4	 USOP4	 USOP4	Package (Unit : mm, Average)
	• Small and High-load-voltage Type • Load voltage: 75 V	• Small and High-load-voltage Type • Load voltage: 80 V • Maximum OFF leakage current : 0.02 nA	• Small and High-load-voltage Type • Load voltage: 100 V	Features
	Photodiode coupler			Isolation method
	75 V	80 V	100 V	AC peak / DC — Load voltage — Output — Absolute maximum ratings
	400 mA	120 mA	100 mA	10,000 / 9,000 / 8,000 / 7,000 / 6,000 / 5,000 / 4,000 / 3,000 / 2,000 / 1,000 / 900 / 800 / 700 / 600 / 500 / 400 / 300 / 200 / 100 — Continuous load current AC peak/ DC * 6-pin type connection C: DC — Output — Absolute maximum ratings
	50 mA			LED forward current — Input — Absolute maximum ratings
	500 VAC 50/60 Hz for 1 min.			Dielectric strength between I/O — Absolute maximum ratings
	-40 to +85°C (with no icing or condensation)			Ambient operating temperature — Absolute maximum ratings
	1.5 Ω	12 Ω	14 Ω	Maximum output ON resistance — Output — Electrical characteristics
	1 nA (at 75 VDC)	0.02 nA (at 80 VDC)	0.2 nA (at 100 VDC)	Maximum OFF leakage current — Output — Electrical characteristics
	● (USOP)			Surface-mounting terminals — Terminal structure
				PCB terminals — Terminal structure
	Surface mounting			Mounting method
	UL			Applicable standards
	Compliant			RoHS compliance
	Approx. 0.03 g			Weight
	208	208	208	Page

* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			For PCBs			
Model			G3VM-21UR10	G3VM-21UR1	G3VM-21UR11	G3VM-41UR12
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 VSON4	 VSON4	 VSON4	 VSON4
Features			• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 2.4 pF · Ω • COFF (typical) = 0.8 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 4 pF · Ω • RON (typical) = 0.8 Ω	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 20 V • Low C × R = 7.2 pF · Ω • RON (typical) = 0.18 Ω	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 4.5 pF · Ω • COFF (typical) = 0.3 pF
Isolation method			Photodiode coupler			
Absolute maximum ratings	Output	Load voltage: AC peak / DC	20 V			40 V
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	200 mA	450 mA	1,000 mA	100 mA
	Input	LED forward current	30 mA			
	Dielectric strength between I/O		300 VAC 50/60 Hz for 1 min.			
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)			
Electrical characteristics	Output	Maximum output ON resistance	5 Ω	1.2 Ω	0.22 Ω	20 Ω
		Maximum OFF leakage current	1 nA (at 20 VDC)			1 nA (at 40 VDC)
Terminal structure	Surface-mounting terminals		● (VSON)			
	PCB terminals					
Mounting method			Surface mounting			
Applicable standards			UL certification is pending			
RoHS compliance			Compliant			
Weight			Approx. 0.01 g			
Page			190	190	190	195

* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

For PCBs				Application	
G3VM-41UR10	G3VM-41UR11	G3VM-51UR	G3VM-61UR1	Model	
1a (SPST-NO)				Contact form	
 VSON4	 VSON4	 VSON4	 VSON4	Package (Unit : mm, Average)	
• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 5.4 pF · Ω • COFF (typical) = 0.45 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 40 V • Low C × R = 4.9 pF · Ω • COFF (typical) = 0.7 pF	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 50 V • Low C × R = 12 pF · Ω • RON (typical) =1 Ω	• Low-output-capacitance and Low-ON-resistance Type (with Low C × R) • Load voltage: 60 V • Low C × R = 7 pF · Ω • COFF (typical) = 0.7 pF	Features	
Photodiode coupler				Isolation method	
40 V		50 V	60 V	AC peak / DC	Load voltage
120 mA	140 mA	300 mA	120 mA	10,000 9,000 8,000 7,000 6,000 5,000 4,000 3,000 2,000 1,000 900 800 700 600 500 400 300 200 100	Continuous load current AC peak/ DC * 6-pin type connection C: DC
30 mA				LED forward current	Input
300 VAC 50/60 Hz for 1 min.				Dielectric strength between I/O	
-40 to +85°C (with no icing or condensation)				Ambient operating temperature	
14 Ω	10 Ω	1.5 Ω	15 Ω	Maximum output ON resistance	Output
1 nA (at 40 VDC)		1 nA (at 50 VDC)	1 nA (at 60 VDC)	Maximum OFF leakage current	Output
● (VSON)				Surface-mounting terminals	Terminal structure
				PCB terminals	Terminal structure
Surface mounting				Mounting method	
UL certification is pending				Applicable standards	
Compliant				RoHS compliance	
Approx. 0.01 g				Weight	
195	195	195	213	Page	

Absolute maximum ratings / Electrical characteristics

* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

Application			**For PCBs**			
Model			**G3VM-61UR**	**G3VM-81UR**	**G3VM-81UR1**	**G3VM-101UR**
Contact form			1a (SPST-NO)			
Package (Unit : mm, Average)			 VSON4	 VSON4	 VSON4	 VSON4
Features			• Small and High-load-voltage Type • Load voltage: 60 V • R_{ON} (typical) =1 Ω	• Small and High-load-voltage Type • Load voltage: 80 V • Maximum OFF leakage current: 0.02 nA	• Small and High-load-voltage Type • Load voltage: 80 V	• Small and High-load-voltage Type • Load voltage: 100 V
Isolation method			Photodiode coupler			
Absolute maximum ratings	**Output**	**Load voltage** AC peak / DC	60 V	80 V		100 V
		Continuous load current AC peak/ DC * 6-pin type connection C: DC	400 mA	120 mA	200 mA	100 mA
	Input	**LED forward current**	30 mA			
	Dielectric strength between I/O		300 VAC 50/60 Hz for 1 min.			
	Ambient operating temperature		-40 to +85°C (with no icing or condensation)			
Electrical characteristics	**Output**	**Maximum output ON resistance**	1.5 Ω	12 Ω	8 Ω	14 Ω
		Maximum OFF leakage current	1 nA (at 60 VDC)	0.02 nA (at 80 VDC)	1 nA (at 80 VDC)	0.2 nA (at 100 VDC)
Terminal structure	**Surface-mounting terminals**		● (VSON)			
	PCB terminals					
Mounting method			Surface mounting			
Applicable standards			UL certification is pending			
RoHS compliance			Compliant			
Weight			Approx. 0.01 g			
Page			**213**	**213**	**213**	**213**

* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

Product Table

For PCBs					Application	
G3VM-31QR	G3VM-41QR10	G3VM-61QR	G3VM-61QR2	G3VM-101QR1	Model	
1a (SPST-NO)					Contact form	
 NEW S-VSON4	 NEW S-VSON(L)4	 NEW S-VSON4	 NEW S-VSON4	 NEW S-VSON4	Package (Unit : mm, Average)	
• New small S-VSON package • Load voltage: 30 V • Continuous load current :1.5 A max. • High Ambient operating temperature: -40 to +110°C	• New small S-VSON package (Low profile type) • Load voltage: 40 V • Low C × R = 4.95 pF · Ω • High Ambient operating temperature: -40 to +110°C	• New small S-VSON package • Load voltage: 60 V • Low C × R = 13.2 pF · Ω • High Ambient operating temperature: -40 to +110°C	• New small S-VSON package • Load voltage: 60 V • Continuous load current : 1A max. • High Ambient operating temperature: -40 to +110°C	• New small S-VSON package • Load voltage: 100 V • Continuous load current : 0.65A max. • High Ambient operating temperature: -40 to +110°C	Features	
Photodiode coupler					Isolation method	
30 V	40 V	60 V		100 V	AC peak / DC	Load voltage
1,500 mA	400 mA	400 mA	1,000 mA	650 mA	10,000 to 100 (Continuous load current AC peak/ DC * 6-pin type connection C: DC)	Output
30 mA					LED forward current	Input
500 VAC 50/60 Hz for 1 min.					Dielectric strength between I/O	Absolute maximum ratings
-40 to +110°C (with no icing or condensation)					Ambient operating temperature	
0.2 Ω	14 Ω	1.5 Ω	0.3 Ω	0.6 Ω	Maximum output ON resistance	Output
1 nA (at 30 VDC)	1 nA (at 40 VDC)	1,000 nA (at 60 VDC)		1,000 nA (at 100 VDC)	Maximum OFF leakage current	Electrical characteristics
● (S-VSON)					Surface-mounting terminals	Terminal structure
					PCB terminals	
Surface mounting					Mounting method	
					Applicable standards	
Compliant					RoHS compliance	
Approx. 0.01 g					Weight	
143	200	200	143	143	Page	

* Only basic specifications are given in this table. Refer to the reference page given in the table for detailed specifications and precautions before you attempt to use a Relay.
* Refer to pages 218 to 220 for detailed information on models certified for standards.

MOS FET Relay Glossary

Item			Symbol	Description
Absolute maximum ratings	Absolute maximum ratings		---	Maximum values that must never be exceeded even instantaneously Unless otherwise specified, these values are given at Ta = 25°C.
	Input	LED forward current	I_F	Rated current that can flow continuously in the LED forward direction
		Repetitive peak LED forward current	I_{FP}	Rated current that can flow momentarily in the LED forward direction
		LED forward current reduction rate	ΔI_F/°C	Reduction rate for current that can flow in the LED forward direction in relation to the ambient temperature
		LED reverse voltage	V_R	Rated reverse voltage that can be applied between the cathode and the anode
		Connection temperature	T_j	Rated temperature that can be allowed at the LED junction
	Output	Load voltage (AC peak/ DC)	V_{OFF}	Rated voltage that can be applied between the relay output terminals when switching the load or in the OFF state The peak voltage for AC
		Continuous load current (AC peak/ DC)	I_O	Rated current that can flow between the relay output terminals in the ON state under the specified temperature conditions The peak current for AC
		ON current reduction rate	ΔI_O/°C	Reduction rate for current that can flow between the relay output terminals in the ON state in relation to the ambient temperature
		Pulse ON current	I_{OP}	Rated current that can flow instantaneously between the relay output terminals in the ON state
		Connection temperature	T_j	Rated temperature that can be allowed at the light-receiving circuit junction
	Dielectric strength between I/O		V_{I-O}	Voltage that the isolation between the input and output can withstand for a specified time
	Ambient operating temperature		T_a	Ambient temperature range in which the relay may be operated without impairment
	Ambient storage temperature		T_{stg}	Ambient temperature range in the relay may be stored while not operating
	Soldering temperature		---	Rated temperature at which the terminals can be soldered without impairment of the relay
Electrical characteristics	Input	LED forward voltage	V_F	Voltage drop between the LED anode and cathode at a certain forward current
		Reverse current	I_R	Leakage current flowing in the LED reverse direction (between cathode and anode)
		Capacitance between terminals	C_T	Electrostatic capacitance between the LED anode and the cathode terminals
		Trigger LED forward current	---	Minimum input current required to change the relay output state. To ensure operation of the relay, a current that is equal to or greater than the maximum specified value must be used.
			I_{FT}	Minimum value of input current I_F that is required to change an MOS FET with a NO output to the ON state
			I_{FC}	Minimum value of input current I_F that is required to change an MOS FET with a NC output to the OFF state
		Release LED forward current	---	Maximum input current required to release the relay output state. To ensure release of the relay, a current that is equal to or less than the minimum specified value must be used.
			I_{FC}	Maximum value of input current I_F that must flow to change an MOS FET with a NO output to the OFF state
			I_{FT}	Maximum value of input current I_F that must flow to change an MOS FET with a NC output to the ON state
	Output	Maximum resistance with output ON	R_{ON}	Resistance between the relay output terminals in the specified ON state
		Current leakage when the relay is open	I_{Leak}	Leakage current flowing between the relay output terminals when the specified voltage is applied in the OFF state
		Capacitance between terminals	C_{OFF}	Electrostatic capacitance between the relay output terminals in the OFF state
	Limit current		I_{LIM}	Load current that is maintained when current limiting is activated
	Capacitance between I/O terminals		C_{I-O}	Electrostatic capacitance between the input and output terminals
	Insulation resistance between I/O terminals		R_{I-O}	Resistance between the input and output terminals at the specified voltage value
	Turn-ON time		t_{ON}	Time required for the output waveform to change after the specified input LED current is applied NO relay: Time required for the output waveform to change from 100% to 10% after the input changes from OFF to ON NC relay: Time required for the output waveform to change from 100% to 10% after the input changes from ON to OFF
	Turn-OFF time		t_{OFF}	Time required for the output waveform to change after the specified input LED current is interrupted NO relay: Time required for the output waveform to change from 0% to 90% after the input changes from ON to OFF NC relay: Time required for the output waveform to change from 0% to 90% after the input changes from OFF to ON
	Equivalent rise time		ERT	Indicator of the output transition characteristics for fast signals or pulse signals The ERT is expressed by the following formula, where tr_{in} is the input waveform rise time and tr_{out} is the output waveform rise time after relay transition. The lower the value, the less change there is in the signal, making for good characteristics. ERT = $\sqrt{(tr_{out}^2 - tr_{in}^2)}$

MOS FET Relay Glossary

Item		Symbol	Description
Recommended operating conditions	**Recommended operating conditions**	---	Indicators of the maximum ratings and electrical performances that consider derating to ensure high reliability Each item is an independent condition. Meeting compound conditions simultaneously is not considered.
	Load voltage (AC peak/ DC)	V_{DD}	Recommended load voltage that considers derating The peak voltage for AC
	Operating LED forward current	I_F	Recommended LED forward current that considers derating
	Continuous load current (AC peak/ DC)	I_O	Recommended load current that considers derating The peak current for AC
	Ambient operating temperature	T_a	Recommended ambient operating temperature that considers derating
Engineering data	**ON-state voltage**	V_{ON}	Voltage drop between the output terminals when the output MOS FET is in the ON state
	Output terminal capacitance	$C_{OFF}/C_{OFF}(0V)$	Relative ratio based on the capacitance between output terminals when the voltage between the output terminals is 0 V
Other terms	**Current limiting**	---	When an overcurrent exceeds a certain value, this function maintains the load current between the minimum and maximum values of the limit current characteristic. Suppressing the current to a fixed value protects the relay and the circuit components connected after the relay.
	Low C×R	---	Indicator of output characteristics in applications that handle high-frequency signals, fast signals, etc. C indicates the capacitance between the output terminals in the OFF state, COFF, and R indicates the resistance between the output terminals, RON, in the ON state. If COFF is large, signal transition even when the relay is OFF (signal leakage or isolation reduction) and the delay in the signal rise time for signal transition when the relay is ON (waveform rounding) are affected. If RON is large, signal transition loss (voltage drop and insertion reduction) is affected. In these applications, a small COFF and RON, i.e., a low C × R characteristic, are important.

Common Precautions for All MOS FET Relays

⚠ WARNING

Always turn OFF the power supply before wiring a Relay.
Not doing so may cause electrical shock.

Do not touch the current-carrying parts of the pin section of a MOS FET Relay while the power is being supplied.
An electrical shock may occur.

Precautions for Safe Use

1. Do not apply overvoltages or overcurrents to the input or output circuit of the MOS FET Relay.
   The MOS FET Relay may fail or ignite.
2. Perform soldering and wiring correctly according to specified soldering conditions.
   Using a MOS FET Relay with incomplete soldering may cause overheating when power is applied, possibly resulting in burning.

Precautions for Correct Use

●Derating

You must consider derating to achieve the required system reliability.

To use a MOS FET Relay with high reliability, consider derating the maximum ratings and recommended operating conditions, and allow sufficient leeway in designs based on testing operation in the actual application under the actual operating conditions whenever possible.

(1) Maximum Ratings
The maximum ratings must never be exceeded even instantaneously. This applies individually to each of the ratings. If any of the maximum ratings is exceeded, the internal parts of the MOS FET Relay may deteriorate or the chip may be destroyed. To ensure high reliability in using a MOS FET Relay, sufficiently derate the maximum voltage, current, and temperature ratings when designing the application.

(2) Recommended Operating Conditions
The recommended operating conditions are to ensure that the MOS FET Relay turns ON and OFF reliably.
To ensure high reliability in using a MOS FET Relay, consider the recommended operating conditions when you design the application.

(3) Fail-safe Design
We recommend that you implement fail-safe measures in the design of the application if the failure of, deterioration of characteristics in, or functional errors in the MOS FET Relay will have a serious affect on the safe operation of the system.

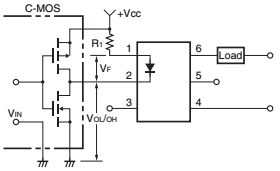
●Countermeasures for static electricity

There is a risk of damage to internal elements and impairment of functionality if static electricity is discharged to the pins due to product handling or otherwise.
Reduce the generation of static electricity as much as possible, and implement appropriate measures to prevent charge accumulation near the product.

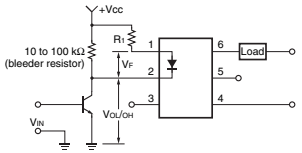
●Typical MOS FET Relay Driving Circuit Examples

The LED input side of the MOS FET is driven by current. If applying a Voltage, add resistance in series with the circuit, so the specified current is applied.
This resistance is referred as "LED current limiting resistance".

C-MOS



Transistor



- To ensure that the MOSFET relay operates correctly, use the following formula to calculate the limiting resistance, and design the circuit accordingly.

$$R_1 = \frac{V_{CC} - V_{OL} - V_{F(ON)}}{I_F}$$

Note: To set the value of $I_{F(ON)}$, check the trigger LED current and recommended operation LED forward current indicated in the catalogue for each model, and set a high value with leeway.

- To ensure that the MOSFET relay resets reliably, calculate the reset voltage using the formula below, and control so that the voltage is lower than this value.

$$V_{F(OFF)} = V_{CC} - I_F R_1 - V_{OH}$$

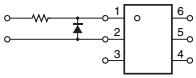
Note: For the $I_{F(OFF)}$ value, set a value that is lower with leeway than the reset LED forward current indicated for each model in the catalogue.

- If the drive transistor has a large leakage current that may cause malfunctioning, add a bleeder resistance.

●Protection from Surge Voltage on the Input Pins

- If any reversed surge voltage is imposed on the input pins, insert a diode in parallel with the input pins as shown in the following circuit diagram and do not impose a reversed voltage of 3 V or higher.

Surge Voltage Protection Circuit Example

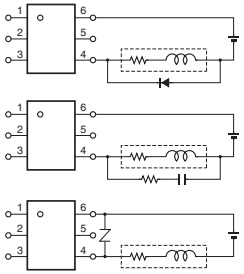


Common Precautions for All MOS FET Relays

●Protection from Spike Voltage on the Output Pins

- If there is an inductive load or other condition that will cause overvoltage that exceeds the absolute maximum rating between the output pins, connect a protective circuit to limit the overvoltage.

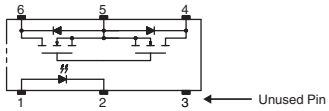
Spike Voltage Protection Circuit Example



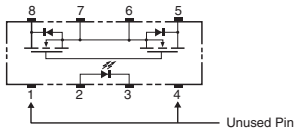
●Unused Pin

The unused pins of each MOSFET relay are used in the internal circuitry. Do not connect to an external circuit.

(Example for 6-pin Relay)

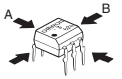


(Example of 8-pin high-capacity type)



●Pin Strength for Automatic Mounting

- In order to maintain the characteristics of the MOS FET Relay, the force imposed on any pin of the MOS FET Relay for automatic mounting must not exceed the following limits.



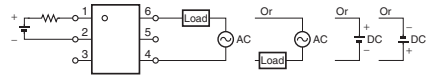
In direction A: 1.96 N
In direction B: 1.96 N

●Load Connection

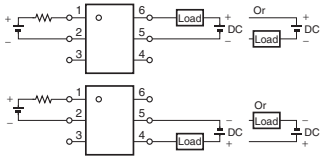
- Do not short-circuit the input and output pins while the MOS FET Relay is operating or it may malfunction.

Example of correct connection

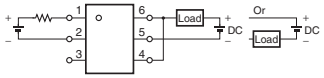
AC/DC connection (A connection)



DC Single Connection (B connection)



DC Parallel Connection (C connection)



●Estimated Life

OMRON MOS FET Relays use mainly two types of LEDs. The service life is estimated separately for each type of LED.
The following tables show the LEDs that are used in each MOS FET Relay. Estimated life data is given on pages **3 and 4**.
Ask your OMRON representative for any models that are not listed in the table.
This data is the results of estimating the service life from long-term data on a single lot. Use it only as reference data.

MOS FET Relays That Use GaAs LEDs

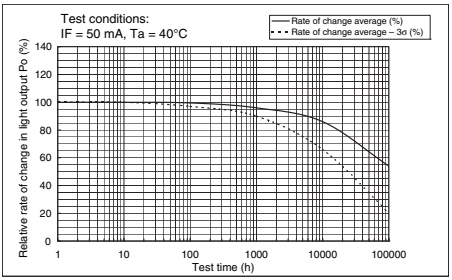
DIP	SOP		SSOP
G3VM-61A1/D1	G3VM-21GR	G3VM-S5	G3VM-21LR
G3VM-61B1/E1	G3VM-21GR1	G3VM-201H1	G3VM-21LR1
G3VM-62C1/F1	G3VM-41GR4	G3VM-202J1	G3VM-41LR4
G3VM-2L/2FL	G3VM-41GR5	G3VM-351G	G3VM-41LR5
G3VM-351A/D	G3VM-41GR6	G3VM-351G1	G3VM-41LR6
G3VM-351B/E	G3VM-41GR8	G3VM-351GL	G3VM-61LR
G3VM-352C/F	G3VM-61G1	G3VM-351H	G3VM-81LR
G3VM-353A/D	G3VM-61G2	G3VM-352J	G3VM-101LR
G3VM-353B/E	G3VM-61GR1	G3VM-353G	USOP
G3VM-354C/F	G3VM-61H1	G3VM-353H	G3VM-21PR10
G3VM-355CR/FR	G3VM-62J1	G3VM-354J	G3VM-21PR11
G3VM-WL/WFL	G3VM-81G1	G3VM-355JR	G3VM-41PR10
G3VM-401A/D	G3VM-81GR	G3VM-401G	G3VM-41PR11
G3VM-401B/E	G3VM-81GR1	G3VM-401H	G3VM-41PR12
G3VM-401BY/EY	G3VM-81HR	G3VM-402J	G3VM-51PR
G3VM-402C/F	G3VM-201G	G3VM-601G	G3VM-61PR
G3VM-601BY/EY	G3VM-201G1		G3VM-61PR1

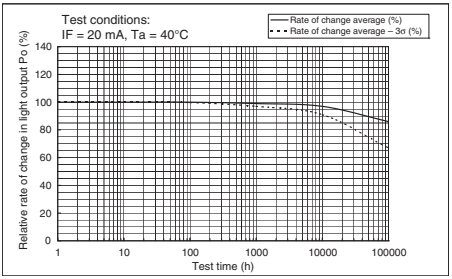
MOS FET Relays That Use GaAlAs LEDs

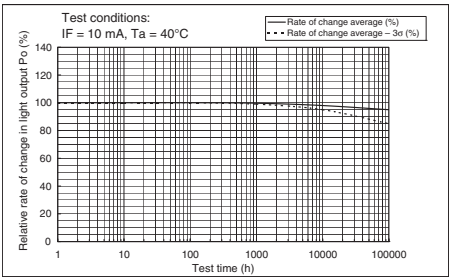
DIP	SOP	SSOP	SSOP
G3VM-21AR/DR	G3VM-61BR/ER	G3VM-21HR	G3VM-21LR10
G3VM-21BR/ER	G3VM-61BR1/ER1	G3VM-41HR	G3VM-41LR10
G3VM-41AR/DR	G3VM-101AR/DR	G3VM-61HR	G3VM-41LR11
G3VM-41BR/ER	G3VM-101BR/ER	G3VM-101HR	
G3VM-61AR/DR			

Common Precautions for All MOS FET Relays

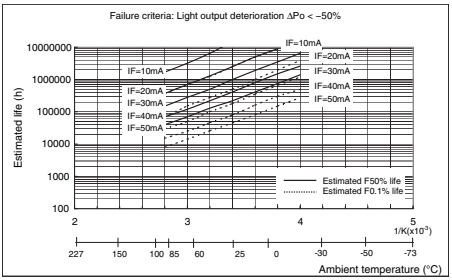
Data on Estimated Temporal Changes in GaAs LEDs

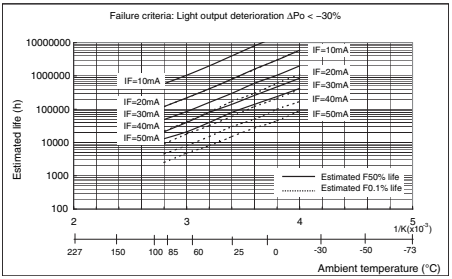






Estimated Life Data for GaAs LEDs





The above estimated life data is reference data that was based on LED long-term appraisal for a single lot.
Operating conditions that exceed the ratings for some models are included, but this in no way implies any warranty for operation that exceeds the ratings.

F50% Life:
For the life to a 50% cumulative failure rate, this is the time that is required for the AVG average line in the data on estimated temporal changes to reach the failure criteria.

F0.1% Life:
For the life to a 0.1% cumulative failure rate, this is the time that is required for the AVG-3α line in the data on estimated temporal changes to reach the failure criteria.

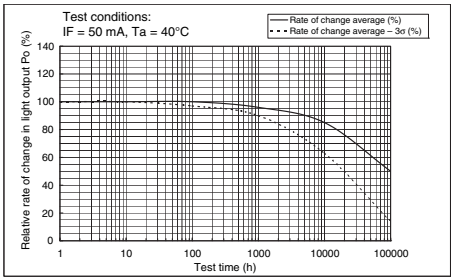
Whether to use estimated F50% life or F0.1% life should be determined based on the reliability required in the actual equipment, however, estimated F0.1% life is normally recommended.

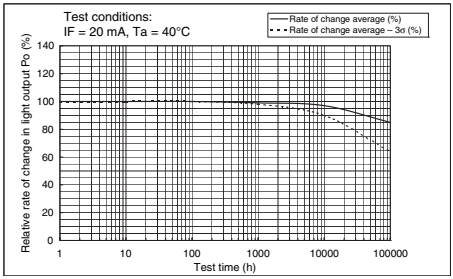
"Optical output deterioration Δpo" is the amount of LED optical output deterioration compared to the initial LED output. When "Optical output deterioration failure criterion Δpo < - 50%", a failure is detected when optical output has deteriorated 50% from the initial output.

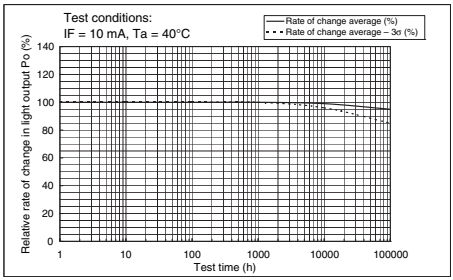
Whether to use optical output deterioration Δpo < - 50% or Δpo < - 30% should be determined based on the amount of leeway to be provided in the LED forward current (I_F) setting with respect to the trigger LED forward current (I_{FT}). However, the Δpo < - 30% graph is normally recommended.

Common Precautions for All MOS FET Relays

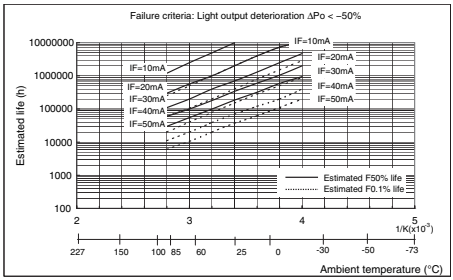
Data on Estimated Temporal Changes in GaAlAs LEDs

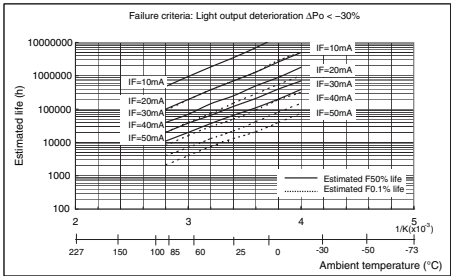






Estimated Life Data for GaAlAs LEDs





The above estimated life data is reference data that was based on LED long-term appraisal for a single lot.
Operating conditions that exceed the ratings for some models are included, but this in no way implies any warranty for operation that exceeds the ratings.

F50% Life:
For the life to a 50% cumulative failure rate, this is the time that is required for the AVG average line in the data on estimated temporal changes to reach the failure criteria.

F0.1% Life:
For the life to a 0.1% cumulative failure rate, this is the time that is required for the AVG-3α line in the data on estimated temporal changes to reach the failure criteria.

Whether to use estimated F50% life or F0.1% life should be determined based on the reliability required in the actual equipment, however, estimated F0.1% life is normally recommended.

"Optical output deterioration Δpo" is the amount of LED optical output deterioration compared to the initial LED output. When "Optical output deterioration failure criterion Δpo < - 50%", a failure is detected when optical output has deteriorated 50% from the initial output.

Whether to use optical output deterioration Δpo < - 50% or Δpo < - 30% should be determined based on the amount of leeway to be provided in the LED forward current (I_F) setting with respect to the trigger LED forward current (I_{FT}). However, the Δpo < - 30% graph is normally recommended.

Common Precautions for All MOS FET Relays

●Cleaning Flux from the MOS FET Relays

(1) Clean flux from the MOS FET Relay so that there will be no residue of reactive ions, such as sodium or chlorine. Some organic solvents will react with water to produce hydrogen chloride or other corrosive gases, which may cause deterioration of the MOS FET Relays.

(2) When washing off the flux with water, make sure that there will be no residue of reactive ions, particularly sodium or chlorine.

(3) During water washing, do not scrub the marks on the surface of the MOS FET Relay with a brush or your hand while there is cleaning liquid on the MOS FET Relay. The marks may come off.

(4) Clean the flux from the MOS FET Relays with the chemical action of the solvent for submersed cleaning, shower cleaning, or steam cleaning. To minimize the effect on the MOS FET Relays, do not place the MOS FET Relay in the solvent or steam for more than 1 minute at a temperature of 50°C.

(5) If you use ultrasonic cleaning, keep the time short. If the cleaning time is too long, the sealing characteristics of the molded resin and frame materials may deteriorate. The recommended basic conditions are given below.
Recommended Conditions for Ultrasonic Cleaning:
Frequency: 27 to 29 kHz
Ultrasonic wave output: 300 W max. (0.25 W/cm^2 max.)
Cleaning time: 30 s max.
Also, suspend the MOS FET Relays in the cleaning solution so that the MOS FET Relay and PCB do not come into direct contact with the ultrasonic transducer.

●Solder Mounting

Perform solder mounting under the following recommended conditions to prevent the temperature of the MOS FET Relays from rising.

<Flow Soldering>

PCB Terminals

(Set Temperature of Flow Bath)

Solder type	Preheating	Soldering	Count
(Lead solder) SnPb	150°C 60 to 120 s	260°C 10 s max.	Once only
(Lead-free solder) SnAgCu	150°C 60 to 120 s	260°C 10 s max.	Once only

Note: We recommend that you verify the suitability of solder mounting under actual conditions.

Surface-mount Terminals

If you are considering mounting a surface mount pin type by flow soldering, please consult us.

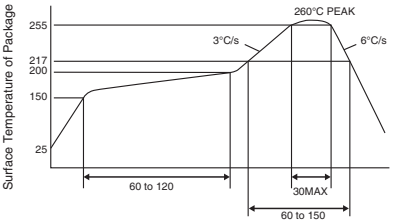
<Reflow Soldering>

Surface-mount Terminals

(Surface Temperature of Package)

Solder type	Preheating	Soldering		Count
(Lead solder) SnPb	140 to 160°C 60 to 120 s	210°C 30 s max.	Peak: 240°C max.	Up to twice

(Lead-free solder) SnAgCu recommended profile



Reflow repetitions : Up to twice Time (s)

Note: 1. We recommend that you verify the suitability of solder mounting under actual conditions.
2. When SSOP, USOP, VSON, or S-VSON products are ordered with (TR), tape package product is delivered in moisture-proof packaging. If ordered without (TR), tape-cut product is delivered in non moisture-proof packaging. Mount a tape cut product by manual soldering. Tape cut products absorb moisture because a non moisture-proof package is used. Risk of package cracking or other damage due to thermal stress if reflow soldering is performed.

Manual Soldering (Once Only)

Perform manual soldering at 350°C for 3 s or less or at 260°C for 10 s or less.

Note: Please consult us for manual soldering conditions for S-VSON products.

●Storage Conditions

(1) Store the MOS FET Relay where they will not be subjected to water leaks or direct sunlight.

(2) When transporting or storing the MOS FET Relays, observe all precautions on the packaging boxes.

(3) Keep the storage location at normal temperature, normal humidity, and normal pressure. Guidelines for the temperature and humidity are 5 to 35°C and a relative humidity of 45% to 75%.

(4) Do not store the MOS FET Relay in locations that are subject to corrosive gases, such as hydrogen sulfide gas, or to salt spray, and do not store them where there is visually apparent dust or dirt.

(5) Store the MOS FET Relay in a location that has a relatively stable temperature. Radical changes in temperature during storage will cause condensation, which may oxidize or corrode the leads and interfere with solder wetting.

(6) If you remove MOS FET Relays from the packages and then store them again, use storage containers that have measures to prevent static electricity.

(7) Do not under any circumstances apply any force to the MOS FET Relays that would deform or alter them in any way.

(8) This product is warranted for one year from the date of purchase or the date of delivery to the specified location. If the MOS FET Relays are stored for more than about one year under normal conditions, we recommend that you confirm solderability before you use the MOS FET Relays.

Common Precautions for All MOS FET Relays

●Usage Conditions

<Temperature>

The electrical characteristics of the MOS FET Relays are limited by the application temperature.

If you use them at temperatures outside of the operating temperature range, the electrical characteristics of the MOS FET Relays will not be achieved and the MOS FET Relays may deteriorate. For that reason, you must determine the temperature characteristics in advance and apply derating* to the design of the application. (*Derating reduces stress.)

Consider derating in the operating temperature conditions and apply the recommended operating temperature as a guideline.

<Humidity>

If the MOS FET Relays are used for a long period of time at high humidity, humidity will penetrate the Relays and the internal chips may deteriorate or fail. In systems with high signal source impedance, leaks in the board or leaks between the leads of the MOS FET Relays can cause malfunctions. If these are issues, consider applying humidity-resistant processing to the surfaces of the MOS FET Relays. On the other hand, at low humidity, damage from the discharge of static electricity becomes a problem. Low humidity may cause damage due to electrostatic discharge. Unless moisture proofing is implemented, use within a relative humidity range of 40 to 60%.

●Considerations when handling SSOP, USOP, VSON, and S-VSON products

<Moisture proof package, MSL3> (Other packages are MSL1)

Surface mount products may have a crack when thermal stress is applied during surface mount assembly after they absorb atmospheric moisture. Therefore, please observe the following precautions.

(1) This moisture proof bag may be stored unopened within 12 months at the following conditions.
Temperature: 5°C to 30°C
Humidity: 90% (Max.)

(2) After opening the moisture proof bag, the devices should be assembled within 168 hours in an environment of 5°C to 30°C / 70%RH or below.

(3) If upon opening, the moisture indicator card shows humidity 30% or above (Color of indication changes to pink) or the expiration date has passed, the devices should be baked in taping with reel. After baking, use the baked devices within 72 hours, but perform baking only once.
Baking conditions: 60±5°C. For 64 to 72 hours.
Expiration date: 12 months from sealing date, which is imprinted on the label affixed.

(4) Repeated baking can cause the peeling strength of the taping to change, then leads to trouble in mounting. Furthermore, prevent the devices from being destructed against static electricity for baking of it.

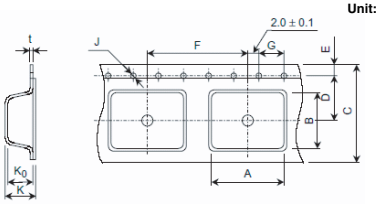
(5) If the packing material of laminate would be broken the hermeticity would deteriorate.
Therefore, do not throw or drop the packed devices.

(6) Tape-cut SSOPs, USOPs, VSONs, or S-VSON are packaged without humidity resistance. Use manual soldering to mount them. (MSL not supported)

●Tape Packaging

<Tape Form and Dimensions>

Unit: mm



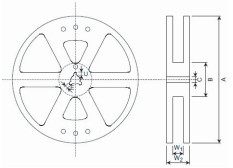
Unit: mm

Type of package			DIP4	DIP6	DIP8	Special SOP4	SOP4
Dimension symbol (See figure.)	A	Dimensions	10.4±0.1			4.0±0.1	4.3±0.1
	B		5.1±0.1	7.6±0.1	10.1±0.1	7.6±0.1	7.5±0.1
	C		16±0.3			12±0.3	
	D		7.5±0.1			5.5±0.1	
	E		1.75±0.1				
	F		12.0±0.1			8.0±0.1	
	G		4.0±0.1				
	J		1.5+0.1/-0				
	k		4.55±0.2			2.9±0.2	2.6±0.2
	ko		4.1±0.1			2.6±0.1	2.4±0.1
	t		0.4±0.05			0.3±0.05	

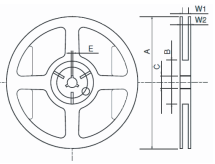
Type of package			SOP6	SOP8	SSOP4	USOP4	VSON4	S-VSON4
Dimension symbol (See figure.)	A	Dimensions	7.5±0.1		2.35±0.2	2.6±0.1	1.6±0.1	
	B		6.7±0.1	10.5±0.1	4.5±0.1	3.55±0.1	3.0±0.1	2.25±0.1
	C		16±0.3		12±0.3		8.0±0.3	
	D		7.5±0.1		5.5±0.1		3.5±0.1	
	E		1.75±0.1					
	F		12.0±0.1		4.0±0.1			
	G		4.0±0.1					
	J		1.5+0.1-0					
	k		2.5±0.2	2.4±0.2	2.4±0.1	2.25±0.1	–	
	ko		2.3±0.1	2.2±0.1	2.1±0.1	1.95±0.1	1.5±0.1	1.85±0.1
	t		0.3±0.05			0.3±0.1	0.2±0.05	

<Reel Form and Dimensions>

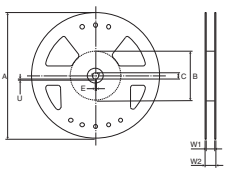
DIP/SOP
SOP4 special (TR)



SSOP/USOP/VSON/S-VSON
SOP4 special (TR05)



DIP (TR05)



Common Precautions for All MOS FET Relays

Unit: mm

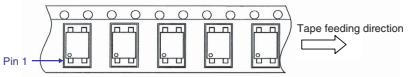
Type of package			DIP4	DIP6	DIP8	Special SOP4	SOP4	SOP6	SOP8
Tape name			(TR05)	(TR)					
Dimension symbol (See figure.)	A	Dimensions	254±2 dia.	380±2 dia.		330±2 dia.			
	B		100±1 dia.	80±1 dia.					
	C		13±0.2 dia.	13±0.5 dia.					
	E		2.0±0.5	2.0±0.5					
	U		4.0	4.0±0.5					
	W1		17.4±1.0	17.5±0.5		13.5±0.5		17.5±0.5	
	W2		21.4±1.0	21.5±1.0		17.5±1.0		21.5±1.0	

Type of package			Special SOP4	SSOP4	USOP4	VSON4	S-VSON4
Tape name			(TR05)				
Dimension symbol (See figure.)	A	Dimensions	180±2.0 dia.	180+0/-4 dia.		180±3 dia.	
	B		60±1.0 dia.	60 dia.		60±1 dia.	
	C		13±0.5 dia.	13 dia.		13±0.5 dia.	
	E		2.0±0.5				
	U		4.0±0.5 dia.	---		4.0±0.5	
	W1		13.5±0.5 dia.	13±0.3		9.0±0.3	
	W2		17.5±1.0 dia.	15.4±1.0		11.4±1.0	

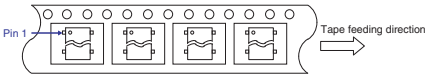
<Taping Direction>

The orientations of the MOS FET Relays in the depressions in the carrier tapes are shown below.

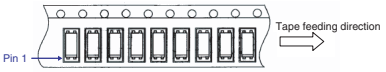
(1) SOP4 Pins



(2) SOP6, SOP8, DIP4, DIP6, or DIP8 Pins



(3) SSOP4, USOP4, VSON4, S-VSON4 pin types



<Number of Relays Per Reel>

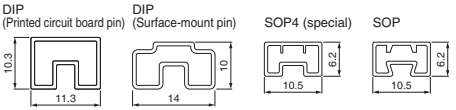
Type of package		DIP4	DIP6	DIP8	Special SOP4	SOP4	SOP6	SOP8
Number of Relays	TR	1,500			3,000	2,500		
	TR05	500	–		500	–		

Type of package		SSOP4	USOP4	VSON4	S-VSON4
Number of Relays	TR	–			
	TR05	500			

●Stick packaging

<Stick shape and dimensions>

Unit: mm



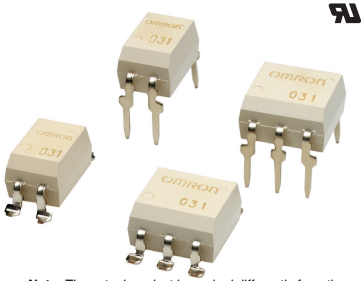
Type of package	DIP4	DIP6	DIP8	DIP4	DIP6	DIP8	Special SOP4	SOP4	SOP6	SOP8
Pin type	Printed circuit board pin			Surface-mount pin						
Number of Relays	100	50	50	100	50	50	125	100	75	50
Height (mm)	10.3			10			6.2			
Width (mm)	11.3			14			10.5			
Length (mm)	525			525			555			

G3VM-□A□/□D□/□B□/□E□

MOS FET Relays DIP, General-purpose Type

General-purpose MOS FET Relays in DIP packages for a wide range of applications

- **Package: DIP 4-pin or DIP 6-pin**
- **Contact form: 1a (SPST-NO) or 1b (SPST-NC)**
- **Load voltage: 60 V, 350 V, or 400 V**



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

■Application Examples

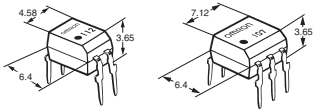
- **Communication equipment**
- **Security equipment**
- **Power circuit**
- **Test & Measurement equipment**
- **Industrial equipment**

■Package

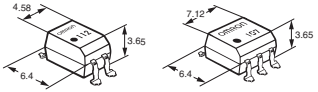
(Unit : mm, Average)

DIP 4-pin DIP 6-pin

PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□
1 2 3 4

1. Load Voltage
6 : 60 V
35 : 350 V
40 : 400 V

2. Contact form
1 : 1a (SPST-NO)
3 : 1b (SPST-NC)

3. Package
A : DIP 4-pin with PCB terminals
B : DIP 6-pin with PCB terminals
D : DIP 4-pin with surface-mounting terminals
E : DIP 6-pin with surface-mounting terminals

4. Other informations
When specifications overlap, serial code is added recorded order.

■Ordering Information

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging			Tape packaging	
				Model		Minimum package quantity	Model	Minimum package quantity
				PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP4	1a (SPST-NO)	60 V	500 mA	G3VM-61A1	G3VM-61D1	100 pcs.	G3VM-61D1(TR)	1,500 pcs.
		350 V	120 mA	G3VM-351A	G3VM-351D		G3VM-351D(TR)	
	1b (SPST-NC)		150 mA	G3VM-353A	G3VM-353D		G3VM-353D(TR)	
	1a (SPST-NO)	400 V	120 mA	G3VM-401A	G3VM-401D		G3VM-401D(TR)	

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻		Stick packaging			Tape packaging	
					Model		Minimum package quantity	Model	Minimum package quantity
			Connection A, B	Connection C	PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP6	1a (SPST-NO)	60 V	500 mA	1000 mA	G3VM-61B1	G3VM-61E1	50 pcs.	G3VM-61E1(TR)	1,500 pcs.
		350 V	120 mA	240 mA	G3VM-351B	G3VM-351E		G3VM-351E(TR)	
	1b (SPST-NC)		150 mA	300 mA	G3VM-353B	G3VM-353E		G3VM-353E(TR)	
	1a (SPST-NO)	400 V	120 mA	240 mA	G3VM-401B	G3VM-401E		G3VM-401E(TR)	

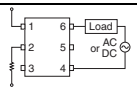
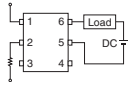
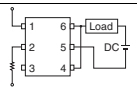
✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	G3VM-61A1 G3VM-61D1	G3VM-61B1 G3VM-61E1	G3VM-351A G3VM-351D	G3VM-351B G3VM-351E	G3VM-353A G3VM-353D	G3VM-353B G3VM-353E	G3VM-401A G3VM-401D	G3VM-401B G3VM-401E	Unit	Measurement conditions
Input	LED forward current		IF	50								mA	
	Repetitive peak LED forward current		IFP	1								A	100 μs pulses, 100 pps
	LED forward current reduction rate		ΔIF/°C	-0.5								mA/°C	Ta ≥ 25°C
	LED reverse voltage		VR	5								V	
	Connection temperature		TJ	125								°C	
Output	Load voltage (AC peak/DC)		VOFF	60		350				400		V	
	Continuous load current (AC peak/DC)	Connection A	IO	500		120		150		120		mA	Connection A: AC peak/DC Connection B and C: DC
		Connection B		–	500	–	120	–	150	–	120		
		Connection C			1000		240		300		240		
	ON current reduction rate	Connection A	ΔIO/°C	-5		-1.2		-1.5		-1.2		mA/°C	Ta ≥ 25°C
		Connection B		–	-5	–	-1.2	–	-1.5	–	-1.2		
		Connection C			-10		-2.4		-3		-2.4		
	Pulse ON current		Iop	1.5		0.36		0.45		0.36		A	t=100 ms, Duty=1/10
	Connection temperature		TJ	125								°C	
Dielectric strength between I/O ✻			VI-O	2,500								Vrms	AC for 1 min
Ambient operating temperature			Ta	-40 to +85								°C	With no icing or condensation
Ambient storage temperature			Tstg	-55 to +125								°C	
Soldering temperature			–	260								°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram (DIP 6-pin Relays)

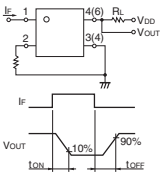
Connection A	
Connection B	
Connection C	

G3VM-□A□/□D□/□B□/□E□

■Electrical Characteristics (Ta = 25°C)

Item		Symbol			G3VM-61A1 G3VM-61D1	G3VM-61B1 G3VM-61E1	G3VM-351A G3VM-351D	G3VM-351B G3VM-351E	G3VM-353A G3VM-353D	G3VM-353B G3VM-353E	G3VM-401A G3VM-401D	G3VM-401B G3VM-401E	Unit	Measurement conditions
Input	LED forward voltage	VF	Minimum		1.0								V	IF=10 mA
			Typical		1.15									
			Maximum		1.3									
	Reverse current	IR	Maximum		10								μA	VR=5 V
	Capacitance between terminals	CT	Typical		30								pF	V=0, f=1 MHz
	Trigger LED forward current	IFT (IFC) ※2	Typical		1.6		1						mA	G3VM-353A/353D/353B/353E : IOFF=10 μA Others : IO=Continuous load current ratings
			Maximum		3									
	Release LED forward current	IFC (IFT) ※2	Minimum		0.1								mA	G3VM-353A/353D/353B/353E : IO=150 mA Others : IOFF=100 μA
Output	Maximum resistance with output ON	RON	Typical	Connection A	1		35 (25)		15		18	17	Ω	G3VM-61A1/61D1/61B1/61E1/351A/351D/351B/351E/401A/401D/401B/401E : IF=5 mA, IO=Continuous load current ratings Values in parentheses are for t < 1 s. G3VM-353A/353D/353B/353E : IO=Continuous load current ratings
				Connection B	–	0.5	–	28	–	8	–	11		
				Connection C		0.25		14		4		6		
			Maximum	Connection A	2		50 (35)		25		35			
				Connection B	–	1	–	40	–	14	–	20		
				Connection C	–			20		7		10		
	Current leakage when the relay is open	ILEAK	Maximum		1								μA	G3VM-353A/353D/353B/353E : IF=5mA, VOFF=Load voltage ratings Others : VOFF=Load voltage ratings
	Capacitance between terminals	COFF	Typical		130		30		85		40		pF	V=0, f=1 MHz
Capacitance between I/O terminals		CI-O	Typical		0.8								pF	f=1 MHz, VS=0 V
Insulation resistance between I/O terminals		RI-O	Minimum		1000								MΩ	VI-O=500 VDC, RoH≤60%
			Typical		10^8									
Turn-ON time		tON	Typical		0.8		0.3		0.1		–	0.3	ms	IF=5 mA, RL=200 Ω, VDD=10 V ※1
			Maximum		2		1							
Turn-OFF time		tOFF	Typical		0.1			1		–	0.1			
			Maximum		0.5		1		3		1			

※1. Turn-ON and Turn-OFF Times



※2. These values are for Relays with NC contacts

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

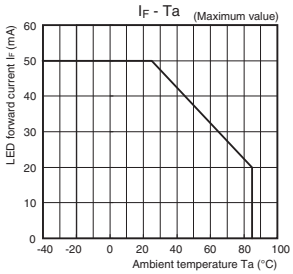
Item	Symbol		G3VM-61A1 G3VM-61D1	G3VM-61B1 G3VM-61E1	G3VM-351A G3VM-351D	G3VM-351B G3VM-351E	G3VM-353A G3VM-353D	G3VM-353B G3VM-353E	G3VM-401A G3VM-401D	G3VM-401B G3VM-401E	Unit
Load voltage (AC peak/DC)	VDD	Maximum	48		280				320		V
Operating LED forward current	IF	Minimum	5								mA
		Typical	7.5			10	–		7.5		
		Maximum	25								
Continuous load current (AC peak/DC)	IO	Maximum	500		100		150		100	120	
Ambient operating temperature	Ta	Minimum	-20								°C
		Maximum	65								

■Spacing and Insulation

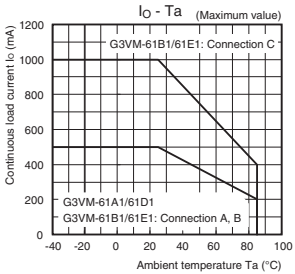
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

■Engineering Data

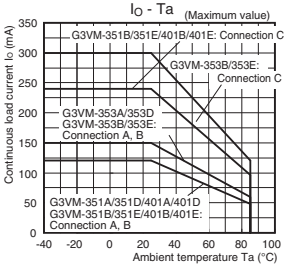
● LED forward current vs. Ambient temperature



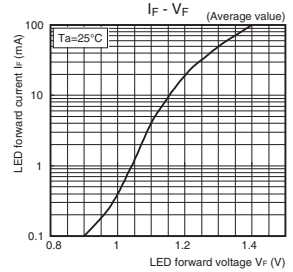
● Continuous load current vs. Ambient temperature
G3VM-61A1/61D1/61B1/61E1



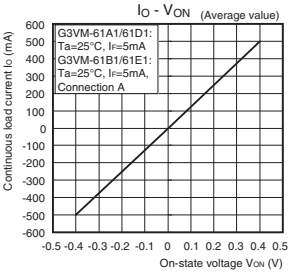
G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E



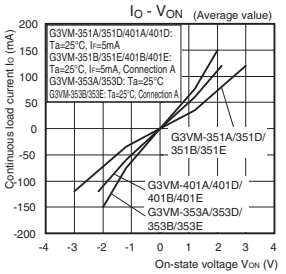
● LED forward current vs. LED forward voltage



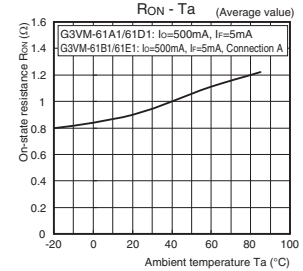
● Continuous load current vs. On-state voltage
G3VM-61A1/61D1/61B1/61E1



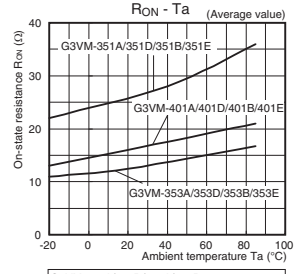
G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E



● On-state resistance vs. Ambient temperature
G3VM-61A1/61D1/61B1/61E1

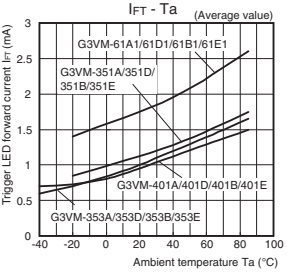


G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E



G3VM-351A/351D/401A/401D:
IO=120mA, IF=5mA, t<1s
G3VM-351B/351E/401B/401E:
IO=120mA, IF=5mA, t<1s, Connection A
G3VM-353A/353D: IO=150mA, t<1s
G3VM-353B/353E: IO=150mA, t<1s, Connection A

● Trigger LED forward current vs. Ambient temperature

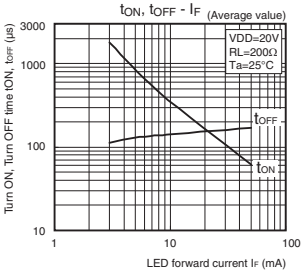


G3VM-61A1/61D1/351A/351D/401A/401D:
IO=Continuous Load Current Ratings, t<1s
G3VM-61B1/61E1/351B/351E/401B/401E:
IO=Continuous Load Current Ratings, t<1s, Connection A
G3VM-353A/353D: IOFF=10μA
G3VM-353B/353E: IOFF=10μA, Connection A

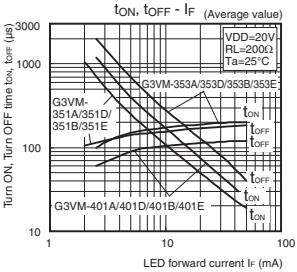
■Engineering Data

●Turn ON, Turn OFF time vs. LED forward current

G3VM-61A1/61D1/61B1/61E1

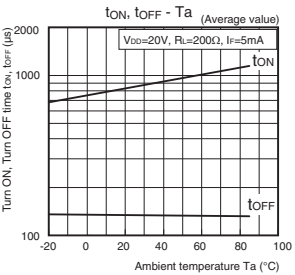


G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E

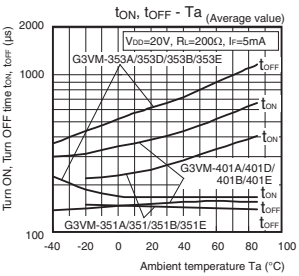


●Turn ON, Turn OFF time vs. Ambient temperature

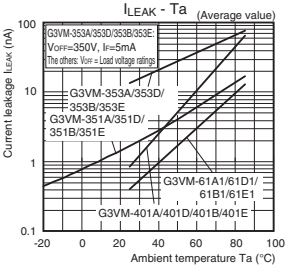
G3VM-61A1/61D1/61B1/61E1



G3VM-351A/351D/351B/351E
G3VM-353A/353D/353B/353E
G3VM-401A/401D/401B/401E



●Current leakage vs. Ambient temperature

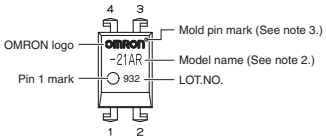


■Appearance / Terminal Arrangement / Internal Connections

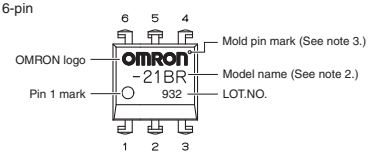
●Appearance

DIP (Dual Inline Package)

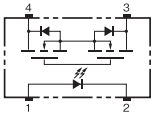
DIP 4-pin

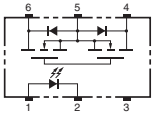


DIP 6-pin



●Terminal Arrangement/Internal Connections (Top View)





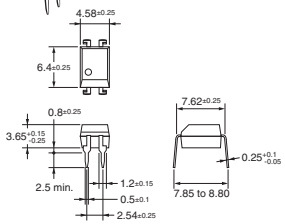
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

DIP4

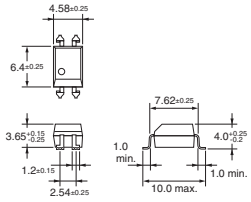
PCB Terminals

Weight: 0.25 g

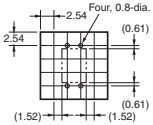


Surface-mounting Terminals

Weight: 0.25 g

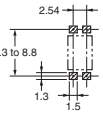


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

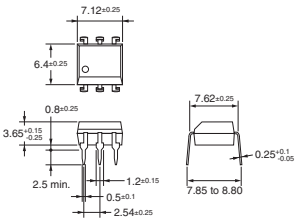


Note: The actual product is marked differently from the image shown here.

DIP6

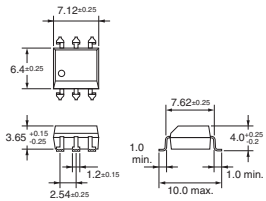
PCB Terminals

Weight: 0.4 g

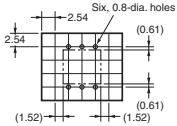


Surface-mounting Terminals

Weight: 0.4 g

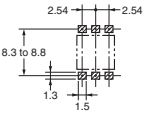


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model				Approved Standards	Contact form	File No.
G3VM-61A1 G3VM-351A G3VM-401A	G3VM-61D1 G3VM-351D G3VM-401D	G3VM-61B1 G3VM-351B G3VM-401B	G3VM-61E1 G3VM-351E G3VM-401E	UL (recognized)	1a (SPST-NO)	E80555
G3VM-353A	G3VM-353D	G3VM-353B	G3VM-353E		1b (SPST-NC)	

Models Certified by BSI for EN/IEC Standards

Model	Approved Standards	Contact form	File No.
G3VM-351A G3VM-351D	EN 60950/EN 60065 (BSI certified)	1a (SPST-NO)	8816 8817

■Safety Precautions

- Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-6□G□/61VY□

MOS FET Relays SOP 4-pin, General-purpose Type

General-purpose MOS FET Relays in SOP 4-pin packages for a wide range of applications

- **Contact form: 1a (SPST-NO) or 1b (SPST-NC)**
- **Load voltage: 60 V**

RoHS Compliant

NEW

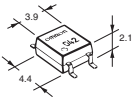
Note: The actual product is marked differently from the image shown here.

■Application Examples

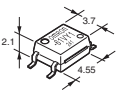
- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

■Package (Unit : mm, Average)

SOP 4-pin



Special SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□

1 2 3 4 5

1. Load voltage
6: 60 V

2. Contact form
1: 1a (SPST-NO)
3: 1b (SPST-NC)

3. Package
G: SOP 4-pin
V: Special SOP 4-pin

4. Additional functions
None: Dielectric strength between I/O 1500 V
Y: Dielectric strength between I/O 3750 V

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP4	1a (SPST-NO)	Surface-mounting Terminals	60 V	400 mA	G3VM-61G1	100 pcs.	G3VM-61G1(TR)	2500 pcs.
					G3VM-61G2		G3VM-61G2(TR)	
					G3VM-61G3		G3VM-61G3(TR)	
Special SOP 4-pin				100 mA	G3VM-61VY1	125 pcs.	G3VM-61VY1(TR)	3000 pcs.
				500 mA	G3VM-61VY2		G3VM-61VY2(TR05)	500 pcs.
							G3VM-61VY2(TR)	3000 pcs.
				700 mA	G3VM-61VY3		G3VM-61VY3(TR05)	500 pcs.
							G3VM-61VY3(TR)	3000 pcs.
SOP4	1b (SPST-NC)			500 mA	G3VM-63G	100 pcs.	G3VM-63G(TR05)	500 pcs.

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" or "(TR05)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

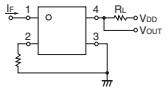
Item		Symbol	G3VM-61G1	G3VM-61G2	G3VM-61G3	G3VM-61VY1	G3VM-61VY2	G3VM-61VY3	G3VM-63G	Unit	Measurement conditions
Input	LED forward current	I_F	50		30				50	mA	
	LED forward current reduction rate	ΔI_F/°C	−0.5		−0.3				−0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5				6		5	V	
	Connection temperature	T_J	125							°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	60							V	
	Continuous load current (AC peak/DC)	I_O	400		100	500	700		500	mA	
	ON current reduction rate	ΔI_O/°C	−4.0		−1.0	−5.0	−7.0		−5.0	mA/°C	Ta ≥ 25°C
	Pulse ON current	I_{OP}	1200		300	1500	2100		1500	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125							°C	
Dielectric strength between I/O ✻		V_{I-O}	1500		3750				1500	Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85				-40 to +110		-40 to +105	°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125							°C	
Soldering temperature		–	260							°C	10 s

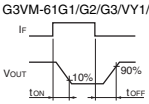
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

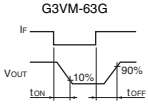
■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-61G1	G3VM-61G2	G3VM-61G3	G3VM-61VY1	G3VM-61VY2	G3VM-61VY3	G3VM-63G	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0			1.1			1.0	V	I_F=10 mA
			Typical	1.15			1.27			1.15		
			Maximum	1.3			1.4			1.3		
	Reverse current	I_R	Maximum	10							μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30			50	30			pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT} (I_{FC}) ✻2	Typical	1.6	0.4	–	0.2	1		0.6	mA	G3VM-61G1/61G2/61G3: I_O=400 mA G3VM-61VY1: I_O=100 mA G3VM-61VY2: I_O=500 mA G3VM-61VY3: I_O=700 mA G3VM-63G : I_{OFF}=10 μA
			Maximum	3	1	0.2	1	3				
	Release LED forward current	I_{FC} (I_{FT}) ✻2	Minimum	0.1		–	0.01	0.1			mA	G3VM-61G1/61G2/61G3/61VY1/61VY2/61VY3: I_{OFF}=100 μA G3VM-63G: I_O=500 mA
			Typical	–		0.001	–	0.5	–			
Output	Maximum resistance with output ON	R_{ON}	Typical	1			25	1	0.15	1	Ω	G3VM-61G1: I_F=5 mA, I_O=400 mA G3VM-61G2: I_F=2 mA, I_O=400 mA G3VM-61G3 : I_F=0.5 mA, I_O=400 mA, t<1s G3VM-61VY1 : I_F=2 mA, I_O=100 mA, t<1s G3VM-61VY2 : I_F=5 mA, I_O=500 mA G3VM-61VY3 : I_F=5 mA, I_O=700 mA G3VM-63G: I_O=500 mA
			Maximum	2			50	2		2.5		
	Current leakage when the relay is open	I_{LEAK}	Typical	–	1		–		2	–	nA	V_{OFF}=60 V
			Maximum	1000								
	Capacitance between terminals	C_{OFF}	Typical	130			10	20	100		pF	G3VM-61G1/61G2/61G3/61VY1/61VY2/61VY3: V=0, f=1 MHz G3VM-63G: V=0, f=1 MHz, I_F=5 mA
Capacitance between I/O terminals		C_{I-O}	Typical	0.8							pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000							MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8								
Turn-ON time		t_{ON}	Typical	0.8	3	3.5	1	0.6	2	0.3	ms	G3VM-61G1/63G:I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻1 G3VM-61G2 :I_F=2 mA, R_L=200 Ω, V_{DD}=20 V ✻1 G3VM-61G3 :I_F=0.5 mA, R_L=200 Ω, V_{DD}=20 V ✻1 G3VM-61VY1:I_F=2 mA, R_L=200 Ω, V_{DD}=10 V ✻1 G3VM-61VY2/61VY3:I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻1
			Maximum	2	8	10	5	2	3	1		
Turn-OFF time		t_{OFF}	Typical	0.1	1			0.1		0.7		
			Maximum	0.5	3	5		0.5		3		

✻1. Turn-ON and Turn-OFF Times







✻2. These values are for Relays with NC contacts

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-61G1	G3VM-61G2	G3VM-61G3	G3VM-61VY1	G3VM-61VY2	G3VM-61VY3	G3VM-63G	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48							V
Operating LED forward current	I_F	Minimum	5	–		2	5			mA
		Typical	7.5	2	0.5	5	7.5		–	
		Maximum	25			15	25			
Continuous load current (AC peak/DC)	I_O	Maximum	400	320		80	500	700	500	
Ambient operating temperature	Ta	Minimum	–20							℃
		Maximum	65				100		85	

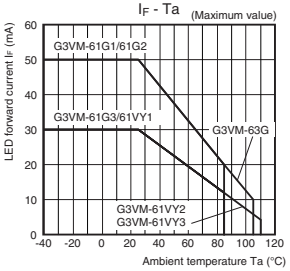
■Spacing and Insulation

Item	G3VM-6□G□	G3VM-61VY□	Unit
	Minimum		
Creepage distances	4.0	5.0	mm
Clearance distances	4.0	5.0	
Internal isolation thickness	0.1	0.2	

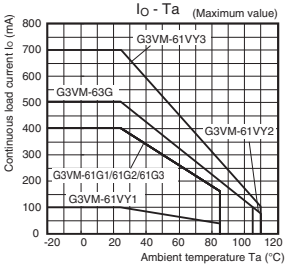
G3VM-6□G□/61VY□

■Engineering Data

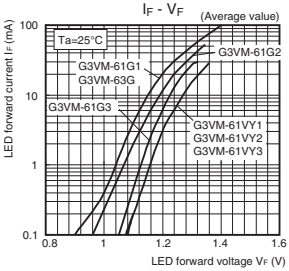
●LED forward current vs. Ambient temperature



●Continuous load current vs. Ambient temperature

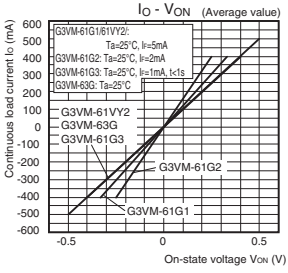


●LED forward current vs. LED forward voltage

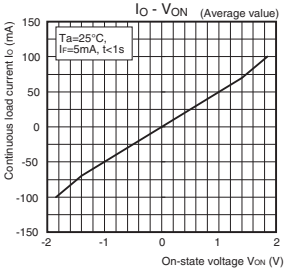


●Continuous load current vs. On-state voltage

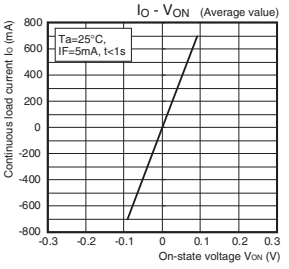
G3VM-61G1/61G2/61G3/61VY2/63G



G3VM-61VY1

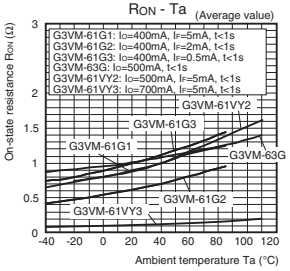


G3VM-61VY3

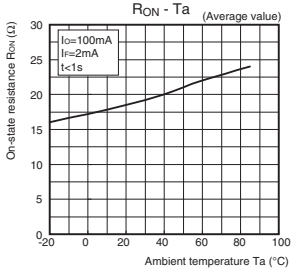


●On-state resistance vs. Ambient temperature

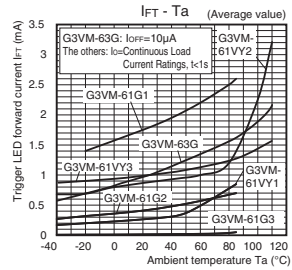
G3VM-61G1/61G2/61G3/61VY2/61VY3/63G



G3VM-61VY1

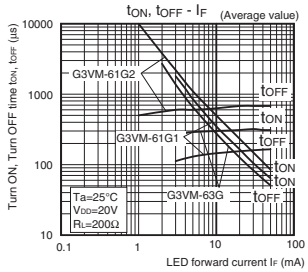


●Trigger LED forward current vs. Ambient temperature

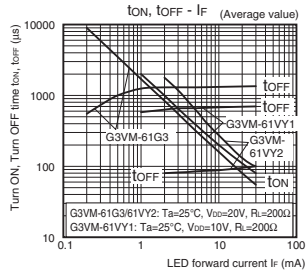


●Turn ON, Turn OFF time vs. LED forward current

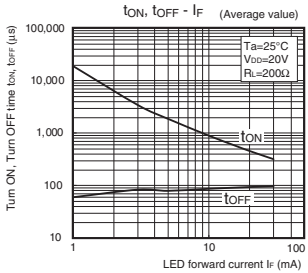
G3VM-61G1/61G2/63G



G3VM-61G3/61VY1/61VY2



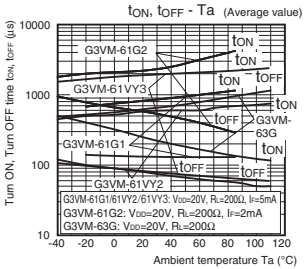
G3VM-61VY3



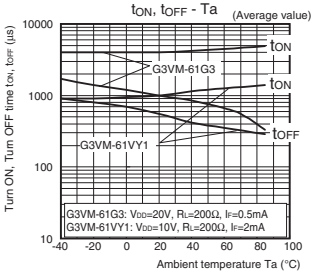
■Engineering Data

● **Turn ON, Turn OFF time vs. Ambient temperature**

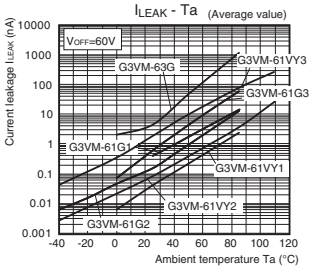
G3VM-61G1/61G2/63G/61VY2/61VY3



G3VM-61G3/61VY1

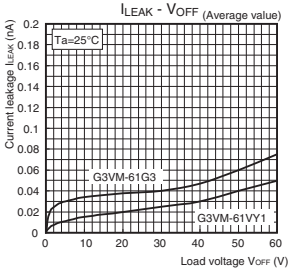


● **Current leakage vs. Ambient temperature**

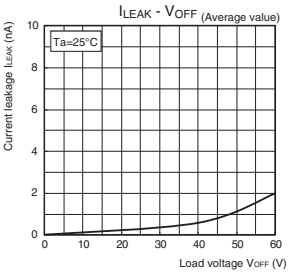


● **Current leakage vs. Load voltage**

G3VM-61G3/61VY1



G3VM-61VY3



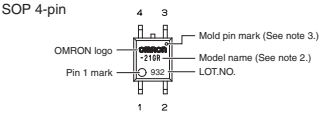
G3VM-6□G□/61VY□

■Appearance/Terminal Arrangement/Internal Connections

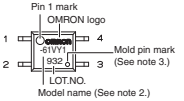
●Appearance

SOP (Small Outline Package)

SOP 4-pin



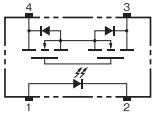
Special SOP 4-pin (G3VM-61VY1/61VY2/61VY3)



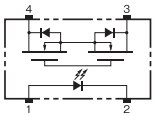
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

G3VM-61G1/61G2/61G3/61VY1/61VY2/61VY3



G3VM-63G



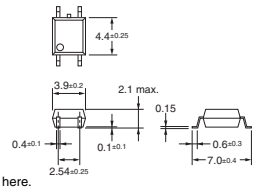
■Dimensions (Unit: mm)

SOP (Small Outline Package)

SOP 4-pin

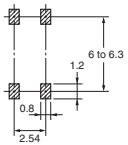
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

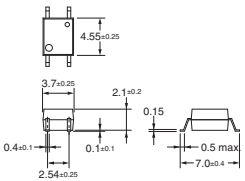


Note: The actual product is marked differently from the image shown here.

Special SOP 4-pin *(G3VM-61VY1/61VY2/61VY3)

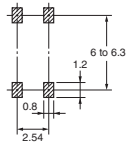
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



✻ The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same.
Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-61G1 G3VM-61G2 G3VM-61G3 G3VM-61VY1 G3VM-61VY2 G3VM-61VY3	UL recognized	1a (SPST-NO)	E80555
G3VM-63G		1b (SPST-NC)	

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

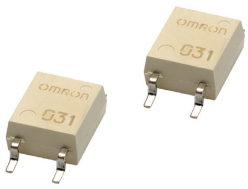
G3VM-81G□

MOS FET Relays SOP 4-pin, General-purpose Type

General-purpose MOS FET Relays in SOP 4-pin packages for a wide range of applications

- **Load voltage: 80 V**

RoHS Compliant



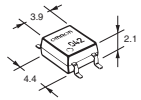
Note: The actual product is marked differently from the image shown here.

■Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

■Package (Unit : mm, Average)

SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□
1 2 3 4

1. Load Voltage
8: 80 V

2. Contact form
1: 1a (SPST-NO)

3. Package
G: SOP 4-pin

4. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP4	1a (SPST-NO)	Surface-mounting Terminals	80 V	350 mA	**G3VM-81G1**	100 pcs.	**G3VM-81G1(TR)**	2,500 pcs.

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

	Item	Symbol	G3VM-81G1	Unit	Measurement conditions
Input	LED forward current	I_F	50	mA	
	LED forward current reduction rate	ΔI_F/°C	−0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5	V	
	Connection temperature	T_J	125	°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	80	V	
	Continuous load current (AC peak/DC)	I_O	350	mA	
	ON current reduction rate	ΔI_O/°C	−3.5	mA/°C	Ta ≥ 25°C
	Pulse ON current	I_{OP}	1.05	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125	°C	
Dielectric strength between I/O ✻		V_{I-O}	1500	Vrms	AC for 1 min
Ambient operating temperature		Ta	-20 to +85	°C	With no icing or condensation
Ambient storage temperature		Tstg	-40 to +125	°C	
Soldering temperature		–	260	°C	10 s

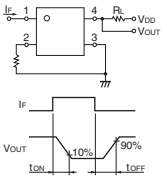
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

G3VM-81G□

■Electrical Characteristics (Ta = 25°C)

	Item	Symbol		G3VM-81G1	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0	V	I_F=10 mA
			Typical	1.15		
			Maximum	1.3		
	Reverse current	I_R	Maximum	10	μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	15	pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1	mA	I_O=350 mA
			Maximum	4		
	Release LED forward current	I_{FC}	Minimum	0.2	mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	1	Ω	IF=5 mA, I_O=350 mA
			Maximum	1.2		
	Current leakage when the relay is open	I_{LEAK}	Typical	0.2	nA	V_{OFF}=30 V, Ta=50°C
			Maximum	1		
	Capacitance between terminals	C_{OFF}	Typical	30	pF	V=0, f=100 MHz
			Maximum	40		
Capacitance between I/O terminals		C_{I-O}	Typical	0.8	pF	f=1 MHz, V_S=0V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000	MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8		
Turn-ON time		t_{ON}	Typical	0.3	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻
			Maximum	0.5		
Turn-OFF time		t_{OFF}	Typical	0.3		
			Maximum	0.5		

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

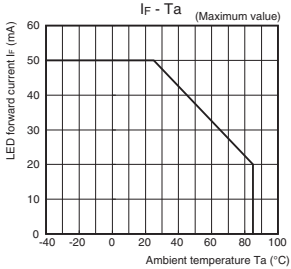
Item	Symbol		G3VM-81G1	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	64	V
Operating LED forward current	I_F	Minimum	5	mA
		Maximum	30	
Continuous load current (AC peak/DC)	I_O	Maximum	350	
Ambient operating temperature	Ta	Minimum	−20	°C
		Maximum	60	

■Spacing and Insulation

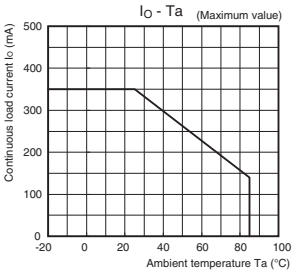
Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

■Engineering Data

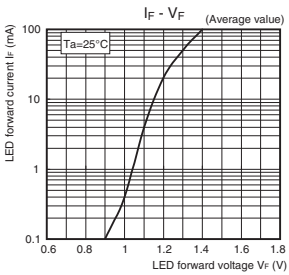
● **LED forward current vs. Ambient temperature**



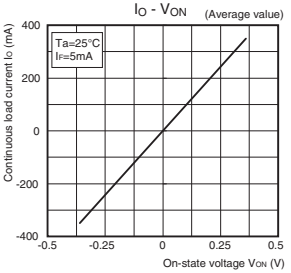
● **Continuous load current vs. Ambient temperature**



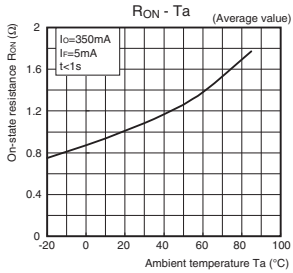
● **LED forward current vs. LED forward voltage**



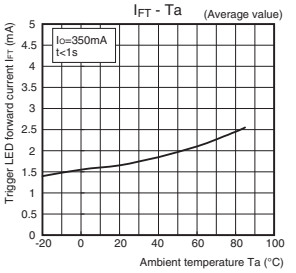
● **Continuous load current vs. On-state voltage**



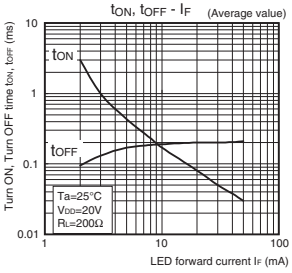
● **On-state resistance vs. Ambient temperature**



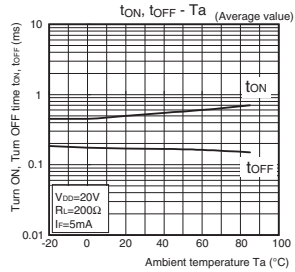
● **Trigger LED forward current vs. Ambient temperature**



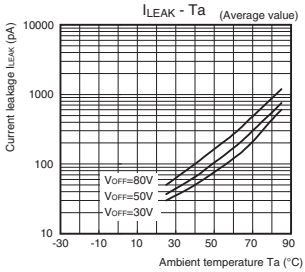
● **Turn ON, Turn OFF time vs. LED forward current**



● **Turn ON, Turn OFF time vs. Ambient temperature**



● **Current leakage vs. Ambient temperature**



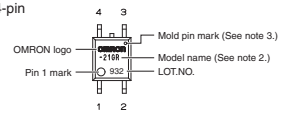
G3VM-81G□

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

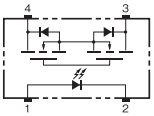
SOP (Small Outline Package)

SOP 4-pin



Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

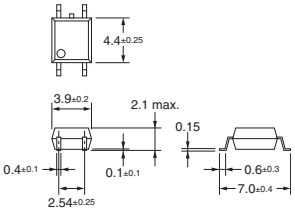
●Terminal Arrangement/Internal Connections (Top View)



■Dimensions (Unit: mm)

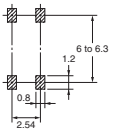
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-201G□/S5

MOS FET Relays SOP 4-pin, General-purpose Type

General-purpose MOS FET Relays in SOP 4-pin packages for a wide range of applications

- **Load voltage: 200 V**

RoHS Compliant

Note: The actual product is marked differently from the image shown here.

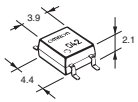
■Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

■Package

(Unit : mm, Average)

SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□

1 2 3 4

1. Load Voltage
20 : 200 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
G : SOP 4-pin

4. Other informations
When specifications overlap, serial code is added in the recorded order.

Note: The model number legend for the G3VM-S5 is different from the above legend.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP4	1a (SPST-NO)	Surface-mounting Terminals	200 V	50 mA	G3VM-201G	100 pcs.	G3VM-201G(TR)	2,500 pcs.
				200 mA	G3VM-201G1		G3VM-201G1(TR)	
					G3VM-201G2		G3VM-201G2(TR)	
					G3VM-S5		G3VM-S5(TR)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

	Item	Symbol	G3VM-201G	G3VM-201G1	G3VM-201G2	G3VM-S5	Unit	Measurement conditions
Input	LED forward current	I_F	50		30	50	mA	
	Repetitive peak LED forward current	I_{FP}	1				A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI_F/°C	-0.5		-0.3	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5				V	
	Connection temperature	T_J	125				°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	200				V	
	Continuous load current (AC peak/DC)	I_O	50	200			mA	
	ON current reduction rate	ΔI_O/°C	-0.5	-2			mA/°C	Ta ≥ 25°C
	Pulse ON current	Iop	150	600			mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125				°C	
Dielectric strength between I/O ✻		V_{I-O}	1500				Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85				°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125				°C	
Soldering temperature		–	260				°C	10 s

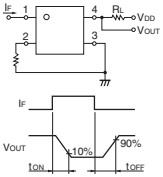
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

G3VM-201G□/S5

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-201G	G3VM-201G1	G3VM-201G2	G3VM-S5	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0		1.1	1.0	V	I_F=10 mA
			Typical	1.15		1.27	1.15		
			Maximum	1.3		1.4	1.3		
	Reverse current	I_R	Maximum	10				μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30				pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1	0.4	–	1	mA	G3VM-201G : I_O=50 mA G3VM-201G1/201G2/S5 : I_O=200 mA
			Maximum	3	1	0.2	3		
	Release LED forward current	I_{FC}	Minimum	0.1		–	0.1	mA	I_{OFF}=100 μA
			Typical	–		0.001	–		
Output	Maximum resistance with output ON	R_{ON}	Typical	40	5			Ω	G3VM-201G/S5: I_F=5 mA, I_O=Continuous load current ratings G3VM-201G1 : I_F=2 mA, I_O=200 mA G3VM-201G2 : I_F=0.5 mA, I_O=200 mA, t < 1s
			Maximum	50	8				
	Current leakage when the relay is open	I_{LEAK}	Typical	–	1		–	nA	G3VM-201G : V_{OFF}=160 V G3VM-201G1/201G2/S5 : V_{OFF}=200 V
			Maximum	1	1,000				
	Capacitance between terminals	C_{OFF}	Typical	15	90		100	pF	G3VM-201G : V=0, f=1 MHz, t < 10s G3VM-201G1/201G2/S5 : V=0, f=1 MHz
			Maximum	20	–				
Capacitance between I/O terminals		C_{I-O}	Typical	0.8				pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000				MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8					
Turn-ON time		t_{ON}	Typical	–	3	3.5	0.6	ms	G3VM-201G/S5 : I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻ G3VM-201G1 : I_F=2 mA, R_L=200 Ω, V_{DD}=20 V ✻ G3VM-201G2 : I_F=0.5 mA, R_L=200 Ω, V_{DD}=20 V ✻
			Maximum	0.5	8	10	1.5		
Turn-OFF time		t_{OFF}	Typical	–	0.6	1	0.1		
			Maximum	0.2	3	5	1		

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

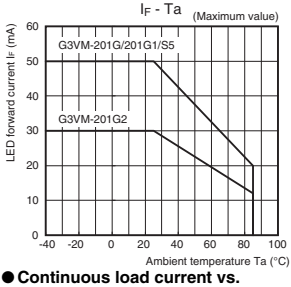
Item	Symbol		G3VM-201G	G3VM-201G1	G3VM-201G2	G3VM-S5	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	160			200	V
Operating LED forward current	I_F	Minimum	5	–		5	mA
		Typical	7.5	2	0.5	7.5	
		Maximum	15	25			
Continuous load current (AC peak/DC)	I_O	Maximum	40	160		130	
Ambient operating temperature	Ta	Minimum	-20				°C
		Maximum	65				

■Spacing and Insulation

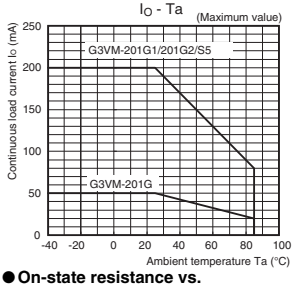
Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

■Engineering Data

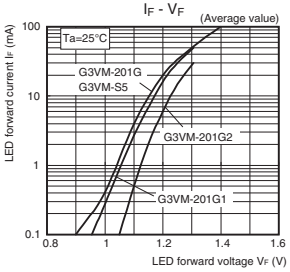
● **LED forward current vs. Ambient temperature**



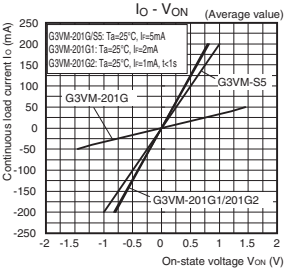
● **Continuous load current vs. Ambient temperature**



● **LED forward current vs. LED forward voltage**

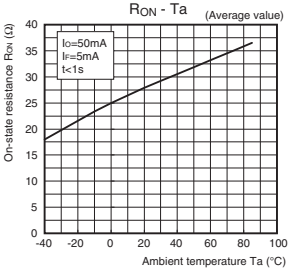


● **Continuous load current vs. On-state voltage**

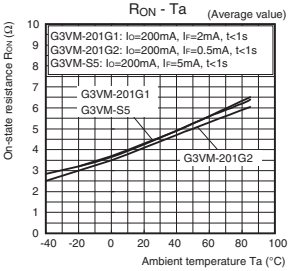


● **On-state resistance vs. Ambient temperature**

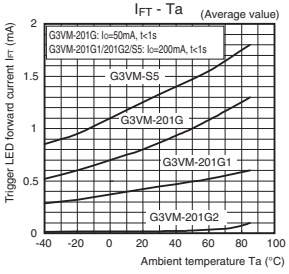
G3VM-201G



G3VM-201G1/201G2/S5

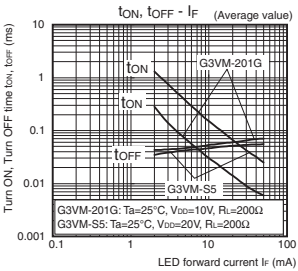


● **Trigger LED forward current vs. Ambient temperature**

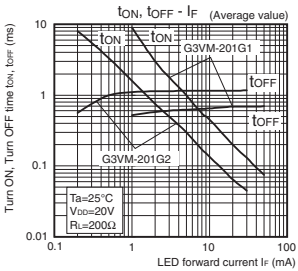


● **Turn ON, Turn OFF time vs. LED forward current**

G3VM-201G/S5



G3VM-201G1/201G2

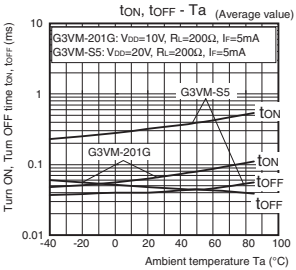


G3VM-201G□/S5

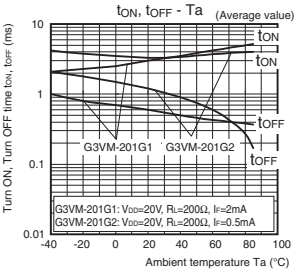
■Engineering Data

● **Turn ON, Turn OFF time vs. Ambient temperature**

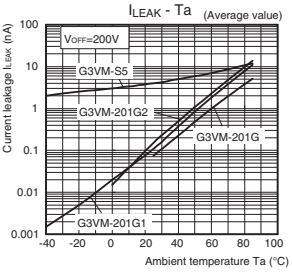
G3VM-201G/S5



G3VM-201G1/201G2

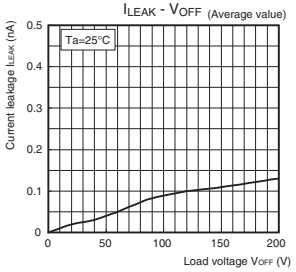


● **Current leakage vs. Ambient temperature**



● **Current leakage vs. Load voltage**

G3VM-201G2

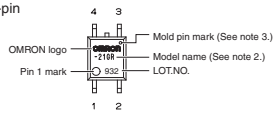


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

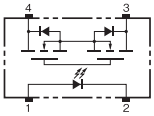
SOP (Small Outline Package)

SOP 4-pin



Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

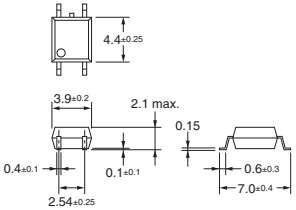
●Terminal Arrangement/Internal Connections (Top View)



■Dimensions (Unit: mm)

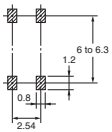
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-35□G□/351VY/401G□

MOS FET Relays SOP 4-pin, General-purpose Type

General-purpose MOS FET Relays in SOP 4-pin packages for a wide range of applications

- **Contact form: 1a (SPST-NO) or 1b (SPST-NC)**
- **Load voltage: 350 V or 400 V**

RoHS Compliant

NEW

Note: The actual product is marked differently from the image shown here.

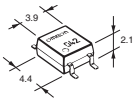
■Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Various battery-driven devices**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

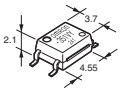
■Package

(Unit : mm, Average)

SOP 4-pin



Special SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□

1 2 3 4 5

1. Load Voltage
35 : 350 V
40 : 400 V

2. Contact form
1 : 1a (SPST-NO)
3 : 1b (SPST-NC)

3. Package
G : SOP 4-pin
V : Special SOP 4-pin

4. Additional functions
None: Dielectric strength between I/O 1500 V
Y: Dielectric strength between I/O 3750 V

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP4	1a (SPST-NO)	Surface-mounting Terminals	350 V	100 mA	G3VM-351G1	100 pcs.	G3VM-351G1(TR)	2,500 pcs.
				110 mA	G3VM-351G		G3VM-351G(TR)	
Special SOP 4-PIN					G3VM-351VY	125 pcs.	G3VM-351VY(TR05)	500 pcs.
							G3VM-351VY(TR)	3,000 pcs.
SOP4	1b (SPST-NC)			120 mA	G3VM-353G	100 pcs.	G3VM-353G(TR)	2,500 pcs.
	1a (SPST-NO)		400 V	100 mA	G3VM-401G1		G3VM-401G1(TR)	
				120 mA	G3VM-401G		G3VM-401G(TR)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)", "(TR05)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

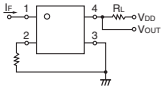
	Item	Symbol	G3VM-351G1	G3VM-351G	G3VM-351VY	G3VM-353G	G3VM-401G1	G3VM-401G	Unit	Measurement conditions
Input	LED forward current	I_F	50		30	50	30	50	mA	
	LED forward current reduction rate	ΔI_F/°C	-0.5		-0.3	-0.5	-0.3	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5		6	5			V	
	Connection temperature	T_J	125						°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	350				400		V	
	Continuous load current (AC peak/DC)	I_O	100	110		120	100	120	mA	
	ON current reduction rate	ΔI_O/°C	-1.0	-1.1		-1.2	-1.0	-1.2	mA/°C	Ta ≥ 25°C
	Pulse ON current	I_{OP}	300	330		360	300	360	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125						°C	
Dielectric strength between I/O ✻		V_{I-O}	1500		3750	1500			Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85		-40 to +110	-40 to +85			°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125						°C	
Soldering temperature		–	260						°C	10 s

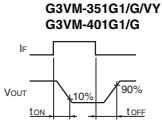
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

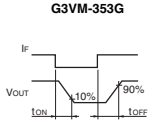
■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-351G1	G3VM-351G	G3VM-351VY	G3VM-353G	G3VM-401G1	G3VM-401G	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0		1.1	1.0	1.1	1.0	V	I_F=10 mA
			Typical	1.15		1.27	1.15	1.27	1.15		
			Maximum	1.3		1.4	1.3	1.4	1.3		
	Reverse current	I_R	Maximum	10						μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30						pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT} (I_{FC}) ✻2	Typical	0.4	1	0.8	1	–	1	mA	G3VM-351G1/351G/401G1 : I_O=100 mA G3VM-351VY : I_O=110 mA G3VM-353G : I_{OFF}=10 μA G3VM-401G : I_O=120 mA
			Maximum	1	3			0.2	3		
	Release LED forward current	I_{FC} (I_{FT}) ✻2	Minimum	0.1				–	0.1	mA	G3VM-351G1/351VY/351G/401G1/401G : I_{OFF}=100 μA G3VM-353G : I_O=120 mA
			Typical	–		0.4	–	0.001	–		
Output	Maximum resistance with output ON	R_{ON}	Typical	35 (25)		35 (22)	15	18	17	Ω	G3VM-351G1 : I_F=2 mA, I_O=100 mA Values in parentheses are for t < 1 s. G3VM-351G : I_F=5 mA, I_O=110 mA Values in parentheses are for t < 1 s. G3VM-351VY : I_F=5 mA, I_O=110 mA Values in parentheses are for t < 1 s. G3VM-353G : I_O=120 mA G3VM-401G1 : I_F=0.5 mA, I_O=100 mA, t < 1 s G3VM-401G : I_F=5 mA, I_O=120 mA
			Maximum	50 (35)			25	35			
	Current leakage when the relay is open	I_{LEAK}	Typical	1	–	1	–	1	–	nA	G3VM-351G1/351VY/351G : V_{OFF}=350 V G3VM-353G : V_{OFF}=350 V, I_F=5 mA G3VM-401G1/401G : V_{OFF}=400 V
			Maximum	1,000							
	Capacitance between terminals	C_{OFF}	Typical	35	30	30	65	70		pF	G3VM-351G1/351VY/351G/401G1/401G : V=0, f=1 MHz G3VM-353G : V=0, f=1 MHz, I_F=5 mA
Capacitance between I/O terminals		C_{I-O}	Typical	0.8						pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000						MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8							
Turn-ON time		t_{ON}	Typical	1	0.3	0.5	–	2	0.3	ms	G3VM-351G1 : I_F=2 mA, R_L=200 Ω, V_{DD}=20 V G3VM-401G1 : I_F=0.5 mA, R_L=200 Ω, V_{DD}=20 V Others : I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻1
			Maximum	5	1			10	1		
Turn-OFF time		t_{OFF}	Typical	1	0.1		–	1	0.1		
			Maximum	3	1	0.5	3	5	1		

✻1. Turn-ON and Turn-OFF Times







✻2. These values are for Relays with NC contacts

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-351G1	G3VM-351G	G3VM-351VY	G3VM-353G	G3VM-401G1	G3VM-401G	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	280				320		V
Operating LED forward current	I_F	Minimum	–	5			–	5	mA
		Typical	2	7.5		–	0.5	7.5	
		Maximum	25						
Continuous load current (AC peak/DC)	I_O	Maximum	80	100	110	120	80	120	
Ambient operating temperature	Ta	Minimum	-20						°C
		Maximum	65		100	65			

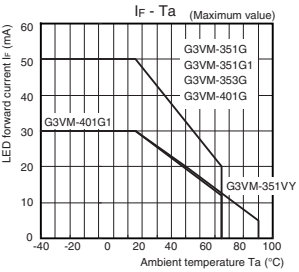
■Spacing and Insulation

Item	G3VM-35□G□/401G□	G3VM-351VY	Unit
	Minimum		
Creepage distances	4.0	5.0	mm
Clearance distances	4.0	5.0	
Internal isolation thickness	0.1	0.2	

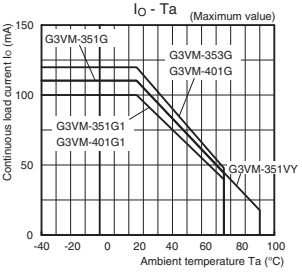
G3VM-35□G□/351VY/401G□

■Engineering Data

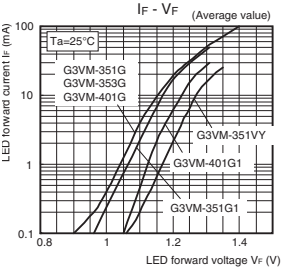
●LED forward current vs. Ambient temperature



●Continuous load current vs. Ambient temperature

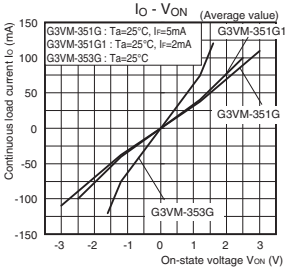


●LED forward current vs. LED forward voltage

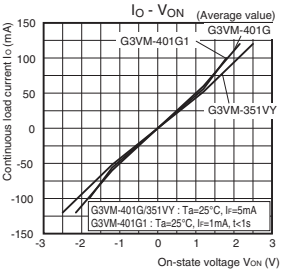


●Continuous load current vs. On-state voltage

G3VM-351G/351G1/353G

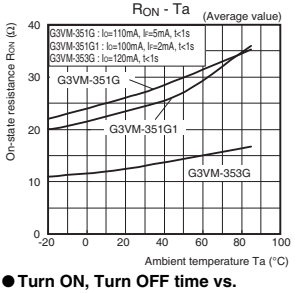


G3VM-351VY/401G/401G1

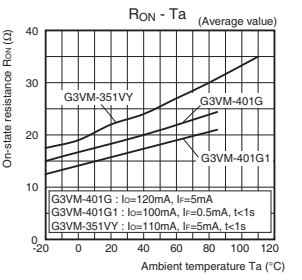


●On-state resistance vs. Ambient temperature

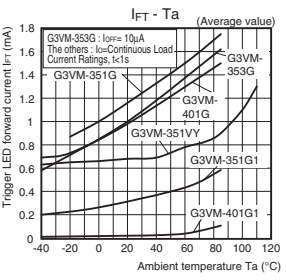
G3VM-351G/351G1/353G



G3VM-351VY/401G/401G1

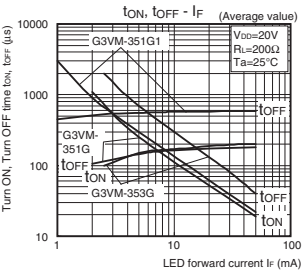


●Trigger LED forward current vs. Ambient temperature

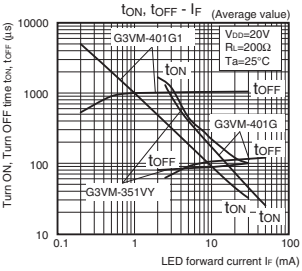


●Turn ON, Turn OFF time vs. LED forward current

G3VM-351G/351G1/353G



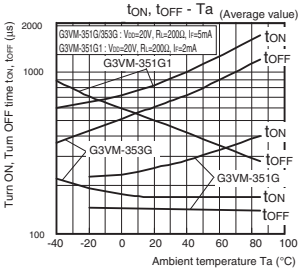
G3VM-351VY/401G/401G1



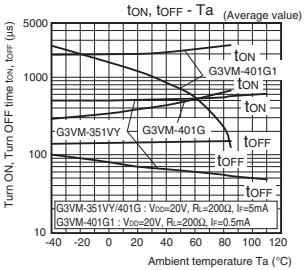
■Engineering Data

● **Turn ON, Turn OFF time vs. Ambient temperature**

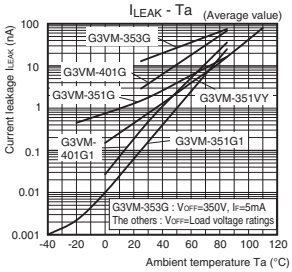
G3VM-351G/351G1/353G



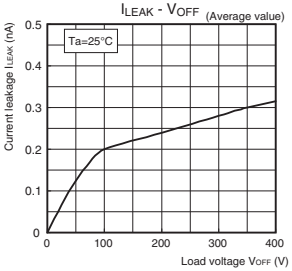
G3VM-351VY/401G/401G1



● **Current leakage vs. Ambient temperature**



● **Current leakage vs. Load voltage**



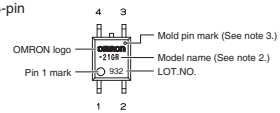
G3VM-35□G□/351VY/401G□

■Appearance / Terminal Arrangement / Internal Connections

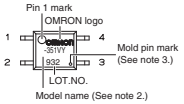
●Appearance

SOP (Small Outline Package)

SOP 4-pin



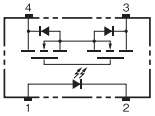
Special SOP 4-pin (G3VM-351VY)



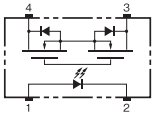
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

G3VM-351G1/G/VY
G3VM-401G1/G



G3VM-353G



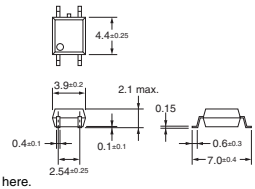
■Dimensions (Unit: mm)

SOP (Small Outline Package)

SOP 4-pin

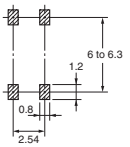
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

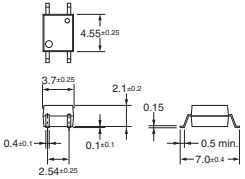


Note: The actual product is marked differently from the image shown here.

Special SOP 4-pin ✻ (G3VM-351VY)

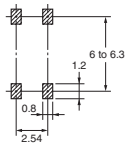
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



✻ The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same.
Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-351G1 G3VM-351G G3VM-401G G3VM-351VY	UL (recognized)	1a (SPST-NO)	E80555
G3VM-353G		1b (SPST-NC)	
G3VM-401G1	UL certification is pending.		

Models Certified by BSI for EN/IEC Standards

Model	Approved Standards	Contact form	File No.
G3VM-401G	EN62368-1 (BSI certified)	1a (SPST-NO)	VC669262

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

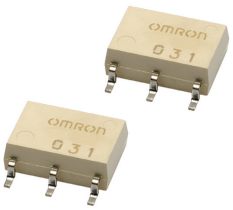
G3VM-□H□

MOS FET Relays SOP 6-pin, General-purpose Type

General-purpose MOS FET Relays in SOP 6-pin packages for a wide range of applications

- **Contact form: 1a (SPST-NO) or 1b (SPST-NC)**
- **Load voltage: 60 V, 200 V, 350 V, or 400 V**

RoHS Compliant



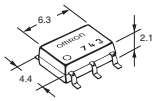
Note: The actual product is marked differently from the image shown here.

■Application Examples

- **Semiconductor test equipment**
- **Communication equipment**
- **Test & Measurement equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

■Package (Unit : mm, Average)

SOP 6-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□
1 2 3 4

1. Load Voltage
6 : 60 V
20 : 200 V
35 : 350 V
40 : 400 V

2. Contact form
1 : 1a (SPST-NO)
3 : 1b (SPST-NC)

3. Package
H : SOP 6-pin

4. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻		Stick packaging		Tape packaging	
				Connection A, B	Connection C	Model	Minimum package quantity	Model	Minimum package quantity
SOP6	1a (SPST-NO)	Surface-mounting Terminals	60 V	400 mA	800 mA	G3VM-61H1	75 pcs.	G3VM-61H1(TR)	2,500 pcs.
			200 V	200 mA	400 mA	G3VM-201H1		G3VM-201H1(TR)	
	1b (SPST-NC)		350 V	110 mA	220 mA	G3VM-351H		G3VM-351H(TR)	
				120 mA	240 mA	G3VM-353H		G3VM-353H(TR)	
	1a (SPST-NO)		400 V			G3VM-401H		G3VM-401H(TR)	

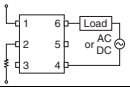
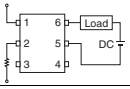
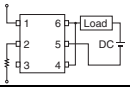
✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	G3VM-61H1	G3VM-201H1	G3VM-351H	G3VM-353H	G3VM-401H	Unit	Measurement conditions
Input	LED forward current		I_F	50					mA	
	LED forward current reduction rate		ΔI_F/°C	-0.5					mA/°C	Ta ≥ 25°C
	LED reverse voltage		V_R	5					V	
	Connection temperature		T_J	125					°C	
Output	Load voltage (AC peak/DC)		V_{OFF}	60	200	350		400	V	
	Continuous load current	Connection A	I_O	400	200	110	120		mA	Connection A: AC peak/DC Connection B and C: DC
		Connection B								
		Connection C		800	400	220	240			
	ON current reduction rate	Connection A	ΔI_O/°C	-4.0	-2.0	-1.1	-1.2		mA/°C	Ta ≥ 25°C
		Connection B								
		Connection C		-8.0	-4.0	-2.2	-2.4			
	Pulse ON current		I_{OP}	1200	600	330	360		mA	t=100 ms, Duty=1/10
	Connection temperature		T_J	125					°C	
Dielectric strength between I/O ✻			V_{I-O}	1500					Vrms	AC for 1 min
Ambient operating temperature			Ta	-40 to +85					°C	With no icing or condensation
Ambient storage temperature			Tstg	-55 to +125					°C	
Soldering temperature			–	260					°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram

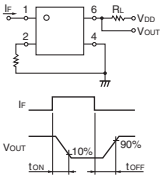
Connection A	
Connection B	
Connection C	

G3VM-□H□

■Electrical Characteristics (Ta = 25°C)

Item			Symbol		G3VM-61H1	G3VM-201H1	G3VM-351H	G3VM-353H	G3VM-401H	Unit	Measurement conditions
Input	LED forward voltage		V_F	Minimum	1.0					V	I_F=10 mA
				Typical	1.15						
				Maximum	1.3						
	Reverse current		I_R	Maximum	10					μA	V_R=5 V
	Capacitance between terminals		C_T	Typical	30					pF	V=0, f=1 MHz
	Trigger LED forward current		I_{FT} (I_{FC}) ✻2	Typical	1.6	1				mA	G3VM-61H1/201H1/351H/401H : I_O=Continuous load current ratings G3VM-353H : I_{OFF}=10 μA
				Maximum	3						
	Release LED forward current		I_{FC} (I_{FT}) ✻2	Minimum	0.1					mA	G3VM-61H1/201H1/351H/401H : I_{OFF}=100 μA G3VM-353H : I_O=120 mA
Output	Maximum resistance with output ON	Connection A	R_{ON}	Typical	1	5	35 (25)	15	17	Ω	G3VM-61H1/201H1/351H/401H : I_F=5 mA, I_O=Continuous load current ratings Values in parentheses are for t < 1 s. G3VM-353H : I_O=Continuous load current ratings
		Connection B			0.5	3	28	8	11		
		Connection C			0.25	1.5	14	4	6		
		Connection A		Maximum	2	8	50 (35)	25	35		
		Connection B			1	5	40	14	20		
		Connection C			–		20	–			
	Current leakage when the relay is open		I_{LEAK}	Maximum	1					μA	G3VM-61H1/201H1/351H/401H : V_{OFF}=Load voltage ratings G3VM-353H : V_{OFF}=350 V, I_F=5 mA
	Capacitance between terminals		C_{OFF}	Typical	130	100	30	65	70	pF	G3VM-61H1/201H1/351H/401H : V=0, f=1 MHz G3VM-353H : V=0, f=1 MHz, I_F=5 mA
Capacitance between I/O terminals			C_{I-O}	Typical	0.8					pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals			R_{I-O}	Minimum	1000					MΩ	V_{I-O}=500 VDC, RoH≤60%
				Typical	10^8						
Turn-ON time			t_{ON}	Typical	0.8	0.6	0.3	–	0.3	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻1
				Maximum	2	1.5	1				
Turn-OFF time			t_{OFF}	Typical	0.1			–	0.1		
				Maximum	0.5	1		3	1		

✻1. Turn-ON and Turn-OFF Times



✻2. These values are for Relays with NC contacts

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

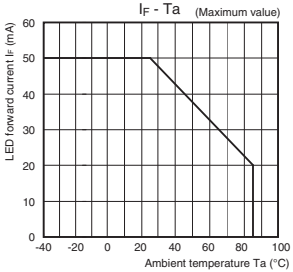
Item	Symbol		G3VM-61H1	G3VM-201H1	G3VM-351H	G3VM-353H	G3VM-401H	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48	160	280		320	V
Operating LED forward current	I_F	Minimum	5					mA
		Typical	7.5		10	–	7.5	
		Maximum	25					
Continuous load current (AC peak/DC)	I_O	Maximum	400	130	100	120		
Ambient operating temperature	Ta	Minimum	-20					°C
		Maximum	65	60	65			

■Spacing and Insulation

Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

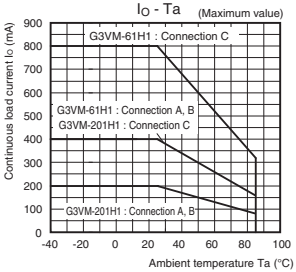
■Engineering Data

● LED forward current vs. Ambient temperature

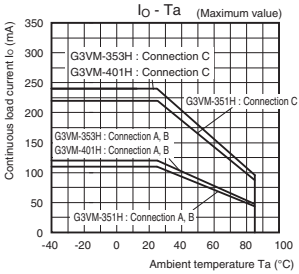


● Continuous load current vs. Ambient temperature

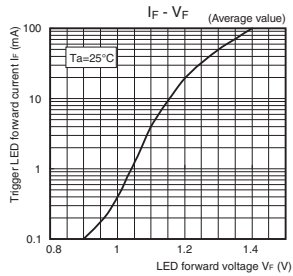
G3VM-61H1/201H1



G3VM-351H/353H/401H

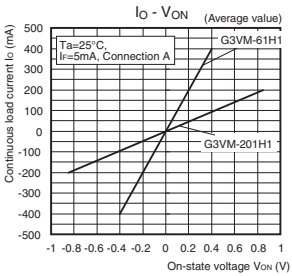


● LED forward current vs. LED forward voltage

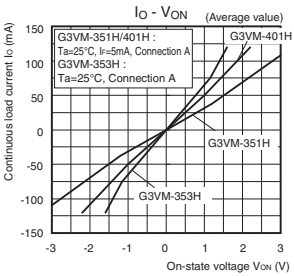


● Continuous load current vs. On-state voltage

G3VM-61H1/201H1

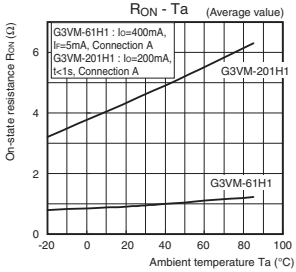


G3VM-351H/353H/401H

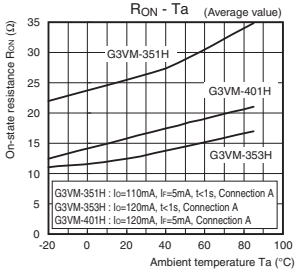


● On-state resistance vs. Ambient temperature

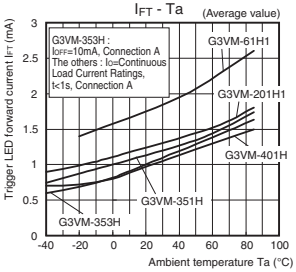
G3VM-61H1/201H1



G3VM-351H/353H/401H



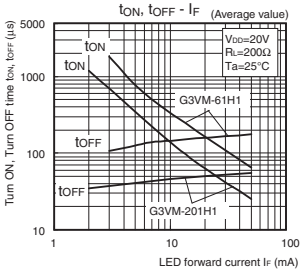
● Trigger LED forward current vs. Ambient temperature



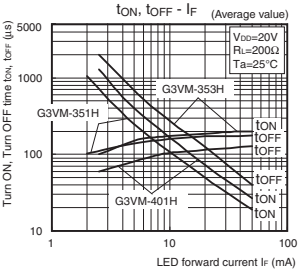
■Engineering Data

● **Turn ON, Turn OFF time vs. LED forward current**

G3VM-61H1/201H1

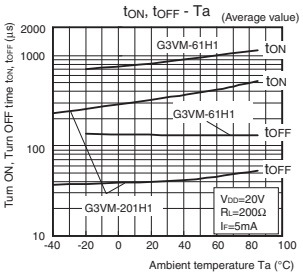


G3VM-351H/353H/401H

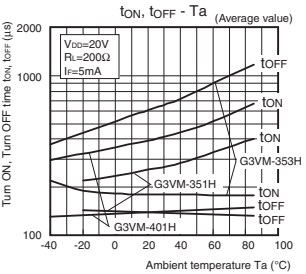


● **Turn ON, Turn OFF time vs. Ambient temperature**

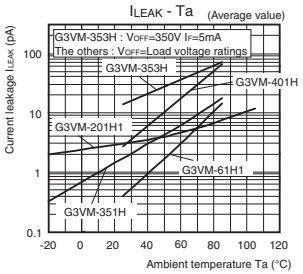
G3VM-61H1/201H1



G3VM-351H/353H/401H



● **Current leakage vs. Ambient temperature**

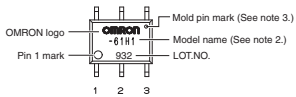


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

SOP (Small Outline Package)

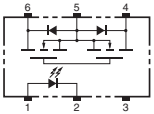
SOP 6-pin



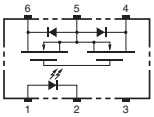
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

G3VM-61H1/201H1/351H/401H



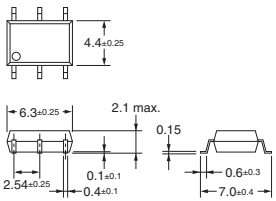
G3VM-353H



■Dimensions (Unit: mm)

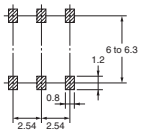
Surface-mounting Terminals

Weight: 0.13 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-61H1 G3VM-201H1 G3VM-351H	UL (recognized)	1a (SPST-NO)	E80555
G3VM-353H		1b (SPST-NC)	
G3VM-401H		1a (SPST-NO)	

Models Certified by BSI for EN/IEC Standards

Model	Approved Standards	Contact form	File No.
G3VM-401H	EN 60950/EN 60065 (BSI certified)	1a (SPST-NO)	8884 8885

■Safety Precautions

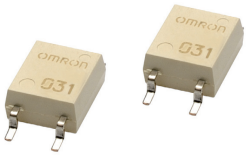
• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-601G□

MOS FET Relays SOP 4-pin, High-load-voltage Type

MOS FET Relays in SOP 4-pin packages for high load voltages

- **Load voltage: 600 V**



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

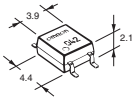
■Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Various battery-driven devices**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

■Package

(Unit : mm, Average)

SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□

1 2 3 4

1. Load Voltage
60 : 600 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
G : SOP 4-pin

4. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP4	1a (SPST-NO)	Surface-mounting Terminals	600 V	70 mA	**G3VM-601G1**	100 pcs.	**G3VM-601G1(TR)**	2,500 pcs.
				90 mA	**G3VM-601G**		**G3VM-601G(TR)**	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

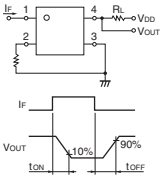
	Item	Symbol	G3VM-601G1	G3VM-601G	Unit	Measurement conditions
Input	LED forward current	I_F	30	50	mA	
	Repetitive peak LED forward current	I_{FP}	1		A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI_F/°C	-0.3	-0.5	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5		V	
	Connection temperature	T_J	125		°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	600		V	
	Continuous load current (AC peak/DC)	I_O	70	90	mA	
	ON current reduction rate	ΔI_O/°C	-0.7	-0.9	mA/°C	Ta ≥ 25°C
	Pulse ON current	I_{OP}	210	270	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125		°C	
Dielectric strength between I/O ✻		V_{I-O}	1500		Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85		°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125		°C	
Soldering temperature		–	260		°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-601G1	G3VM-601G	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.1	1.0	V	I_F=10 mA
			Typical	1.27	1.15		
			Maximum	1.4	1.3		
	Reverse current	I_R	Maximum	10		μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30		pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	–	0.4	mA	G3VM-601G1 : I_O=70 mA G3VM-601G : I_O=90 mA
			Maximum	0.2	1		
	Release LED forward current	I_{FC}	Minimum	–	0.1	mA	I_{OFF}=100 μA
			Typical	0.001	–		
Output	Maximum resistance with output ON	R_{ON}	Typical	35	45	Ω	G3VM-601G1 : I_F=0.5 mA, I_O=70 mA, t < 1 s G3VM-601G : I_F=2 mA, I_O=90 mA
			Maximum	60			
	Current leakage when the relay is open	I_{LEAK}	Typical	1	–	nA	V_{OFF}=600 V
			Maximum	1,000			
	Capacitance between terminals	C_{OFF}	Typical	75		pF	V=0, f=1 MHz
Capacitance between I/O terminals		C_{I-O}	Typical	0.8		pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000		MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8			
Turn-ON time		t_{ON}	Typical	2		ms	G3VM-601G1 : I_F=0.5 mA, R_L=200 Ω, V_{DD}=10 V ✻ G3VM-601G : I_F=2 mA, R_L=200 Ω, V_{DD}=10 V ✻
			Maximum	10	8		
Turn-OFF time		t_{OFF}	Typical	1	0.5		
			Maximum	5	3		

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-601G1	G3VM-601G	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	480		V
Operating LED forward current	I_F	Typical	0.5	2	mA
		Maximum	25		
Continuous load current (AC peak/DC)	I_O	Maximum	60	70	
Ambient operating temperature	Ta	Minimum	-20		°C
		Maximum	65		

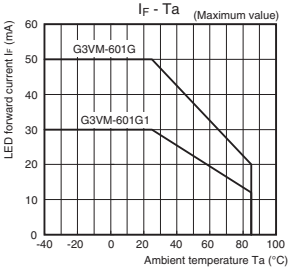
■Spacing and Insulation

Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

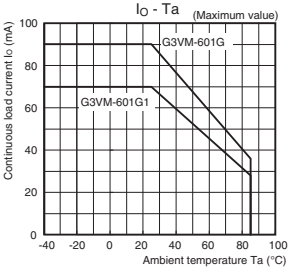
G3VM-601G□

■Engineering Data

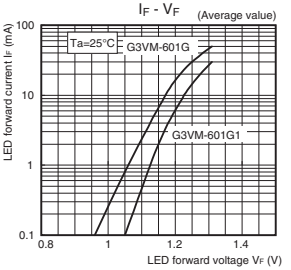
● **LED forward current vs. Ambient temperature**



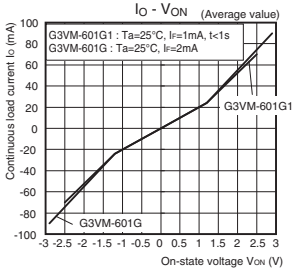
● **Continuous load current vs. Ambient temperature**



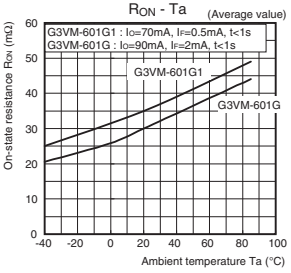
● **LED forward current vs. LED forward voltage**



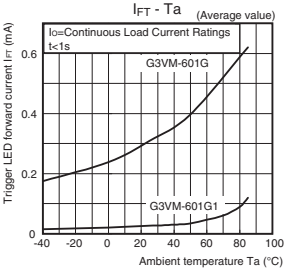
● **Continuous load current vs. On-state voltage**



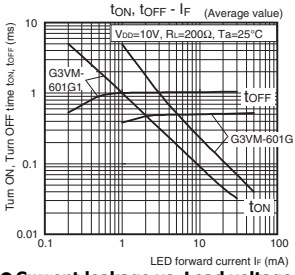
● **On-state resistance vs. Ambient temperature**



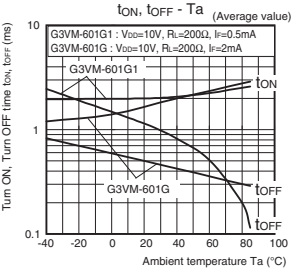
● **Trigger LED forward current vs. Ambient temperature**



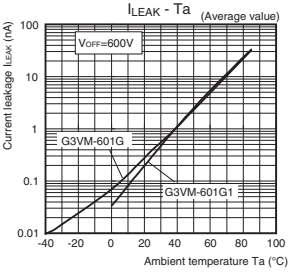
● **Turn ON, Turn OFF time vs. LED forward current**



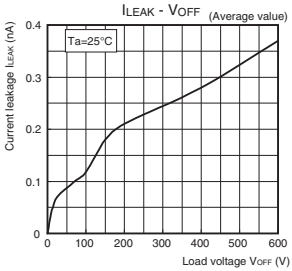
● **Turn ON, Turn OFF time vs. Ambient temperature**



● **Current leakage vs. Ambient temperature**



● **Current leakage vs. Load voltage**
G3VM-601G1

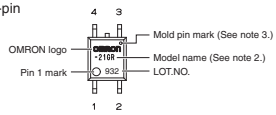


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

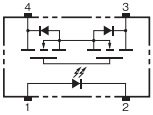
SOP (Small Outline Package)

SOP 4-pin



Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

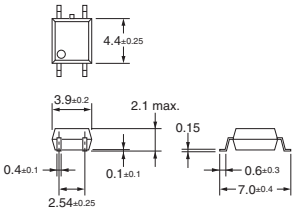
●Terminal Arrangement/Internal Connections (Top View)



■Dimensions (Unit: mm)

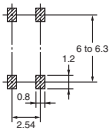
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

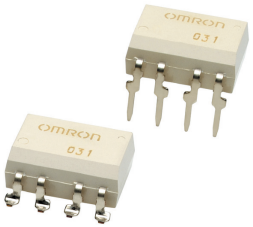
• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-□C□/□F□/□CR/□FR

MOS FET Relays DIP 8-pin, Multi-contact-pair Type

MOS FET Relays in DIP 8-pin packages with multiple contact pairs for a wide range of circuits

- **Contact form: 2a (DPST-NO), 2b (DPST-NC), 1a1b (SPST-NO/SPST-NC)**
- **Load voltage: 60 V, 350 V, or 400 V**



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

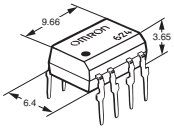
■Application Examples

- **Communication equipment**
- **Test & Measurement equipment**

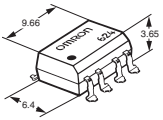
■Package (Unit : mm, Average)

DIP 8-pin

PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
6 : 60 V
35 : 350 V
40 : 400 V

2. Contact form
2 : 2a (DPST-NO)
4 : 2b (DPST-NC)
5 : 1a1b (SPST-NO/SPST-NC)

3. Package
C : DIP 8-pin with PCB terminals
F : DIP 8-pin with surface-mounting terminals

4. Additional functions
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging			Tape packaging	
				Model		Minimum package quantity	Model	Minimum package quantity
				PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP8	2a (DPST-NO)	60 V	500 mA	G3VM-62C1	G3VM-62F1	50 pcs.	G3VM-62F1(TR)	1,500 pcs.
		350 V	120 mA	G3VM-352C	G3VM-352F		G3VM-352F(TR)	
	2b (DPST-NC)		150 mA	G3VM-354C	G3VM-354F		G3VM-354F(TR)	
	1a1b (SPST-NO/ SPST-NC)		120 mA	G3VM-355CR	G3VM-355FR		G3VM-355FR(TR)	
	2a (DPST-NO)	400 V		G3VM-402C	G3VM-402F		G3VM-402F(TR)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	G3VM-62C1 G3VM-62F1	G3VM-352C G3VM-352F	G3VM-354C G3VM-354F	G3VM-355CR G3VM-355FR	G3VM-402C G3VM-402F	Unit	Measurement conditions
Input	LED forward current	I_F	50					mA	
	Repetitive peak LED forward current	I_{FP}	1					A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI_F/°C	-0.5					mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5					V	
	Connection temperature	T_J	125					°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	60	350			400	V	
	Continuous load current (AC peak/DC)	I_O	500	120	150	120		mA	
	ON current reduction rate	ΔI_O/°C	-5	-1.2	-1.5	-1.2		mA/°C	Ta ≥ 25°C
	Pulse ON current	Iop	1,500	360	450	360		mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125					°C	
Dielectric strength between I/O ✻		V_{I-O}	2,500					Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85					°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125					°C	
Soldering temperature		–	260					°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

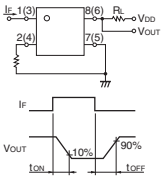
G3VM-□C□/□F□/□CR/□FR

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-62C1 G3VM-62F1	G3VM-352C G3VM-352F	G3VM-354C G3VM-354F	G3VM-355CR G3VM-355FR	G3VM-402C G3VM-402F	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0					V	I_F=10 mA
			Typical	1.15						
			Maximum	1.3						
	Reverse current	I_R	Maximum	10					μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30					pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT} (I_{FC}) ※2	Typical	1.6	1				mA	G3VM-62C1/62F1/352C/352F/402C/402F : I_O=Continuous load current ratings G3VM-354C/354F : I_{OFF}=10 μA G3VM-355CR/355FR : 1a : I_O=120 mA, 1b : I_{OFF}=10 μA
			Maximum	3						
	Release LED forward current	I_{FC} (I_{FT}) ※2	Minimum	0.1					mA	G3VM-62C1/62F1/352C/352F/402C/402F : I_{OFF}=100 μA G3VM-354C/354F : I_O=150 mA G3VM-355CR/355FR : 1a : I_{OFF}=10 μA, 1b : I_O=120 mA
Output	Maximum resistance with output ON	R_{ON}	Typical	1	35 (25)	15		18	Ω	G3VM-62C1/62F1/402C/402F/352C/352F : I_F=5 mA, I_O=Continuous load current ratings Values in parentheses are for t < 1 s. G3VM-354C/354F : I_O=150 mA G3VM-355CR/355FR : 1a : I_F=5 mA, I_O=120 mA, 1b : I_F=0 mA, I_O=120 mA
			Maximum	2	50 (35)	25		35		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1					μA	G3VM-354C/354F : V=0, f=1 MHz, I_F=5 mA G3VM-355CR/355FR : 1a : V=0, f=1 MHz 1b : V=0, f=1 MHz, I_F=5 mA Others : V=0, f=1 MHz
	Capacitance between terminals	C_{OFF}	Typical	130	30	85	65	40	pF	V=0, f=1 MHz
Capacitance between I/O terminals		C_{I-O}	Typical	0.8					pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000					MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8						
Turn-ON time		t_{ON}	Typical	0.8	0.3	0.1	–		ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ※1
			Maximum	2	1		1a : 1, 1b : 1	1		
Turn-OFF time		t_{OFF}	Typical	0.1	0.1	1	–			
			Maximum	0.5	1	3	1a : 1, 1b : 3	1		

※1. Turn-ON and Turn-OFF Times

※2. These values are for Relays with NC contacts



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

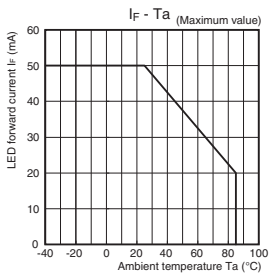
Item	Symbol		G3VM-62C1 G3VM-62F1	G3VM-352C G3VM-352F	G3VM-354C G3VM-354F	G3VM-355CR G3VM-355FR	G3VM-402C G3VM-402F	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48	280			320	V
Operating LED forward current	I_F	Minimum	5					mA
		Typical	7.5		–		7.5	
		Maximum	25					
Continuous load current (AC peak/DC)	I_O	Maximum	500	100	150	120	100	
Ambient operating temperature	Ta	Minimum	-20					°C
		Maximum	65					

■Spacing and Insulation

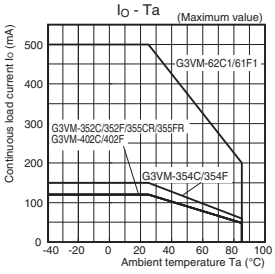
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

■Engineering Data

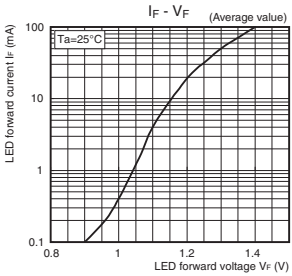
● **LED forward current vs. Ambient temperature**



● **Continuous load current vs. Ambient temperature**

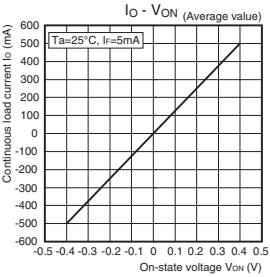


● **LED forward current vs. LED forward voltage**

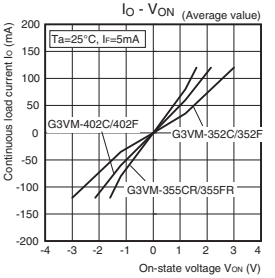


● **Continuous load current vs. On-state voltage**

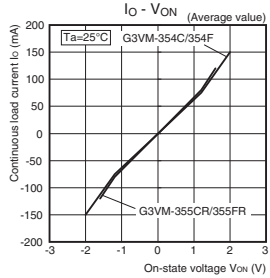
G3VM-62C1/62F1



G3VM-352C/352F/402C/402F
G3VM-355CR/355FR [SPST-NO Contacts]

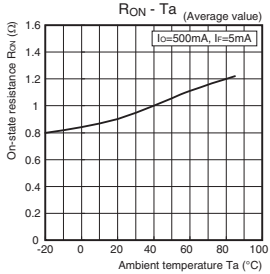


G3VM-354C/354F
G3VM-355CR/355FR [SPST-NC Contacts]

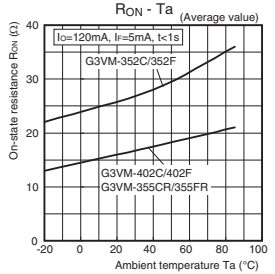


● **On-state resistance vs. Ambient temperature**

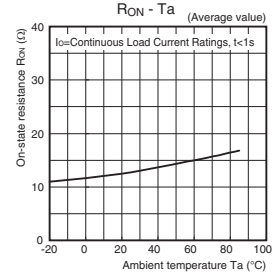
G3VM-62C1/62F1



G3VM-352C/352F/402C/402F
G3VM-355CR/355FR [SPST-NO Contacts]

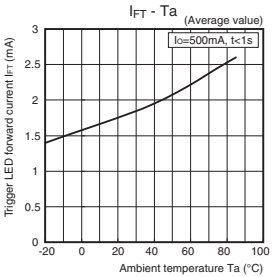


G3VM-354C/354F
G3VM-355CR/355FR [SPST-NC Contacts]

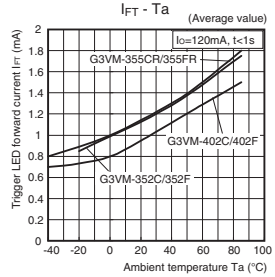


● **Trigger LED forward current vs. Ambient temperature**

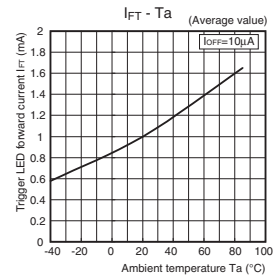
G3VM-62C1/62F1



G3VM-352C/352F/402C/402F
G3VM-355CR/355FR [SPST-NO Contacts]



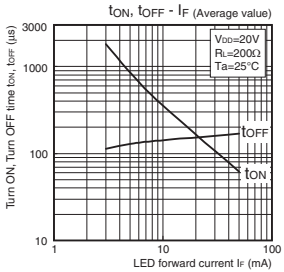
G3VM-354C/354F
G3VM-355CR/355FR [SPST-NC Contacts]



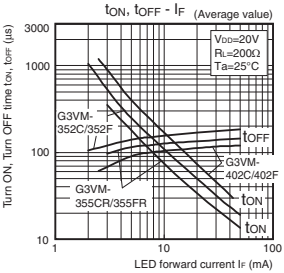
■Engineering Data

● **Turn ON, Turn OFF time vs. LED forward current**

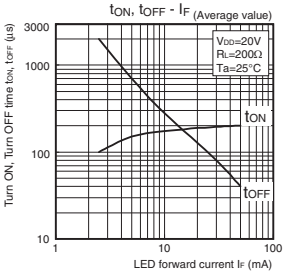
G3VM-62C1/62F1



G3VM-352C/352F/402C/402F
G3VM-355CR/355FR [SPST-NO Contacts]

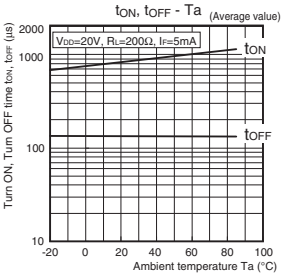


G3VM-354C/354F
G3VM-355CR/355FR [SPST-NC Contacts]

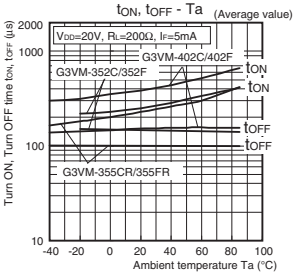


● **Turn ON, Turn OFF time vs. Ambient temperature**

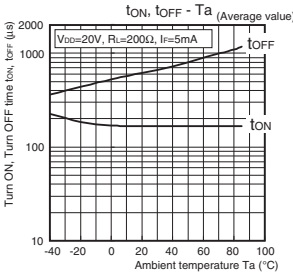
G3VM-62C1/62F1



G3VM-352C/352F/402C/402F
G3VM-355CR/355FR [SPST-NO Contacts]

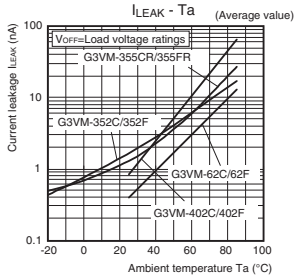


G3VM-354C/354F
G3VM-355CR/355FR [SPST-NC Contacts]

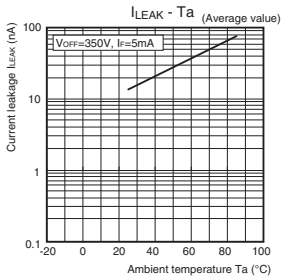


● **Current leakage vs. Ambient temperature**

G3VM-62C1/62F1/352C/352F/402C/402F
G3VM-355CR/355FR [SPST-NO Contacts]



G3VM-354C/354F
G3VM-355CR/355FR [SPST-NC Contacts]

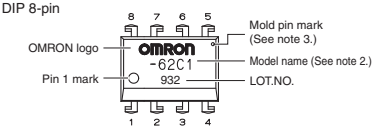


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

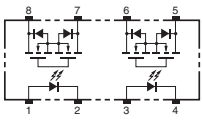
DIP (Dual Inline Package)

DIP 8-pin

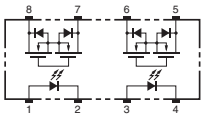


●Terminal Arrangement/Internal Connections (Top View)

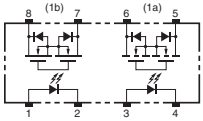
G3VM-62C1/62F1/352C/352F/402C/402F



G3VM-354C/354F



G3VM-355CR/355FR



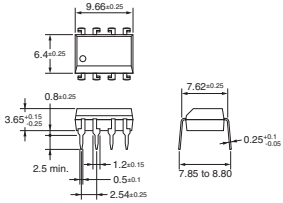
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

DIP 8-pin

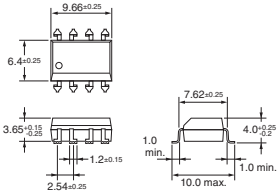
PCB Terminals

Weight: 0.54 g

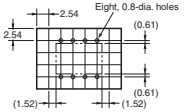


Surface-mounting Terminals

Weight: 0.54 g

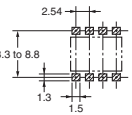


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-62C1 G3VM-62F1 G3VM-352C G3VM-352F G3VM-402C G3VM-402F	UL (recognized)	2a (DPST-NO)	E80555
G3VM-354C G3VM-354F		2b (DPST-NC)	
G3VM-355CR G3VM-355FR		1a1b (SPST-NO/SPST-NC)	

Models Certified by BSI for EN/IEC Standards

Model	Approved Standards	Contact form	File No.
G3VM-352C G3VM-352F	EN 60950/EN 60065 (BSI certified)	2a (DPST-NO)	8816 8817

■Safety Precautions

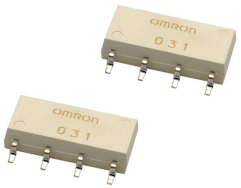
- Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-□J□

MOS FET Relays SOP 8-pin, Multi-contact-pair Type

MOS FET Relays in SOP 8-pin packages with multiple contact pairs for a wide range of circuits

- **Contact form: 2a (DPST-NO), 2b (DPST-NC), 1a1b (SPST-NO/SPST-NC)**
- **Load voltage: 60 V, 200 V, 350 V, or 400 V**



Note: The actual product is marked differently from the image shown here.

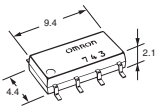
RoHS Compliant

■Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

■Package (Unit : mm, Average)

SOP 8-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
6 : 60 V
20 : 20 V
35 : 350 V
40 : 400 V

2. Contact form
2 : 2a (DPST-NO)
4 : 2b (DPST-NC)
5 : 1a1b (SPST-NO/SPST-NC)

3. Package
J : SOP 8-pin

4. Additional functions
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP8	2a (DPST-NO)	Surface-mounting Terminals	60 V	400 mA	G3VM-62J1	50 pcs.	G3VM-62J1(TR)	2,500 pcs.
			200 V	200 mA	G3VM-202J1		G3VM-202J1(TR)	
	1a1b (SPST-NO/ SPST-NC)		350 V	120 mA	G3VM-355JR		G3VM-355JR(TR)	
	2a (DPST-NO)			110 mA	G3VM-352J		G3VM-352J(TR)	
	2b (DPST-NC)			120 mA	G3VM-354J		G3VM-354J(TR)	
	2a (DPST-NO)		400 V		G3VM-402J		G3VM-402J(TR)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

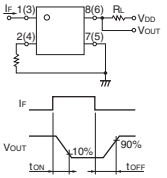
Item		Symbol	G3VM-62J1	G3VM-202J1	G3VM-355JR	G3VM-352J	G3VM-354J	G3VM-402J	Unit	Measurement conditions
Input	LED forward current	I_F	50						mA	
	LED forward current reduction rate	ΔI_F/°C	-0.5						mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5						V	
	Connection temperature	T_J	125						°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	60	200	350			400	V	
	Continuous load current (AC peak/DC)	I_O	400	200	120	110	120		mA	
	ON current reduction rate	ΔI_O/°C	-4.0	-2.0	-1.2	-1.1	-1.2		mA/°C	Ta ≥ 25°C
	Pulse ON current	I_{OP}	1,200	600	360	330	360		mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125						°C	
Dielectric strength between I/O ✻		V_{I-O}	1500						Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85						°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125						°C	
Soldering temperature		–	260						°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

	Item	Symbol		G3VM-62J1	G3VM-202J1	G3VM-355JR	G3VM-352J	G3VM-354J	G3VM-402J	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0						V	I_F=10 mA
			Typical	1.15							
			Maximum	1.3							
	Reverse current	I_R	Maximum	10						μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30						pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT} (I_{FC}) ✻2	Typical	1.6	1					mA	G3VM-62J1/202J1/352J/402J : I_O=Continuous load current ratings G3VM-355JR : 1a : I_O=120 mA, 1b : I_{OFF}=10 μA G3VM-354J : I_{OFF}=10 μA
			Maximum	3							
	Release LED forward current	I_{FC} (I_{FT}) ✻2	Minimum	0.1						mA	G3VM-62J1/202J1/352J/402J : I_{OFF}=100 μA G3VM-355JR : 1a : I_{OFF}=10 μA, 1b : I_O=120 mA G3VM-354J : I_O=120 mA
Output	Maximum resistance with output ON	R_{ON}	Typical	1	5	15	35 (25)	15	17	Ω	G3VM-62J1/202J1/352J/402J : I_F=5 mA, I_O=Continuous load current ratings G3VM-355JR : 1a : I_F=5 mA, I_O=120 mA, 1b : I_F=0, I_O=120 mA G3VM-352J : I_F=5 mA, I_O=110 mA, Values in parentheses are for t < 1 s. G3VM-354J : I_O=120 mA
			Maximum	2	8	25	50 (35)	25	35		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1						μA	G3VM-62J1/202J1/352J1/402J : V_{OFF}=Load voltage ratings G3VM-355JR : 1a : V_{OFF}=350 V, 1b : V_{OFF}=350 V, I_F=5 mA G3VM-354J : V_{OFF}=350 V, I_F=5 mA
	Capacitance between terminals	C_{OFF}	Typical	130	100	65	30	65	70	pF	G3VM-62J1/202J1/352J/402J : V=0, f=1 MHz G3VM-355JR : 1a : V=0, f=1 MHz, 1b : V=0, f=1 MHz, $_F$=5 mA G3VM-354J : V=0, f=1 MHz, I_F=5 mA
Capacitance between I/O terminals		C_{I-O}	Typical	0.8						pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000						MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8							
Turn-ON time		t_{ON}	Typical	0.8	0.6	–	0.3	–	0.3	ms	I_F=0.5 mA, R_L=200 Ω, V_{DD}=20 V ✻1
			Maximum	2	1.5	1a : 1 1b : 1	1				
Turn-OFF time		t_{OFF}	Typical	0.1		–	0.1	–	0.1		
			Maximum	0.5	1	1a : 1 1b : 3	1	3	1		

✻1. Turn-ON and Turn-OFF Times



✻2. These values are for Relays with NC contacts

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

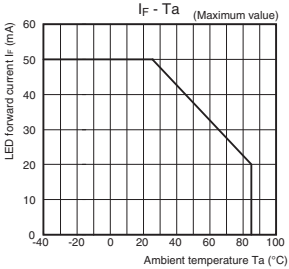
Item	Symbol		G3VM-62J1	G3VM-202J1	G3VM-355JR	G3VM-352J	G3VM-354J	G3VM-402J	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48	200	280			320	V
Operating LED forward current	I_F	Minimum	5						mA
		Typical	7.5		–	10	–	7.5	
		Maximum	25						
Continuous load current (AC peak/DC)	I_O	Maximum	400	130	120	100	120		
Ambient operating temperature	Ta	Minimum	-20						°C
		Maximum	65						

■Spacing and Insulation

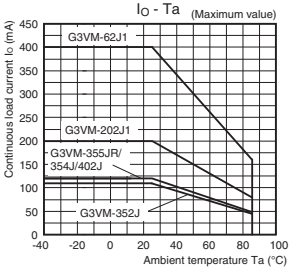
Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

■Engineering Data

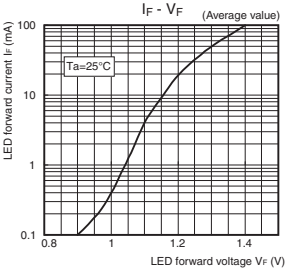
● **LED forward current vs. Ambient temperature**



● **Continuous load current vs. Ambient temperature**

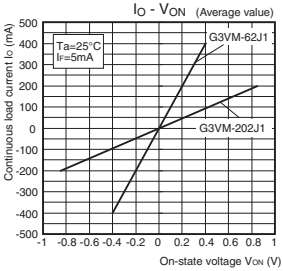


● **LED forward current vs. LED forward voltage**

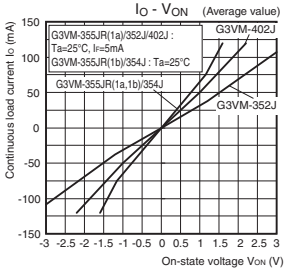


● **Continuous load current vs. On-state voltage**

G3VM-62J1/202J1

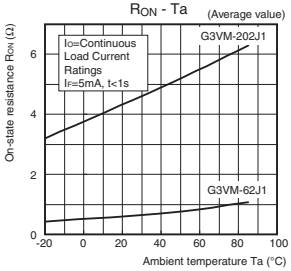


G3VM-355JR/352J/354J/402J

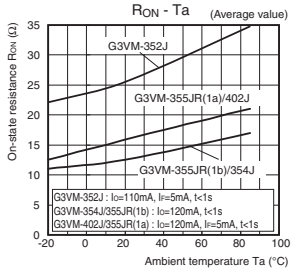


● **On-state resistance vs. Ambient temperature**

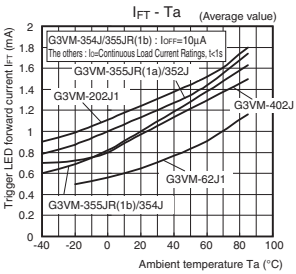
G3VM-62J1/202J1



G3VM-355JR/352J/354J/402J



● **Trigger LED forward current vs. Ambient temperature**

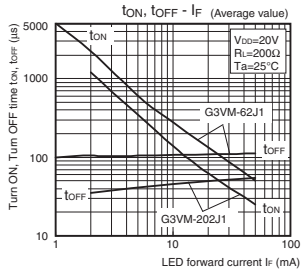


G3VM-□J□

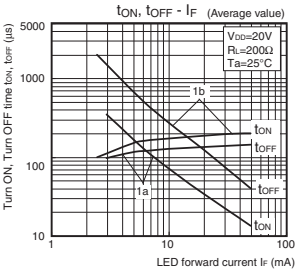
■Engineering Data

● **Turn ON, Turn OFF time vs. LED forward current**

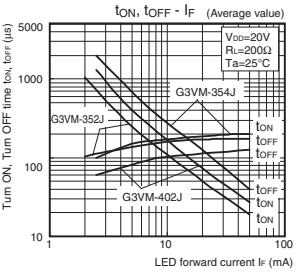
G3VM-62J1/202J1



G3VM-355JR

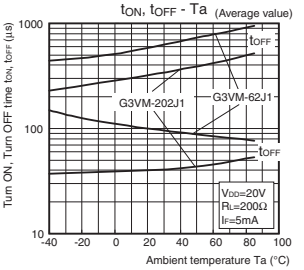


G3VM-352J/354J/402J

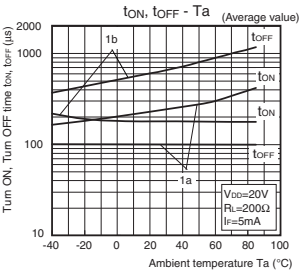


● **Turn ON, Turn OFF time vs. Ambient temperature**

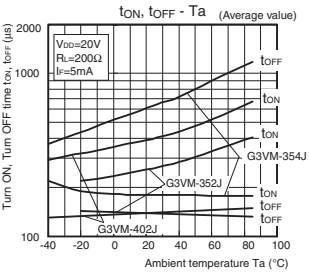
G3VM-62J1/202J1



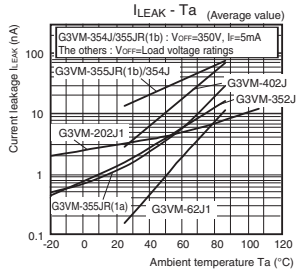
G3VM-355JR



G3VM-352J/354J/402J



● **Current leakage vs. Ambient temperature**

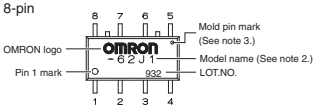


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

SOP (Small Outline Package)

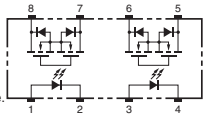
SOP 8-pin



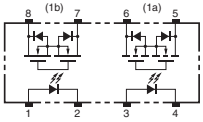
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)

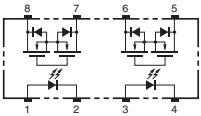
G3VM-62J1/202J1/352J/402J



G3VM-355JR



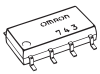
G3VM-354J

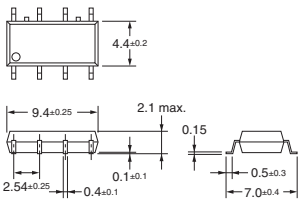


■Dimensions (Unit: mm)

Surface-mounting Terminals

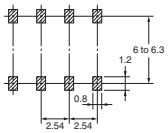
Weight: 0.2 g





Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-62J1	UL (recognized)	2a (DPST-NO)	E80555
G3VM-202J1			
G3VM-355JR		1a1b (SPST-NO/SPST-NC)	
G3VM-352J		2a (DPST-NO)	
G3VM-354J		2b (DPST-NC)	
G3VM-402J		2a (DPST-NO)	

Models Certified by BSI for EN/IEC Standards

Model	Approved Standards	Contact form	File No.
G3VM-402J	EN 60950/EN 60065 (BSI certified)	2a (DPST-NO)	8884 8885

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-□AR/□DR

MOS FET Relays DIP 4-pin, High-current and Low-ON-resistance Type

MOS FET Relays in DIP 4-pin packages that achieve the low ON resistance and high switching capacity of a mechanical relay

- **Load voltage: 20 V, 40 V, 60 V, or 100 V**
- **20-V Relay: Continuous load current of 3 A max.**
- **40-V Relay: Continuous load current of 2.5 A max.**
- **60-V Relay: Continuous load current of 2 A max.**
- **100-V Relay: Continuous load current of 1 A max.**

Note: The actual product is marked differently from the image shown here.

RoHS Compliant

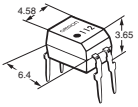
■Application Examples

- **Communication equipment**
- **Test & Measurement equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**

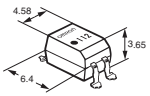
■Package (Unit : mm, Average)

DIP 4-pin

PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
2 : 20 V
4 : 40 V
6 : 60 V
10 : 100 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
A : DIP 4-pin with PCB terminals
D : DIP 4-pin with surface-mounting terminals

4. Additional functions
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging			Tape packaging	
				Model		Minimum package quantity	Model	Minimum package quantity
				PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP4	1a (SPST-NO)	20 V	3 A	G3VM-21AR	G3VM-21DR	100 pcs.	G3VM-21DR(TR)	1,500 pcs.
		40 V	2.5 A	G3VM-41AR	G3VM-41DR		G3VM-41DR(TR)	
		60 V	2 A	G3VM-61AR	G3VM-61DR		G3VM-61DR(TR)	
		100 V	1 A	G3VM-101AR	G3VM-101DR		G3VM-101DR(TR)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

	Item	Symbol	G3VM-21AR G3VM-21DR	G3VM-41AR G3VM-41DR	G3VM-61AR G3VM-61DR	G3VM-101AR G3VM-101DR	Unit	Measurement conditions
Input	LED forward current	I_F	30				mA	
	Repetitive peak LED forward current	I_{FP}	1				A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI_F/°C	-0.3				mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5				V	
	Connection temperature	T_J	125				°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	20	40	60	100	V	
	Continuous load current (AC peak/DC)	I_O	3	2.5	2	1	A	
	ON current reduction rate	ΔI_O/°C	-30	-25	-20	-10	mA/°C	Ta ≥ 25°C
	Pulse ON current	I_{OP}	9	7.5	6	3	A	t=100 ms, Duty=1/10
	Connection temperature	T_J	125				°C	
Dielectric strength between I/O ✻		V_{I-O}	2,500				Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85				°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125				°C	
Soldering temperature		–	260				°C	10 s

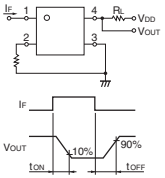
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

G3VM-□AR/□DR

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-21AR G3VM-21DR	G3VM-41AR G3VM-41DR	G3VM-61AR G3VM-61DR	G3VM-101AR G3VM-101DR	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.18				V	I_F=10 mA
			Typical	1.33					
			Maximum	1.48					
	Reverse current	I_R	Maximum	10				μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	70				pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT} (I_{FC})	Typical	0.7	0.5			mA	I_O=1 A
			Maximum	3					
	Release LED forward current	I_{FC} (I_{FT})	Minimum	0.1				mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	40	50	80	250	mΩ	G3VM-21AR/21DR/41AR/41DR/61AR/61DR : I_F=5 mA, t < 1s, I_O=2 A G3VM-101AR/DR : I_F=5 mA, t < 1s, I_O=1 A
			Maximum	80	150	200	700		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1				μA	V_{OFF}=Load voltage ratings
	Capacitance between terminals	C_{OFF}	Typical	300		250	200	pF	V=0, f=1 MHz
Capacitance between I/O terminals		C_{I-O}	Typical	0.8				pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000				MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8					
Turn-ON time		t_{ON}	Typical	1	0.8			ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻
			Maximum	5					
Turn-OFF time		t_{OFF}	Typical	0.3					
			Maximum	1					

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

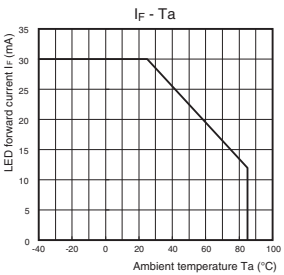
Item	Symbol		G3VM-21AR G3VM-21DR	G3VM-41AR G3VM-41DR	G3VM-61AR G3VM-61DR	G3VM-101AR G3VM-101DR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	16	32	48	80	V
Operating LED forward current	I_F	Minimum	5				mA
		Typical	10				
		Maximum	25				
Continuous load current (AC peak/DC)	I_O	Maximum	3	2.5	2	1	A
Ambient operating temperature	Ta	Minimum	-20				°C
		Maximum	65				

■Spacing and Insulation

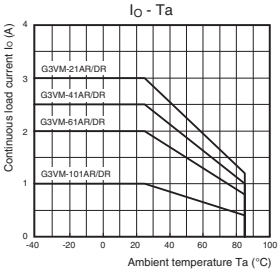
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

■Engineering Data

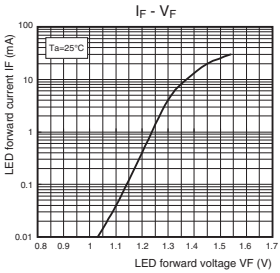
● **LED forward current vs. Ambient temperature**



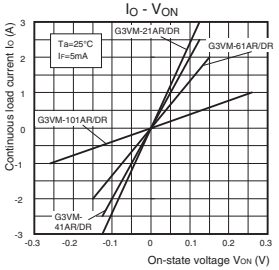
● **Continuous load current vs. Ambient temperature**



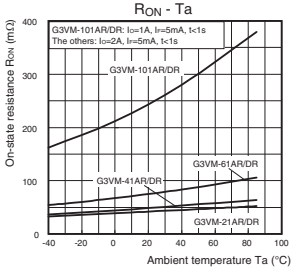
● **LED forward current vs. LED forward voltage**



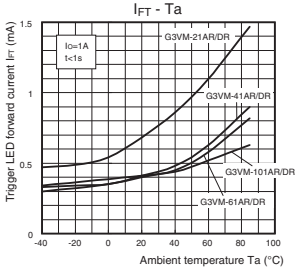
● **Continuous load current vs. On-state voltage**



● **On-state resistance vs. Ambient temperature**

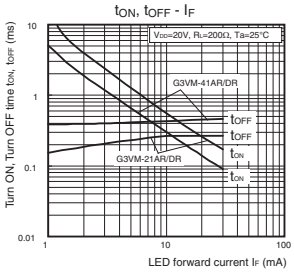


● **Trigger LED forward current vs. Ambient temperature**

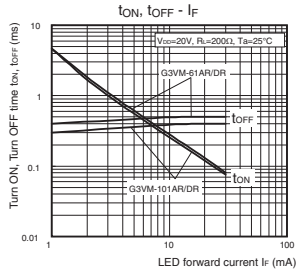


● **Turn ON, Turn OFF time vs. LED forward current**

G3VM-21AR/21DR/41AR/41DR

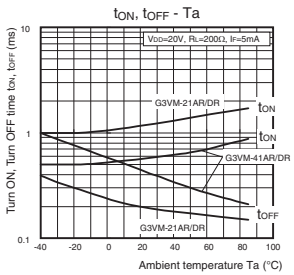


G3VM-61AR/61DR/101AR/101DR

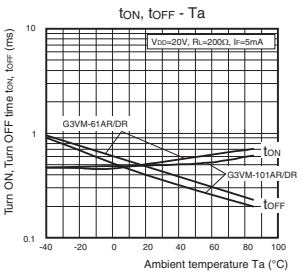


● **Turn ON, Turn OFF time vs. Ambient temperature**

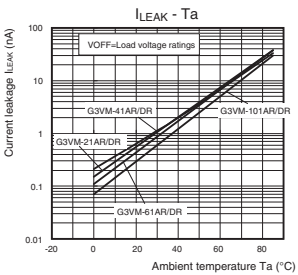
G3VM-21AR/21DR/41AR/41DR



G3VM-61AR/61DR/101AR/101DR



● **Current leakage vs. Ambient temperature**



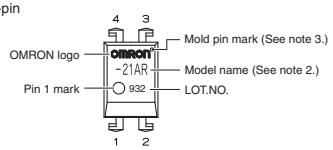
G3VM-□AR/□DR

■Appearance / Terminal Arrangement / Internal Connections

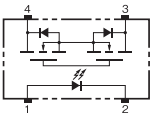
●Appearance

DIP (Dual Inline Package)

DIP 4-pin



●Terminal Arrangement/Internal Connections (Top View)

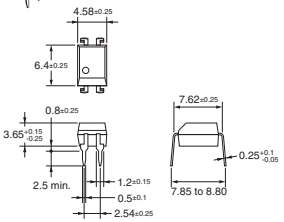


Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

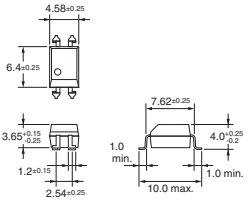
PCB Terminals

Weight: 0.25 g

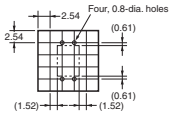


Surface-mounting Terminals

Weight: 0.25 g

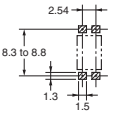


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

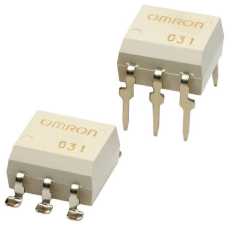
G3VM-□BR□/□ER□

MOS FET Relays DIP 6-pin, High-current and Low-ON-resistance Type

MOS FET Relays in DIP 6-pin packages that achieve the low ON resistance and high switching capacity of a mechanical relay

- **Load voltage: 20 V, 40 V, 60 V, or 100 V**
- **20-V Relay: Continuous load current of 4 A (8 A) max. ✻**
- **40-V Relay: Continuous load current of 3.5 A (7 A) max. ✻**
- **60-V G3VM-61BR/ER Relay: Continuous load current of 2.5 A max.**
- **60-V G3VM-61BR1/ER1 Relay: Continuous load current of 3 A (6 A) max. ✻**
- **100-V Relay: Continuous load current of 2 A (4 A) max. ✻**

✻ Values in parentheses are for connection C.



Note: The actual product is marked differently from the image shown here.

RoHS Compliant

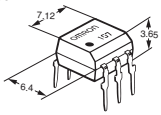
■Application Examples

- **Communication equipment**
- **Security equipment**
- **Power circuit**
- **Test & Measurement equipment**
- **Industrial equipment**

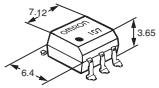
■Package (Unit : mm, Average)

DIP 6-pin

PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
2 : 20 V
4 : 40 V
6 : 60 V
10 : 100 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
B : DIP 6-pin with PCB terminals
E : DIP 6-pin with surface-mounting terminals

4. Additional functions
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻		Stick packaging			Tape packaging	
					Model		Minimum package quantity	Model	Minimum package quantity
			Connection A, B	Connection C	PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP6	1a (SPST-NO)	20 V	4 A	8 A	G3VM-21BR	G3VM-21ER	50 pcs.	G3VM-21ER(TR)	1,500 pcs.
		40 V	3.5 A	7 A	G3VM-41BR	G3VM-41ER		G3VM-41ER(TR)	
		60 V	2.5 A	–	G3VM-61BR	G3VM-61ER		G3VM-61ER(TR)	
			3 A	6 A	G3VM-61BR1	G3VM-61ER1		G3VM-61ER1(TR)	
		100 V	2 A	4 A	G3VM-101BR	G3VM-101ER		G3VM-101ER(TR)	

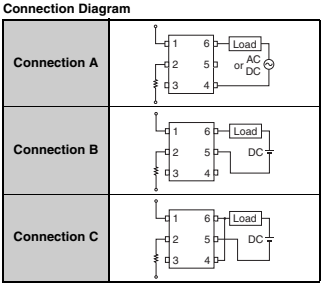
✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	G3VM-21BR G3VM-21ER	G3VM-41BR G3VM-41ER	G3VM-61BR G3VM-61ER	G3VM-61BR1 G3VM-61ER1	G3VM-101BR G3VM-101ER	Unit	Measurement conditions
Input	LED forward current		IF	30					mA	
	Repetitive peak LED forward current		IFP	1					A	100 μs pulses, 100 pps
	LED forward current reduction rate		ΔIF/°C	-0.3					mA/°C	Ta ≥ 25°C
	LED reverse voltage		VR	5					V	
	Connection temperature		TJ	125					°C	
Output	Load voltage (AC peak/DC)		VOFF	20	40	60		100	V	
	Continuous load current	Connection A	IO	4	3.5	2.5	3	2	A	Connection A: AC peak/DC Connection B and C: DC
		Connection B				–				
		Connection C		8	7		6	4		
	ON current reduction rate	Connection A	ΔIO/°C	-40	-35	-22	-30	-20	mA/°C	Ta ≥ 25°C
		Connection B				–				
		Connection C		-80	-70		-60	-40		
	Pulse ON current		Iop	12	10.5	7.5	9	6	A	t=100 ms, Duty=1/10
	Connection temperature		TJ	125					°C	
Dielectric strength between I/O ✻			VI-O	2,500					Vrms	AC for 1 min
Ambient operating temperature			Ta	-40 to +85		-20 to +85	-40 to +85		°C	With no icing or condensation
Ambient storage temperature			Tstg	-55 to +125		-40 to +125	-55 to +125		°C	
Soldering temperature			–	260					°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram

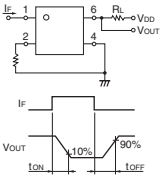


Note: Only connection A can be used for the G3VM-61BR/ER.

■Electrical Characteristics (Ta = 25°C)

Item			Symbol		G3VM-21BR G3VM-21ER	G3VM-41BR G3VM-41ER	G3VM-61BR G3VM-61ER	G3VM-61BR1 G3VM-61ER1	G3VM-101BR G3VM-101ER	Unit	Measurement conditions
Input	LED forward voltage		V_F	Minimum	1.18					V	I_F=10 mA
				Typical	1.33						
				Maximum	1.48						
	Reverse current		I_R	Maximum	10					μA	V_R=5 V
	Capacitance between terminals		C_T	Typical	70					pF	V=0, f=1 MHz
	Trigger LED forward current		I_{FT}	Typical	0.5		1	0.5		mA	I_O=1 A
				Maximum	3						
	Release LED forward current		I_{FC}	Minimum	0.1					mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	Connection A	R_{ON}	Typical	20	30	65	40	100	mΩ	G3VM-21BR/21ER/41BR/41ER/61BR1/61ER1/101BR/101ER : I_F=5 mA, I_O=2 A (Connection A and B), I_O=4 A (Connection C), t<1 s G3VM-61BR/ER : I_F=10 mA, t=10 ms, I_O=2 A
				Maximum	50	60	100	70	200		
		Connection B		Typical	10	15	–	20	50		
		Connection C		Typical	5	8		10	25		
	Current leakage when the relay is open		I_{LEAK}	Typical	–		0.001	–		μA	V_{OFF}=Load voltage ratings
				Maximum	1		0.01	1			
	Capacitance between terminals		C_{OFF}	Typical	1000		400	1000		pF	V=0, f=1 MHz
Capacitance between I/O terminals			C_{I-O}	Typical	0.8					pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals			R_{I-O}	Minimum	1000					MΩ	V_{I-O}=500 VDC, RoH≤60%
				Typical	10^8						
Turn-ON time			t_{ON}	Typical	2.5	2	1	2		ms	G3VM-21BR/21ER/41BR/41ER/61BR1/61ER1/101BR/101ER : I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻ G3VM-61BR/ER : I_F=10 mA, R_L=200 Ω, V_{DD}=20 V ✻
				Maximum	5		1.5	5			
Turn-OFF time			t_{OFF}	Typical	0.1		0.2	0.1			
				Maximum	1		0.4	1			

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-21BR G3VM-21ER	G3VM-41BR G3VM-41ER	G3VM-61BR G3VM-61ER	G3VM-61BR1 G3VM-61ER1	G3VM-101BR G3VM-101ER	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	16	32	48		80	V
Operating LED forward current	I_F	Minimum	5		10	5		mA
		Typical	10		–	10		
		Maximum	25		20	25		
Continuous load current (AC peak/DC)	I_O	Maximum	4	3.5	2.5	3	2	A
Ambient operating temperature	Ta	Minimum	-20					°C
		Maximum	65		60	65		

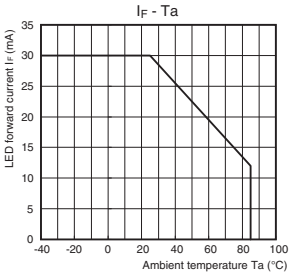
■Spacing and Insulation

Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

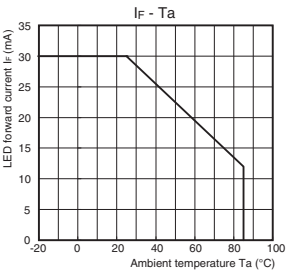
■Engineering Data

● **LED forward current vs. Ambient temperature**

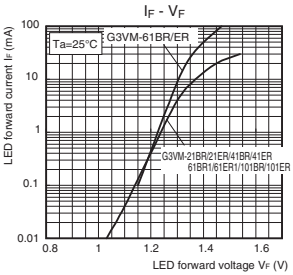
G3VM-21BR/21ER/41BR/41ER/ 61BR1/61ER1/101BR/101ER



G3VM-61BR/61ER

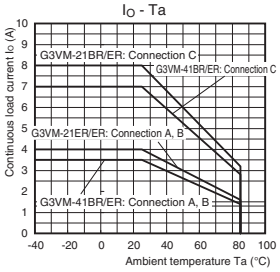


● **LED forward current vs. LED forward voltage**

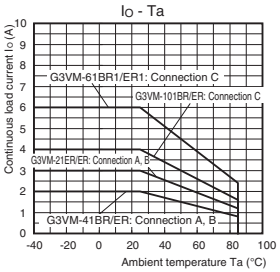


● **Continuous load current vs. Ambient temperature**

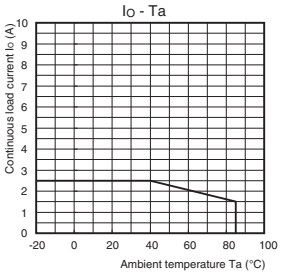
G3VM-21BR/21ER/41BR/41ER



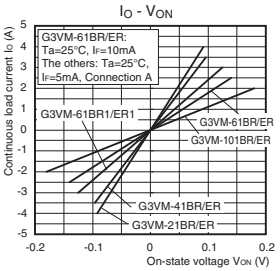
G3VM-61BR1/61ER1/101BR/101ER



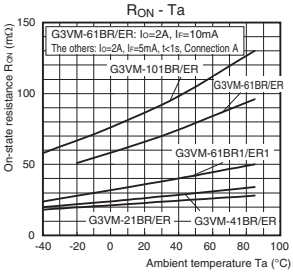
G3VM-61BR/61ER



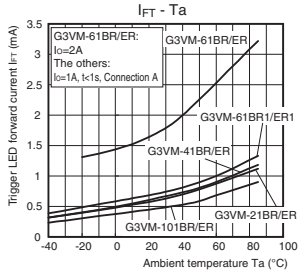
● **Continuous load current vs. On-state voltage**



● **On-state resistance vs. Ambient temperature**



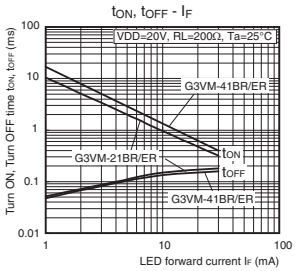
● **Trigger LED forward current vs. Ambient temperature**



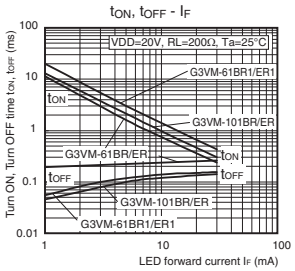
■Engineering Data

●Turn ON, Turn OFF time vs. LED forward current

G3VM-21BR/21ER/41BR/41ER

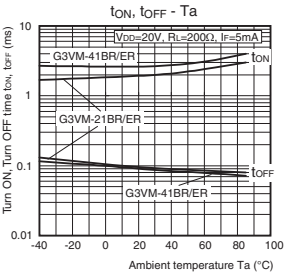


G3VM-61BR/61ER/61BR1/61ER1/101BR/101ER

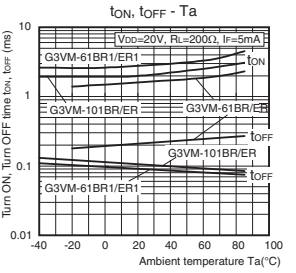


●Turn ON, Turn OFF time vs. Ambient temperature

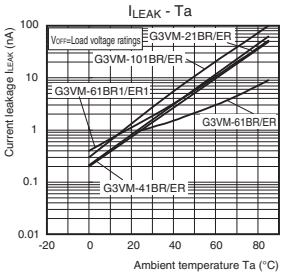
G3VM-21BR/21ER/41BR/41ER



G3VM-61BR/61ER/61BR1/61ER1/101BR/101ER



●Current leakage vs. Ambient temperature



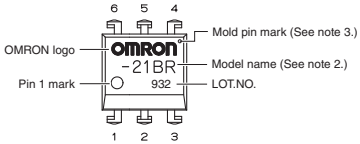
■Appearance / Terminal Arrangement / Internal Connections

●Appearance

DIP (Dual Inline Package)

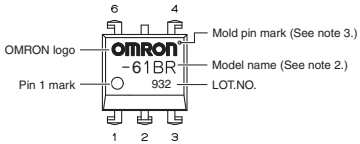
DIP 6-pin

G3VM-21BR/ER, -41BR/ER, -61BR1/ER1, -101BR/ER



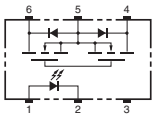
Special DIP 6-pin ✻

G3VM-61BR/ER

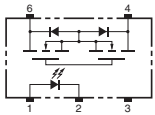


●Terminal Arrangement/Internal Connections (Top View)

G3VM-21BR/ER, -41BR/ER, -61BR1/ER1, -101BR/ER



G3VM-61BR/ER



Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.
✻ The external dimensions of the standard DIP 6-pin are the same, but the number of terminals is different.

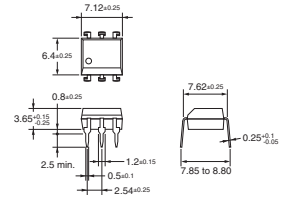
G3VM-□BR□/□ER□

■Dimensions (Unit: mm)

G3VM-21BR/41BR/61BR1/101BR

PCB Terminals

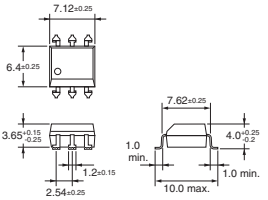
Weight: 0.4 g



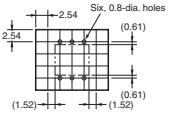
G3VM-21ER/41ER/61ER1/101ER

Surface-mounting Terminals

Weight: 0.4 g

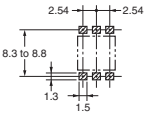


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

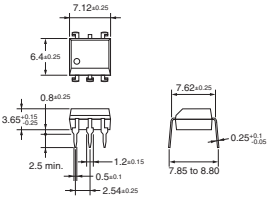


Note: The actual product is marked differently from the image shown here.

G3VM-61BR

PCB Terminals

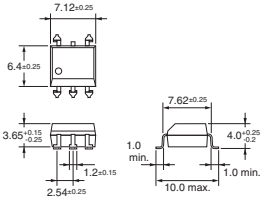
Weight: 0.4 g



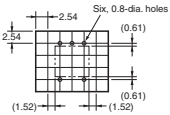
G3VM-61ER

Surface-mounting Terminals

Weight: 0.4 g

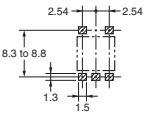


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

- Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

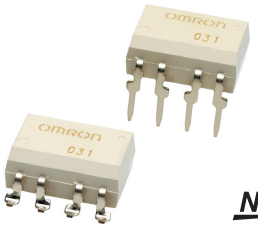
G3VM-□CR□/□FR□

MOS FET Relays DIP 8-pin, High-Current and Low-ON-resistance Type

The highest class load current of MOS FET Relays realized with DIP8 package

- **Contact form: 1a (SPST-NO)**
- **Load voltage: 60 V, 100 V, 200 V, 400 V, or 600 V**
- **60-V Relay: Continuous load current of 5 A (10 A) max. ✻**
- **100-V Relay: Continuous load current of 3 A (6 A) max. ✻**
- **200-V Relay: Continuous load current of 1.5 A (3 A) max. ✻**
- **400-V Relay: Continuous load current of 0.4 A (0.8 A) max. ✻**
- **600-V Relay: Continuous load current of 0.6 A (1.2 A) max. ✻**

✻ Values in parentheses are for connection C.



NEW

Note: The actual product is marked differently from the image shown here.

RoHS Compliant

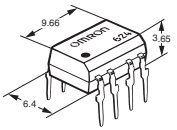
■Application Examples

- **Communication equipment**
- **Test & Measurement equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**

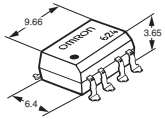
■Package (Unit : mm, Average)

DIP 8-pin

PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
6 : 60 V
10 : 100 V
20 : 200 V
40 : 400 V
60 : 600 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
C : DIP 8-pin with PCB terminals
F : DIP 8-pin with surface-mounting terminals

4. Additional functions
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging			Tape packaging	
				Model		Minimum package quantity	Model	Minimum package quantity
				PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP8	1a (SPST-NO)	60 V	5 A	G3VM-61CR1	G3VM-61FR1	50 pcs.	G3VM-61FR1(TR05)	500 pcs.
		100 V	3 A	G3VM-101CR	G3VM-101FR		G3VM-101FR(TR05)	
		200 V	1.5 A	G3VM-201CR	G3VM-201FR		G3VM-201FR(TR05)	
		400 V	0.4 A	G3VM-401CR	G3VM-401FR		G3VM-401FR(TR05)	
		600 V	0.6 A	G3VM-601CR	G3VM-601FR		G3VM-601FR(TR05)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.

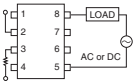
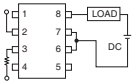
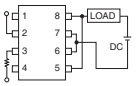
G3VM-□CR□/□FR□

■Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	G3VM-61CR1 G3VM-61FR1	G3VM-101CR G3VM-101FR	G3VM-201CR G3VM-201FR	G3VM-401CR G3VM-401FR	G3VM-601CR G3VM-601FR	Unit	Measurement conditions
Input	LED forward current		I_F	30					mA	
	Repetitive peak LED forward current		I_{FP}	1					A	100 μs pulses, 100 pps
	LED forward current reduction rate		ΔI_F/°C	-0.3					mA/°C	Ta ≥ 25°C
	LED reverse voltage		V_R	5					V	
	Connection temperature		T_J	125					°C	
Output	Load voltage (AC peak/DC)		V_{OFF}	60	100	200	400	600	V	
	Continuous load current	Connection A	I_O	5	3	1.5	0.4	0.6	A	Connection A: AC peak/DC Connection B and C: DC
		Connection B		5	3	1.5	0.4	0.6		
		Connection C		10	6	3	0.8	1.2		
	ON current reduction rate	Connection A	ΔI_O/°C	-50	-30	-15	-4	-6	mA/°C	Ta ≥ 25°C
		Connection B		-50	-30	-15	-4	-6		
		Connection C		-100	-60	-30	-8	-12		
	Pulse ON current		I_{OP}	15	9	4.5	1.2	1.8	A	t=100 ms, Duty=1/10
	Connection temperature		T_J	125					°C	
Dielectric strength between I/O ✻			V_{I-O}	2,500					Vrms	AC for 1 min
Ambient operating temperature			Ta	-40 to +85	-40 to +110		-40 to +85		°C	With no icing or condensation
Ambient storage temperature			Tstg	-55 to +125					°C	
Soldering temperature			–	260					°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram

Connection A	
Connection B	
Connection C	

■Electrical Characteristics (Ta = 25°C)

Item			Symbol		G3VM-61CR1 G3VM-61FR1	G3VM-101CR G3VM-101FR	G3VM-201CR G3VM-201FR	G3VM-401CR G3VM-401FR	G3VM-601CR G3VM-601FR	Unit	Measurement conditions
Input	LED forward voltage		VF	Minimum	1.5					V	IF=10 mA
				Typical	1.64						
				Maximum	1.8						
	Reverse current		IR	Maximum	10					μA	VR=5 V
	Capacitance between terminals		CT	Typical	70					pF	V=0, f=1MHz
	Trigger LED forward current		IFT	Typical	0.28	0.3	0.3	0.2	0.23	mA	G3VM-61CR1/FR1 : IO=1 A G3VM-101CR/FR : IO=1 A G3VM-201CR/FR : IO=1 A G3VM-401CR/FR : IO=0.4 A G3VM-601CR/FR : IO=0.6 A
				Maximum	5	5	5	1	5		
	Release LED forward current		IFC	Minimum	0.01					mA	G3VM-61CR1/FR1 : IOFF=1 μA G3VM-101CR/FR : IOFF=1 μA G3VM-201CR/FR : IOFF=1 μA G3VM-401CR/FR : IOFF=10 μA G3VM-601CR/FR : IOFF=1 μA
				Typical	0.19	-		0.19	0.17		
Output	Maximum resistance with output ON	Connection A	RON	Typical	0.022	0.06	0.25	3	1.3	Ω	G3VM-61CR1/FR1 : IO=1 A, IF=5 mA, t < 1 s G3VM-101CR/FR : IO=1 A, IF=5 mA, t < 1 s G3VM-201CR/FR : IO=1 A, IF=5 mA, t < 1 s G3VM-401CR/FR : IO=0.4 A, IF=2 mA, t < 1 s G3VM-601CR/FR : IO=0.6 A, IF=5 mA, t < 1 s
				Maximum	0.05	0.15	0.5	5	2		
		Connection B		Maximum	0.025	0.075	0.25	2.5	1		G3VM-61CR1/FR1 : IO=1 A, IF=2 mA, t < 1 s G3VM-101CR/FR : IO=1 A, IF=5 mA, t < 1 s G3VM-201CR/FR : IO=1 A, IF=5 mA, t < 1 s G3VM-401CR/FR : IO=0.4 A, IF=2 mA, t < 1 s G3VM-601CR/FR : IO=0.6 A, IF=2 mA, t < 1 s
		Connection C		Maximum	0.013	0.075	0.25	1.3	0.5		G3VM-61CR1/FR1 : IO=1 A, IF=2 mA, t < 1 s G3VM-101CR/FR : IO=1 A, IF=5 mA, t < 1 s G3VM-201CR/FR : IO=1 A, IF=5 mA, t < 1 s G3VM-401CR/FR : IO=0.8 A, IF=2 mA, t < 1 s G3VM-601CR/FR : IO=1.2 A, IF=2 mA, t < 1 s
	Current leakage when the relay is open		ILEAK	Typical	0.01	0.02	0.1	0.001	0.05	μA	VOFF=Load Voltage Ratings
				Maximum	10	1	1	1	10		
	Capacitance between terminals		COFF	Typical	850	720	400	410	4,300	pF	V=0, f=1 MHz
Capacitance between I/O terminals			CI-O	Typical	0.8					pF	f=1 MHz, VS=0 V
Insulation resistance between I/O terminals			RI-O	Minimum	1,000					MΩ	VI-O=500 VDC, RoH≤60%
				Typical	10^8						
Turn-ON time			tON	Typical	2.5	1.5	0.25	0.22	0.8	ms	IF =5 mA, RL =200 Ω, VDD=20 V ✻
				Maximum	5			1	3		
Turn-OFF time			tOFF	Typical	0.1			0.08	0.07		
				Maximum	1						

✻ Turn-ON and Turn-OFF Times

■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

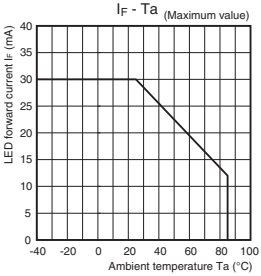
Item	Symbol		G3VM-61CR1 G3VM-61FR1	G3VM-101CR G3VM-101FR	G3VM-201CR G3VM-201FR	G3VM-401CR G3VM-401FR	G3VM-601CR G3VM-601FR	Unit
Load voltage (AC peak/DC)	VDD	Maximum	48	80	160	320	480	V
Operating LED forward current	IF	Typical	5	5	5	2	5	mA
		Maximum	25					
Continuous load current (AC peak/DC)	IO	Maximum	5	3	1.5	0.4	0.6	A
Ambient operating temperature	Ta	Minimum	-40					°C
		Maximum	85					

■Spacing and Insulation

Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

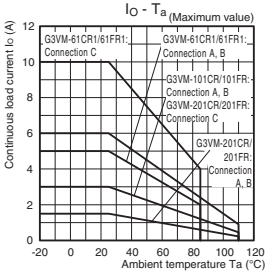
■Engineering Data

● LED forward current vs. Ambient temperature

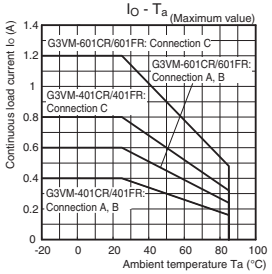


● Continuous load current vs. Ambient temperature

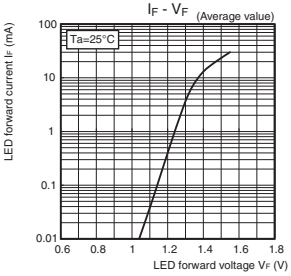
G3VM-61CR1/61FR1
G3VM-101CR/101FR/201CR/201FR



G3VM-401CR/401FR/601CR/601FR

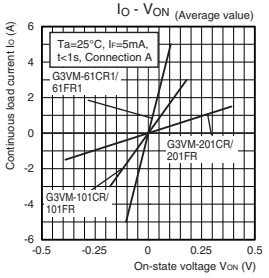


● LED forward current vs. LED forward voltage

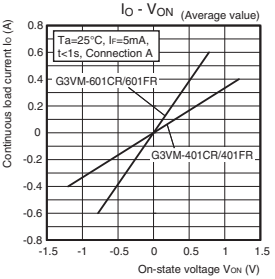


● Continuous load current vs. On-state voltage

G3VM-61CR1/61FR1
G3VM-101CR/101FR/201CR/201FR

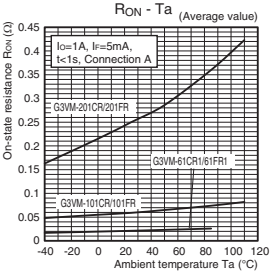


G3VM-401CR/401FR/601CR/601FR

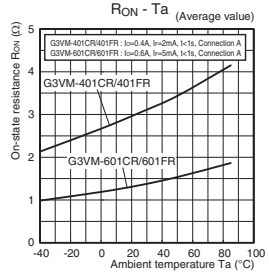


● On-state resistance vs. Ambient temperature

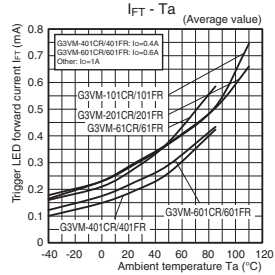
G3VM-61CR1/61FR1
G3VM-101CR/101FR/201CR/201FR



G3VM-401CR/401FR/601CR/601FR



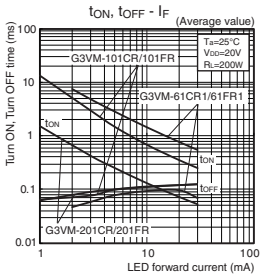
● Trigger LED forward current vs. Ambient temperature



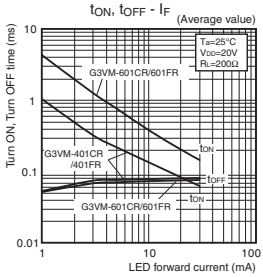
■Engineering Data

● Turn ON, Turn OFF time vs. LED forward current

G3VM-61CR1/61FR1
G3VM-101CR/101FR/201CR/201FR

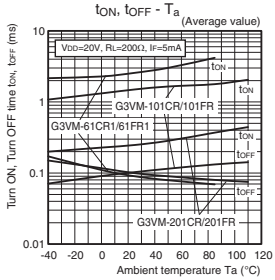


G3VM-401CR/401FR/601CR/601FR

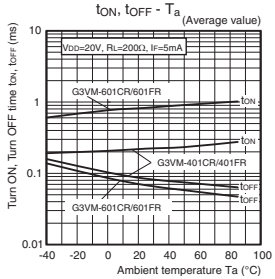


● Turn ON, Turn OFF time vs. Ambient temperature

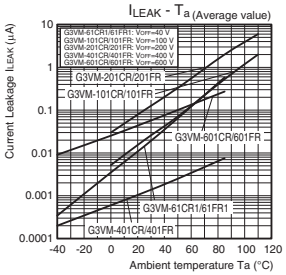
G3VM-61CR1/61FR1
G3VM-101CR/101FR/201CR/201FR



G3VM-401CR/401FR/601CR/601FR



● Current leakage vs.Ambient temperature

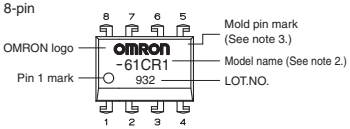


■Appearance / Terminal Arrangement / Internal Connections

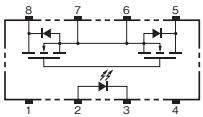
●Appearance

DIP (Dual Inline Package)

DIP 8-pin



●Terminal Arrangement/Internal Connections (Top View)



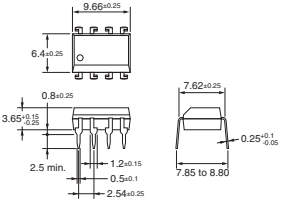
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

DIP 8-pin

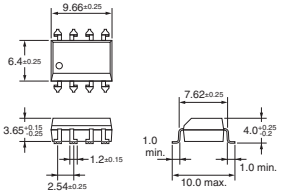
PCB Terminals

Weight: 0.54 g

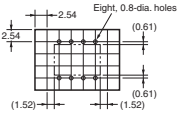


Surface-mounting Terminals

Weight: 0.54 g

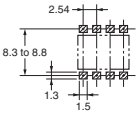


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-61CR1 G3VM-61FR1	UL (recognized)	1a (SPST-NO)	E80555
G3VM-101CR G3VM-101FR			
G3VM-201CR G3VM-201FR			
G3VM-401CR G3VM-401FR			
G3VM-601CR G3VM-601FR			

■Safety Precautions

- Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-41GR8/61GR□/61VR

MOS FET Relays SOP 4-pin, High-current and Low-ON-resistance Type

MOS FET Relays in SOP4-pin that featuring the low ON resistance and high switching capacity as a mechanical relay.

- **Load voltage: 40 V or 60 V**
- **40-V Relay: Continuous load current of 1 A max.**
- **60-V Relay: Continuous load current of 1.7 A max.**

RoHS Compliant

NEW

Note: The actual product is marked differently from the image shown here.

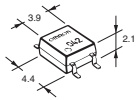
■Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

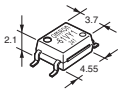
■Package

(Unit : mm, Average)

SOP 4-pin



Special SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
4 : 40 V
6 : 60 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
G : SOP 4-pin
V: Special SOP 4-pin

4. Additional function
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP4	1a (SPST-NO)	Surface-mounting Terminals	40 V	1000 mA	G3VM-41GR8	100 pcs.	G3VM-41GR8(TR)	2,500 pcs.
					G3VM-61GR1		G3VM-61GR1(TR)	
			60 V	1400 mA	G3VM-61VR	125 pcs.	G3VM-61VR(TR05)	500 pcs.
							G3VM-61VR(TR)	3,000 pcs.
				1700 mA	G3VM-61GR2	100 pcs.	G3VM-61GR2(TR05)	2,500 pcs.

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" or "(TR05)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

	Item	Symbol	G3VM-41GR8	G3VM-61GR1	G3VM-61VR	G3VM-61GR2	Unit	Measurement conditions
Input	LED forward current	I_F	30	50		30	mA	
	LED forward current reduction rate	ΔI_F/°C	-0.3	-0.5		-0.3	mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5		6	5	V	
	Connection temperature	T_J	125				°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	40	60			V	
	Continuous load current (AC peak/DC)	I_O	1000		1400	1700	mA	
	ON current reduction rate	ΔI_O/°C	-13.3		-14	-17	mA/°C	G3VM-41GR8/61GR1: Ta ≥ 50°C G3VM-61VR/61GR2: Ta ≥ 25°C
	Pulse ON current	I_{OP}	2	3	4.2	5	A	t=100 ms, Duty=1/10
	Connection temperature	T_J	125				°C	
Dielectric strength between I/O ✻		V_{I-O}	1500		3750	1500	Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85	-20 to +85	-40 to +110	-40 to +85	°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125	-40 to +125		-55 to +125	°C	
Soldering temperature		–	260				°C	10 s

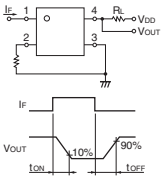
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

G3VM-41GR8/61GR□/61VR

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-41GR8	G3VM-61GR1	G3VM-61VR	G3VM-61GR2	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.18	1.0	1.1	1.18	V	I_F=10 mA
			Typical	1.33	1.15	1.27	1.33		
			Maximum	1.48	1.3	1.4	1.48		
	Reverse current	I_R	Maximum	10				μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	70	15	70		pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1			0.6	mA	G3VM-41GR8/61GR1/61GR2: I_O=100 mA G3VM-61VR: I_O=1400 mA
			Maximum	3					
	Release LED forward current	I_{FC}	Minimum	0.1				mA	I_{OFF}=100 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	0.1	0.25	0.13	0.08	Ω	G3VM-61GR2/61VR : I_F=5mA, I_O= Continuous load current ratings, t<1s G3VM-41GR8/61GR1: I_F=5mA, I_O= Continuous load current ratings
			Maximum	0.13	0.7	0.25	0.13		
	Current leakage when the relay is open	I_{LEAK}	Typical	–	0.2	2	1	nA	G3VM-41GR8: V_{OFF}=30 V G3VM-61GR1/61VR/61GR2: V_{OFF}=60 V
			Maximum	1	100	1000	10		
	Capacitance between terminals	C_{OFF}	Typical	300	90	100	250	pF	V=0, f=1 MHz
Capacitance between I/O terminals		C_{I-O}	Typical	0.8				pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000				MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8					
Turn-ON time		t_{ON}	Typical	1.2	1.4	2	0.7	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻
			Maximum	3					
Turn-OFF time		t_{OFF}	Typical	0.2	0.6	0.1	0.1		
			Maximum	0.5	1		0.5		

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

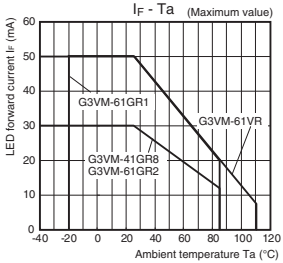
Item	Symbol		G3VM-41GR8	G3VM-61GR1	G3VM-61VR	G3VM-61GR2	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	32	48			V
Operating LED forward current	I_F	Maximum	5				mA
		Typical	10		7.5	10	
		Maximum	20		25		
Continuous load current (AC peak/DC)	I_O	Maximum	1000		1400	1300	
Ambient operating temperature	Ta	Minimum	-20				°C
		Maximum	60		100	65	

■Spacing and Insulation

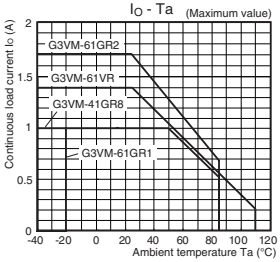
Item	G3VM-□GR□	G3VM-61VR	Unit
	Minimum		
Creepage distances	4.0	5.0	mm
Clearance distances	4.0	5.0	
Internal isolation thickness	0.1	0.2	

■Engineering Data

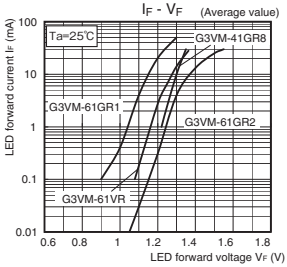
● **LED forward current vs. Ambient temperature**



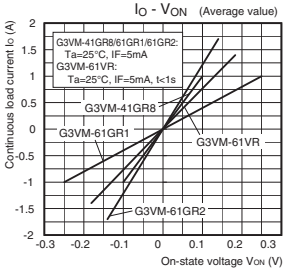
● **Continuous load current vs. Ambient temperature**



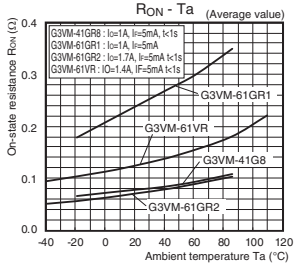
● **LED forward current vs. LED forward voltage**



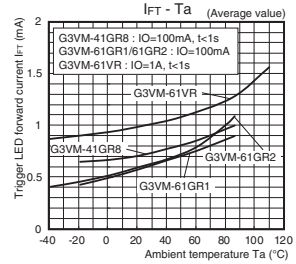
● **Continuous load current vs. On-state voltage**



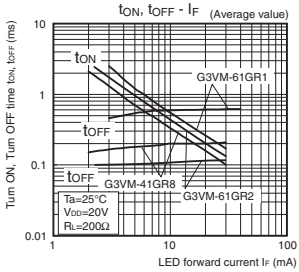
● **On-state resistance vs. Ambient temperature**



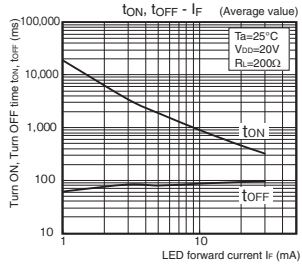
● **Trigger LED forward current vs. Ambient temperature**



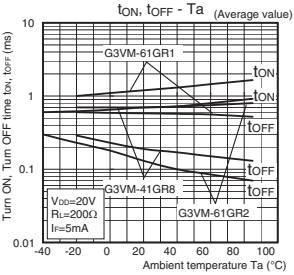
● **Turn ON, Turn OFF time vs. LED forward current**
G3VM-41GR8/61GR1/61GR2



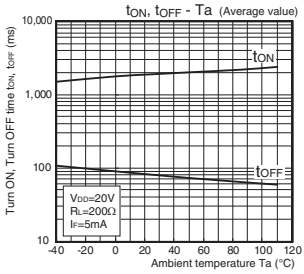
G3VM-61VR



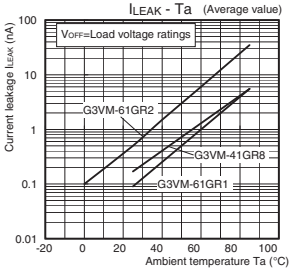
● **Turn ON, Turn OFF time vs. Ambient temperature**
G3VM-41GR8/61GR1/61GR2



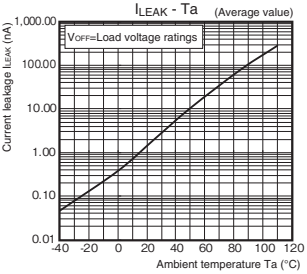
G3VM-61VR



● **Current leakage vs. Ambient temperature**
G3VM-41GR8/61GR1/61GR2



G3VM-61VR



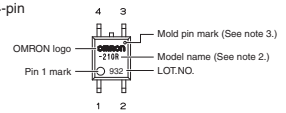
G3VM-41GR8/61GR□/61VR

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

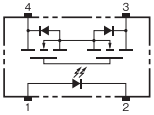
SOP (Small Outline Package)

SOP 4-pin



Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

●Terminal Arrangement/Internal Connections (Top View)



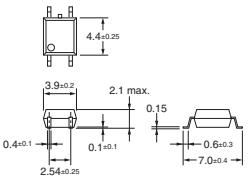
■Dimensions (Unit: mm)

SOP (Small Outline Package)

SOP 4-pin

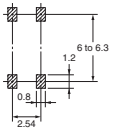
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)

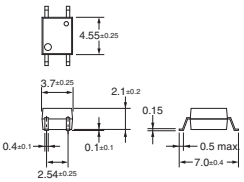


Note: The actual product is marked differently from the image shown here.

Special SOP 4-pin ✻ (G3VM-61VR)

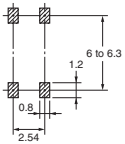
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



✻ The external dimensions are different from those of the standard SOP 4-pin, but the mounting pad dimensions are the same.
Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-41GR8 G3VM-61GR1 G3VM-61GR2 G3VM-61VR	UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

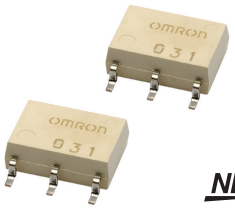
G3VM-21HR/31HR/41HR/61HR/61HR1

MOS FET Relays SOP 6-pin, High-current and Low-ON-resistance Type

MOS FET Relays in SOP 6-pin packages that achieve the low ON resistance and high switching capacitance of a mechanical relay

- **Load voltage: 20 V, 30 V, 40 V, or 60 V**
- **20-V Relay: Continuous load current of 2.5 A (5 A) max. ✻**
- **30-V Relay: Continuous load current of 4 A (8 A) max. ✻**
- **40-V Relay: Continuous load current of 2.5 A (5 A) max. ✻**
- **60-V Relay: Continuous load current of 3.3 A (6.6 A) max. ✻**

✻ Values in parentheses are for connection C.



NEW

Note: The actual product is marked differently from the image shown here.

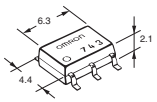
RoHS Compliant

■Application Examples

- **Semiconductor test equipment**
- **Communication equipment**
- **Test & Measurement equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

■Package (Unit : mm, Average)

SOP 6-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
2 : 20 V
3 : 30 V
4 : 40 V
6 : 60 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
H : SOP 6-pin

4. Additional functions
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻		Stick packaging		Tape packaging	
				Connection A, B	Connection C	Model	Minimum package quantity	Model	Minimum package quantity
SOP6	1a (SPST-NO)	Surface-mounting Terminals	20 V	2.5 A	5 A	G3VM-21HR	75	G3VM-21HR(TR)	2,500
			30 V	4 A	8 A	G3VM-31HR		G3VM-31HR(TR05)	500
			40 V	2.5 A	5 A	G3VM-41HR		G3VM-41HR(TR)	2,500
			60 V	2.3 A	4.6 A	G3VM-61HR		G3VM-61HR(TR)	2,500
				3.3 A	6.6 A	G3VM-61HR1		G3VM-61HR1(TR05)	500

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

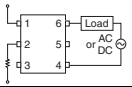
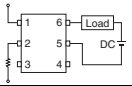
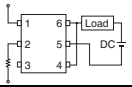
G3VM-21HR/31HR/41HR/61HR/61HR1 MOS FET Relays

■Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	G3VM-21HR	G3VM-31HR	G3VM-41HR	G3VM-61HR	G3VM-61HR1	Unit	Measurement conditions
Input	LED forward current		IF	30					mA	
	LED forward current reduction rate		ΔIF/°C	-0.3					mA/°C	Ta ≥ 25°C
	LED reverse voltage		VR	5					V	
	Connection temperature		TJ	125					°C	
Output	Load voltage (AC peak/DC)		VOFF	20	30	40	60		V	
	Continuous load current	Connection A	IO	2500	4000	2500	2300	3300	mA	Connection A: AC peak/DC Connection B and C: DC
		Connection B								
		Connection C		5000	8000	5000	4600	6600		
	ON current reduction rate	Connection A	ΔIO/°C	-33.3	-40	-33.3	-30.7	-33	mA/°C	G3VM-31HR/61HR1: Ta ≥ 25°C Others: Ta ≥ 50°C
		Connection B								
		Connection C		-66.7	-80	-66.7	-61.3	-66		
	Pulse ON current		Iop	7.5	12	7.5	7	10	A	t=100 ms, Duty=1/10
	Connection temperature		TJ	125					°C	
Dielectric strength between I/O ✻			VI-O	1500					Vrms	AC for 1 min
Ambient operating temperature			Ta	-40 to +85					°C	With no icing or condensation
Ambient storage temperature			Tstg	-55 to +125					°C	
Soldering temperature			–	260					°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

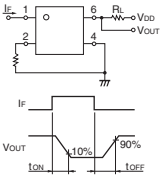
Connection Diagram

Connection A	
Connection B	
Connection C	

■Electrical Characteristics (Ta = 25°C)

Item			Symbol		G3VM-21HR	G3VM-31HR	G3VM-41HR	G3VM-61HR	G3VM-61HR1	Unit	Measurement conditions
Input	LED forward voltage		V_F	Minimum	1.18					V	I_F=10 mA
				Typical	1.33						
				Maximum	1.48						
	Reverse current		I_R	Maximum	10					μA	V_R=5 V
	Capacitance between terminals		C_T	Typical	70					pF	V=0, f=1 MHz
	Trigger LED forward current		I_{FT}	Typical	–	0.3	0.4		0.2	mA	G3VM-61HR1 : I_O=2000 mA Others : I_O=100 mA
				Maximum	3						
	Release LED forward current		I_{FC}	Minimum	0.1					mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	Connection A	R_{ON}	Typical	0.02	0.02	0.03	0.04	0.03	Ω	G3VM-31HR: I_F=5 mA I_O=4 A (Connection A, B) I_O=8 A (C connections), t<1s Others: I_F=5 mA I_O=2 A (Connection A, B) I_O=4 A (C connections), t<1s
		Connection B			0.01	0.008	0.015	0.02	0.015		
		Connection C			0.005	0.004	0.008	0.01	0.008		
		Connection A		Maximum	0.05	0.04	0.06	0.07	0.06		
		Connection B			0.025	0.02	0.03	0.04	–		
		Connection C			–	0.01	–				
	Current leakage when the relay is open		I_{LEAK}	Typical	–					nA	V_{OFF}= Load voltage ratings
				Maximum	10	1000	10		20		
	Capacitance between terminals		C_{OFF}	Typical	1000	1100	1000		700	pF	V=0, f=1 MHz
				Maximum	–				1500		
Capacitance between I/O terminals			C_{I-O}	Typical	0.8					pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals			R_{I-O}	Minimum	1000					MΩ	V_{I-O}=500 VDC, RoH≤60%
				Typical	10^8						
Turn-ON time			t_{ON}	Typical	1.5	1.1	1.0		0.6	ms	G3VM-21HR : I_F=5 mA, R_L=200 Ω, V_{DD}=10 V ✻ Others : I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻
				Maximum	5						
Turn-OFF time			t_{OFF}	Typical	0.1	0.1	0.15		0.2		
				Maximum	1						

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-21HR	G3VM-31HR	G3VM-41HR	G3VM-61HR	G3VM-61HR1	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	20	24	40	60	48	V
Operating LED forward current	I_F	Minimum	5					mA
		Typical	10		7.5		10	
		Maximum	20	25	20		25	
Continuous load current (AC peak/DC)	I_O	Maximum	2000	4000	2000	1800	3300	
Ambient operating temperature	Ta	Minimum	-20					°C
		Maximum	65					

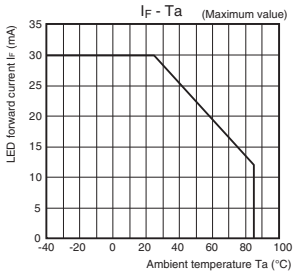
■Spacing and Insulation

Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

G3VM-21HR/31HR/41HR/61HR/61HR1 MOS FET Relays

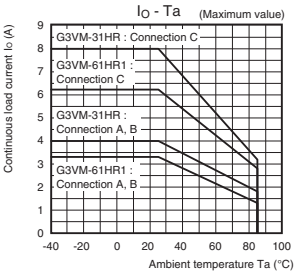
■Engineering Data

●LED forward current vs. Ambient temperature

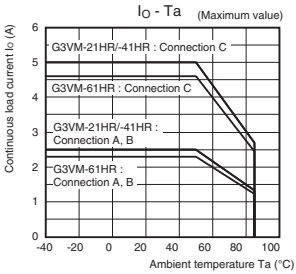


●Continuous load current vs. Ambient temperature

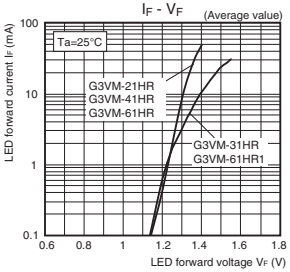
G3VM-31HR/61HR1



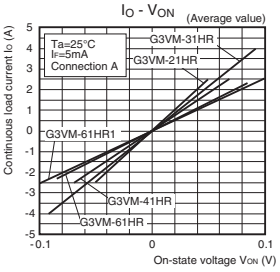
G3VM-21HR/41HR/61HR



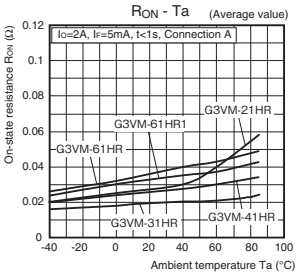
●LED forward current vs. LED forward voltage



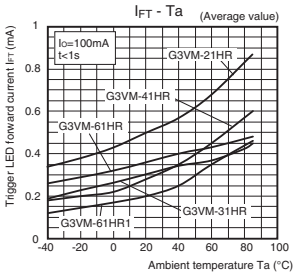
●Continuous load current vs. On-state voltage



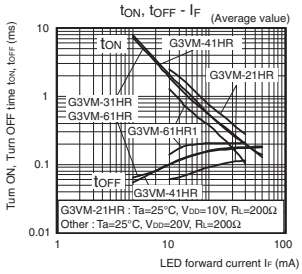
●On-state resistance vs. Ambient temperature



●Trigger LED forward current vs. Ambient temperature

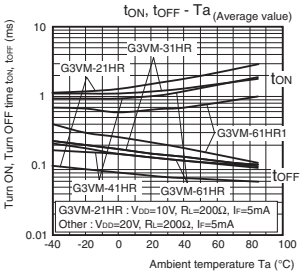


●Turn ON, Turn OFF time vs. LED forward current



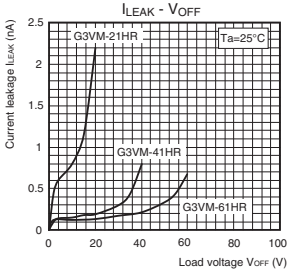
■Engineering Data

● **Turn ON, Turn OFF time vs. Ambient temperature**



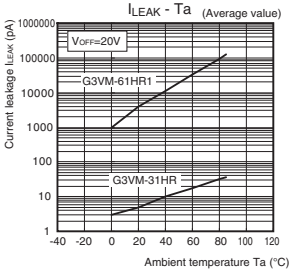
● **Current leakage vs. Load voltage**

G3VM-21HR/41HR/61HR



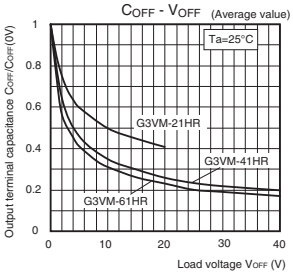
● **Current leakage vs. Ambient temperature**

G3VM-31HR/61HR1



● **Output terminal capacitance vs. Load voltage**

G3VM-21HR/41HR/61HR



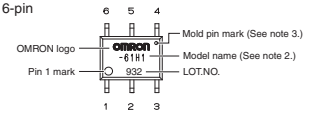
G3VM-21HR/31HR/41HR/61HR/61HR1 MOS FET Relays

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

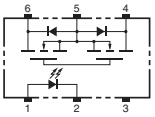
SOP (Small Outline Package)

SOP 6-pin



Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

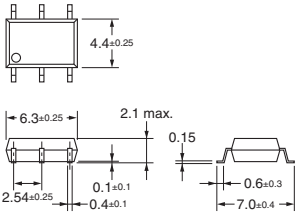
●Terminal Arrangement/Internal Connections (Top View)



■Dimensions (Unit: mm)

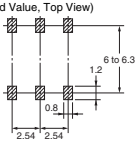
Surface-mounting Terminals

Weight: 0.13 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

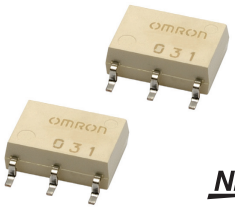
G3VM-81HR/101HR/101HR1

MOS FET Relays SOP 6-pin, High-current and Low-ON-resistance Type

MOS FET Relays in SOP 6-pin packages that achieve the low ON resistance and high switching capacitance of a mechanical relay

- **Load voltage: 80 V/100 V**
- **80-V Relay: Continuous load current of 1.25 A (2.5 A) max. ✻**
- **100-V Relay: Continuous load current of 2 A (4 A) max. ✻**

✻ Values in parentheses are for connection C.



NEW

Note: The actual product is marked differently from the image shown here.

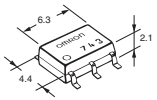
RoHS Compliant

■Application Examples

- **Semiconductor test equipment**
- **Communication equipment**
- **Test & Measurement equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

■Package (Unit : mm, Average)

SOP 6-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
8 : 80 V
10 : 100 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
H : SOP 6-pin

4. Additional functions
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻		Stick packaging		Tape packaging	
				Connection A, B	Connection C	Model	Minimum package quantity	Model	Minimum package quantity
SOP6	1a (SPST-NO)	Surface-mounting Terminals	80 V	1.25 A	2.5 A	G3VM-81HR	75	G3VM-81HR(TR)	2,500
			100 V	1.4 A	2.8 A	G3VM-101HR		G3VM-101HR(TR)	2,500
			100 V	2.0 A	4.0 A	G3VM-101HR1		G3VM-101HR1(TR05)	500

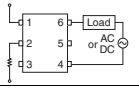
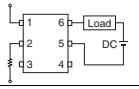
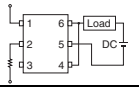
✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

Item			Symbol	G3VM-81HR	G3VM-101HR	G3VM-101HR1	Unit	Measurement conditions
Input	LED forward current		I_F	50	30		mA	
	LED forward current reduction rate		ΔI_F/°C	-0.5	-0.3		mA/°C	Ta ≥ 25°C
	LED reverse voltage		V_R	5			V	
	Connection temperature		T_J	125			°C	
Output	Load voltage (AC peak/DC)		V_{OFF}	80	100		V	
	Continuous load current	Connection A	I_O	1250	1400	2000	mA	Connection A: AC peak/DC Connection B and C: DC
		Connection B						
		Connection C		2500	2800	4000		
	ON current reduction rate	Connection A	ΔI_O/°C	-12.5	-18.7	-20	mA/°C	G3VM-101HR : Ta ≥ 50°C Others : Ta ≥25°C
		Connection B						
		Connection C		-25.0	-37.3	-40		
	Pulse ON current		I_{OP}	3.75	4	6	A	t=100 ms, Duty=1/10
	Connection temperature		T_J	125			°C	
Dielectric strength between I/O ✻			V_{I-O}	1500			Vrms	AC for 1 min
Ambient operating temperature			Ta	-20 to +85	-40 to +85		°C	With no icing or condensation
Ambient storage temperature			Tstg	-40 to +125	-55 to +125		°C	
Soldering temperature			–	260			°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

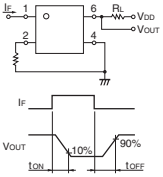
Connection Diagram

Connection A	
Connection B	
Connection C	

■Electrical Characteristics (Ta = 25°C)

Item			Symbol		G3VM-81HR	G3VM-101HR	G3VM-101HR1	Unit	Measurement conditions
Input	LED forward voltage		V_F	Minimum	1.0	1.18		V	I_F=10 mA
				Typical	1.15	1.33			
				Maximum	1.3	1.48			
	Reverse current		I_R	Maximum	10			μA	V_R=5 V
	Capacitance between terminals		C_T	Typical	15	70		pF	V=0, f=1 MHz
	Trigger LED forward current		I_{FT}	Typical	2	0.4		mA	G3VM-81HR : I_O=1250 mA Others : I_O=100 mA
				Maximum	5	3			
	Release LED forward current		I_{FC}	Minimum	0.2	0.1		mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	Connection A	R_{ON}	Typical	0.11	0.1	0.045	Ω	G3VM-81HR : I_F=5 mA, I_O= Continuous load current ratings G3VM-101HR/101HR1 : I_F=5 mA, I_O= Continuous load current ratings, t < 1 s
		Connection B			0.06	0.05	0.022		
		Connection C			0.03	0.025	0.011		
		Connection A		Maximum	0.15	0.2	0.07		
		Connection B			0.08	0.1	0.035		
		Connection C			0.04	–	0.018		
	Current leakage when the relay is open		I_{LEAK}	Typical	1.2	–	–	nA	G3VM-81HR : V_{OFF}=20 V, Ta=50°C Others : V_{OFF}= Load voltage ratings
				Maximum	1.5	10	1000		
	Capacitance between terminals		C_{OFF}	Typical	460	1000	500	pF	G3VM-81HR : V=0, f=100 MHz Others : V=0, f=1 MHz
				Maximum	1000	–	–		
Capacitance between I/O terminals			C_{I-O}	Typical	0.8			pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals			R_{I-O}	Minimum	1000			MΩ	V_{I-O}=500 VDC, RoH≤60%
				Typical	10^8				
Turn-ON time			t_{ON}	Typical	2.0	1.0	1.1	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻
				Maximum	3.0	5.0			
Turn-OFF time			t_{OFF}	Typical	0.7	0.15	0.1		
				Maximum	1.0				

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-81HR	G3VM-101HR	G3VM-101HR1	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	64	100	80	V
Operating LED forward current	I_F	Minimum	5			mA
		Typical	–	7.5	10	
		Maximum	30	20	25	
Continuous load current (AC peak/DC)	I_O	Maximum	1250	1100	2000	
Ambient operating temperature	Ta	Minimum	25	-20		°C
		Maximum	60	65		

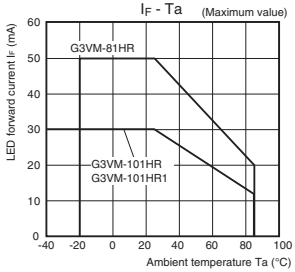
■Spacing and Insulation

Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

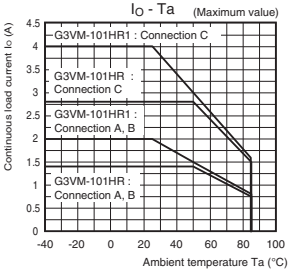
G3VM-81HR/101HR/101HR1

■Engineering Data

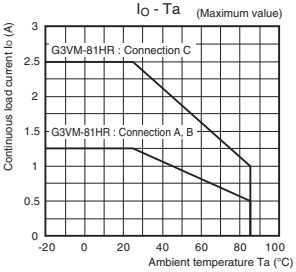
● **LED forward current vs. Ambient temperature**



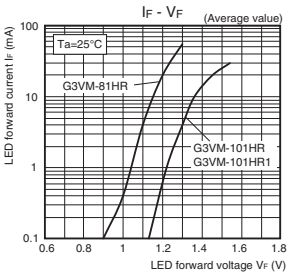
● **Continuous load current vs. Ambient temperature**
G3VM-101HR/101HR1



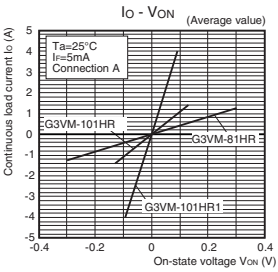
G3VM-81HR



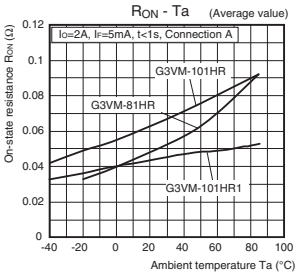
● **LED forward current vs. LED forward voltage**



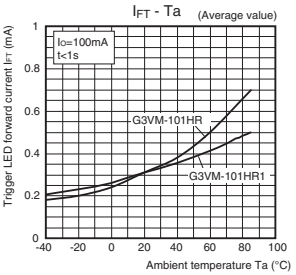
● **Continuous load current vs. On-state voltage**



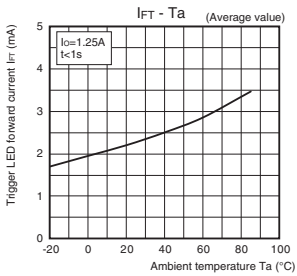
● **On-state resistance vs. Ambient temperature**



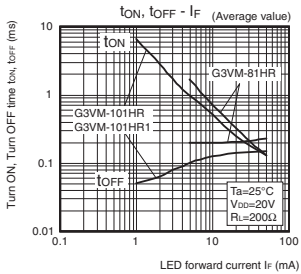
● **Trigger LED forward current vs. Ambient temperature**
G3VM-101HR/101HR1



G3VM-81HR

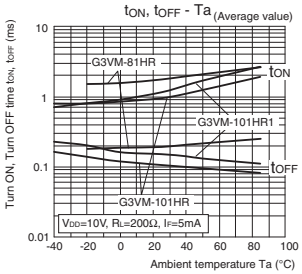


● **Turn ON, Turn OFF time vs. LED forward current**
G3VM-81HR/101HR



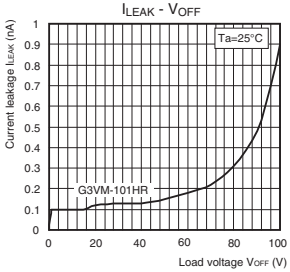
■Engineering Data

● **Turn ON, Turn OFF time vs. Ambient temperature**



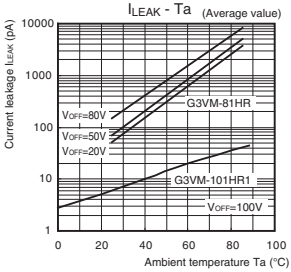
● **Current leakage vs. Load voltage**

G3VM-101HR



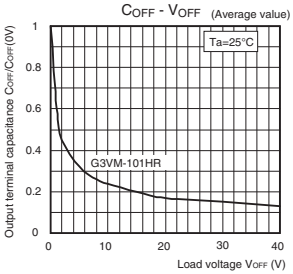
● **Current leakage vs. Ambient temperature**

G3VM-81HR/101HR1



● **Output terminal capacitance vs. Load voltage**

G3VM-101HR



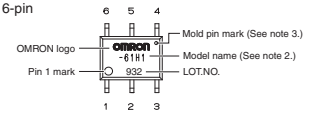
G3VM-81HR/101HR/101HR1

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

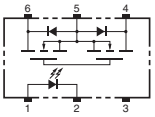
SOP (Small Outline Package)

SOP 6-pin



Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

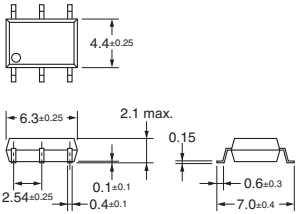
●Terminal Arrangement/Internal Connections (Top View)



■Dimensions (Unit: mm)

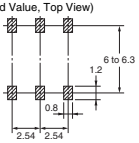
Surface-mounting Terminals

Weight: 0.13 g



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

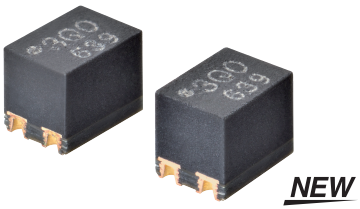
• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-31QR/61QR2/101QR1

MOS FET Relays S-VSON 4-pin, High-current and Low-ON-resistance Type

World's smallest ∗ class New S-VSON Package

- **Load voltage 30 V/60 V/100 V.**
- **30-V Relay: Continuous load current of 1.5 A max.**
- **60-V Relay: Continuous load current of 1.0 A max.**
- **100-V Relay: Continuous load current of 0.65 A max.**
- **High Ambient operating temperature: -40°C to +110°C**



Note: The actual product is marked differently from the image shown here.

∗ As of March 2018 Survey by OMRON.

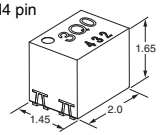
RoHS Compliant

■Application Examples

- **Semiconductor test equipment**
- **Test & measurement equipment**
- **Communication equipment**
- **Data loggers**

■Package (Unit : mm, Average)

S-VSON4 pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
3: 30 V
6: 60 V
10: 100 V

2. Contact form Package type
1: 1a (SPST-NO)

3. Package type
Q: S-VSON 4 pin

4. Additional functions
R: Low On-resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package type	Contact form	Terminals	Load voltage (peak value) ∗	Continuous load current (peak value) ∗	Packing/Tape cut		Packing/Tape & reel	
					Model	Minimum package quantity	Model	Minimum package quantity
S-VSON4	1a (SPST-NO)	Surface-mounting Terminals	30 V	1,500 mA	**G3VM-31QR**	1 pc.	**G3VM-31QR (TR05)**	500 pcs.
			60 V	1,000 mA	**G3VM-61QR2**		**G3VM-61QR2 (TR05)**	
			100 V	650 mA	**G3VM-101QR1**		**G3VM-101QR1 (TR05)**	

∗ The AC peak and DC value are given for the load voltage and continuous load current.
Note: When ordering tape packing, add "(TR05)" (500 pcs/reel) to the model number.
Ask your OMRON representative for orders under 500 pcs. We can supply products with the tape already cut.
Tape-cut S-VSON is packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

G3VM-31QR/61QR2/101QR1

■Absolute Maximum Ratings (Ta = 25°C)

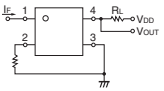
Item		Symbol	G3VM-31QR	G3VM-61QR2	G3VM-101QR1	Unit	Measurement conditions
Input	LED forward current	I_F	30			mA	
	LED forward current reduction rate	ΔI_F/°C	−0.3			mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5			V	
	Connection temperature	T_J	125			°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	30	60	100	V	
	Continuous load current (AC peak/DC)	I_O	1500	1000	650	mA	
	ON current reduction rate	ΔI_O/°C	−15	−10	−6.5	mA/°C	Ta≥25°C
	Pulse ON current	Iop	4.5	3	2	A	t=100 ms, Duty=1/10
	Connection temperature	T_J	125			°C	
Dielectric strength between I/O ✻		V_{I-O}	500			Vrms	AC for 1 min
Ambient operating temperature		Ta	−40 to +110			°C	With no icing or condensation
Ambient storage temperature		Tstg	−40 to +125			°C	
Soldering temperature		–	260			°C	10 s

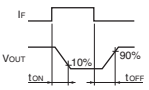
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-31QR	G3VM-61QR2	G3VM-101QR1	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.1			V	I_F=10 mA
			Typical	1.21				
			Maximum	1.4				
	Reverse current	I_R	Maximum	10			μA	V_R=5 V
	Capacity between terminals	C_T	Typical	30			pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	0.6	0.7		mA	I_O=100 mA
			Maximum	3				
	Release LED forward current	I_{FC}	Minimum	0.1			mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	0.1	0.2	0.4	Ω	G3VM-31QR/61QR2, I_O=1000 mA, I_F=5 mA, t<1 s G3VM-101QR1, I_O=650 mA, I_F=5 mA, t<1 s
			Maximum	0.2	0.3	0.6		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1	1000 (1)		nA	G3VM-31QR :V_{OFF}= 20 V G3VM-61QR2 :V_{OFF}= 60 V (V_{OFF}=50 V) G3VM-101QR1 :V_{OFF}= 100 V (V_{OFF}=80 V)
	Capacity between terminals	C_{off}	Typical	120	80	50	pF	V=0, f=100 MHz, t<1 s
			Maximum	–	150	–		
Capacity between I/O terminals		C_{I-O}	Typical	1	0.9		pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Typical	10^8			MΩ	V_{I-O}=500 VDC, RoH≤60%
Turn-ON time		t_{ON}	Typical	0.8	0.75	0.6	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻
			Maximum	2				
Turn-OFF time		t_{OFF}	Typical	0.05	0.04		ms	
			Maximum	1	0.3			

✻ Turn-ON and Turn-OFF Times





■Recommended Operating Conditions

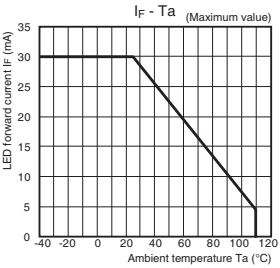
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

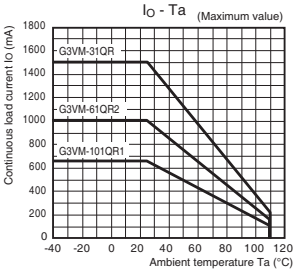
Item	Symbol		G3VM-31QR	G3VM-61QR2	G3VM-101QR1	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	24	48	80	V
Operating LED forward current	I_F	Minimum	5			mA
		Typical	7.5			
		Maximum	20			
Continuous load current (AC peak/DC)	I_O	Maximum	1300	1000	650	
Ambient operating temperature	Ta	Minimum	−20			°C
		Maximum	100			

■Engineering Data

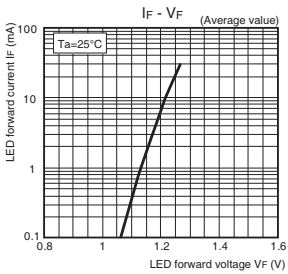
●LED forward current vs. Ambient temperature



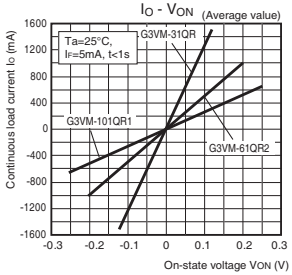
●Continuous load current vs. Ambient temperature



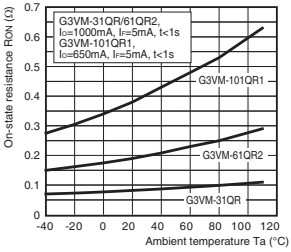
●LED forward current vs. LED forward voltage



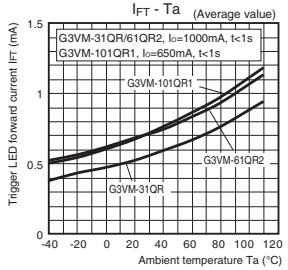
●Continuous load current vs. On-state voltage



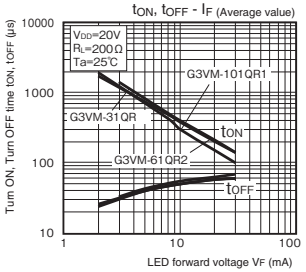
●On-state resistance vs. Ambient temperature



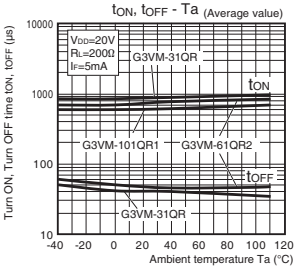
●Trigger LED forward current vs. Ambient temperature



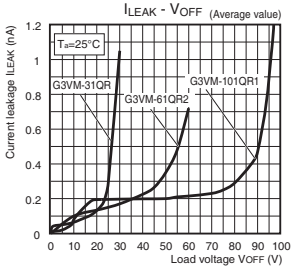
●Turn ON, Turn OFF time vs. LED forward current



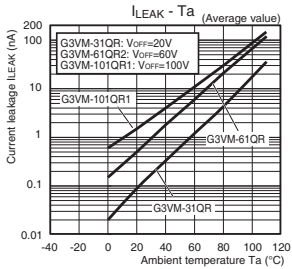
●Turn ON, Turn OFF time vs. Ambient temperature



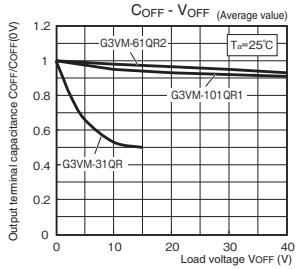
●Current leakage vs. Load voltage



●Current leakage vs. Ambient temperature



●Output terminal capacitance vs. Load voltage



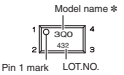
G3VM-31QR/61QR2/101QR1

■Appearance / Terminal Arrangement / Internal Connections

■Appearance

S-VSON (Super-Very Small Outline Non-leaded)

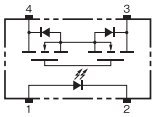
S-VSON4 pin



✻ Actual model name marking for each model

Model	Marking
G3VM-31QR	3Q0
G3VM-61QR2	6Q2
G3VM-101QR1	AQ1

■Terminal Arrangement/Internal Connections (Top View)

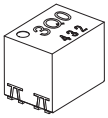


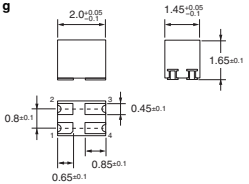
Note 1. The actual product is marked differently from the image shown here.
2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.01 g

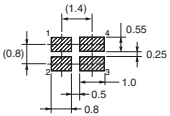




Note: The actual product is marked differently from the image shown here.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

■Safety Precautions

• Refer to "**Common Precautions**" for all G3VM models.

G3VM-□AY□/□DY□

MOS FET Relays DIP 4-pin, Small and High-dielectric-strength Type

Small DIP 4-pin package with Dielectric Strength of 5,000 VAC between I/O

- **Load voltage: 40 V, 60 V, 200 V, 350 V, 400 V, or 600 V**
- **Standard type: Trigger LED forward current 3 mA (max.)**
- **High sensitive type: Trigger LED forward current 2 mA (max.)**

RoHS Compliant

Note: The actual product is marked differently from the image shown here.

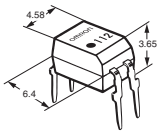
■Application Examples

- **Electrical power unit**
- **Test & measurement equipment**
- **Security equipment**
- **Industrial equipment**
- **Medical equipment**

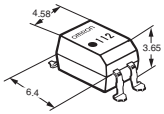
■Package (Unit : mm, Average)

DIP 4-pin

PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
- 4: 40 V
- 6: 60 V
- 20: 200 V
- 35: 350 V
- 40: 400 V
- 60: 600 V

2. Contact form
- 1: 1a (SPST-NO)

3. Package
- A: DIP4 pin PCB terminals
- D: DIP4 pin Surface-mounting Terminals

4. Additional functions
- Y: Dielectric strength between I/O above 2,500 V type

5. Other informations

When specifications overlap, serial code is added in the recorded order.

G3VM-□AY□/□DY□

■Ordering Information

●Standard type

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging			Tape packaging	
				Model		Minimum package quantity	Model	Minimum package quantity
				PCB terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP4	1a (SPST-NO)	40 V	2000 mA	G3VM-41AY1	G3VM-41DY1	100 pcs.	G3VM-41DY1(TR05)	500 pcs.
		60 V	500 mA	G3VM-61AY1	G3VM-61DY1		G3VM-61DY1(TR05)	
		200 V	250 mA	G3VM-201AY1	G3VM-201DY1		G3VM-201DY1(TR05)	
		350 V	100 mA	G3VM-351AY1	G3VM-351DY1		G3VM-351DY1(TR05)	
		400 V	120 mA	G3VM-401AY1	G3VM-401DY1		G3VM-401DY1(TR05)	
		600 V	90 mA	G3VM-601AY1	G3VM-601DY1		G3VM-601DY1(TR05)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.

●High sensitive type

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging			Tape packaging	
				Model		Minimum package quantity	Model	Minimum package quantity
				PCB terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP4	1a (SPST-NO)	40 V	2000 mA	G3VM-41AY	G3VM-41DY	100 pcs.	G3VM-41DY(TR)	1,500 pcs.
		60 V	500 mA	G3VM-61AY	G3VM-61DY		G3VM-61DY(TR)	
		200 V	250 mA	G3VM-201AY	G3VM-201DY		G3VM-201DY(TR)	
		350 V	100 mA	G3VM-351AY	G3VM-351DY		G3VM-351DY(TR)	
		400 V	120 mA	G3VM-401AY	G3VM-401DY		G3VM-401DY(TR)	
		600 V	90 mA	G3VM-601AY	G3VM-601DY		G3VM-601DY(TR)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

●Standard type, High senstive type

	Item	Symbol	G3VM-41AY1 G3VM-41DY1 G3VM-41AY G3VM-41DY	G3VM-61AY1 G3VM-61DY1 G3VM-61AY G3VM-61DY	G3VM-201AY1 G3VM-201DY1 G3VM-201AY G3VM-201DY	G3VM-351AY1 G3VM-351DY1 G3VM-351AY G3VM-351DY	G3VM-401AY1 G3VM-401DY1 G3VM-401AY G3VM-401DY	G3VM-601AY1 G3VM-601DY1 G3VM-601AY G3VM-601DY	Unit	Measurement conditions
Input	LED forward current	I_F	30						mA	
	Repetitive peak LED forward current	I_{FP}	1						A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI_F/°C	−0.3						mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5						V	
	Connection temperature	T_J	125						°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	40	60	200	350	400	600	V	
	Continuous load current (AC peak/DC)	I_O	2,000	500	250	100	120	90	mA	
	ON current reduction rate	ΔI_O/°C	−20	−5	−2.5	−1	−1.2	−0.9	mA/°C	Ta≥25°C
	Pulse ON current	Iop	6	1.5	0.75	0.3	0.36	0.27	A	t=100 ms, Duty=1/10
	Connection temperature	T_J	125						°C	
Dielectric strength between I/O ✻		V_{I-O}	5,000						Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85						°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125						°C	
Soldering temperature		–	260						°C	10 s

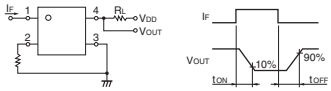
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

●Standard type

Item		Symbol		G3VM-41AY1 G3VM-41DY1	G3VM-61AY1 G3VM-61DY1	G3VM-201AY1 G3VM-201DY1	G3VM-351AY1 G3VM-351DY1	G3VM-401AY1 G3VM-401DY1	G3VM-601AY1 G3VM-601DY1	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.1						V	I_F=10 mA
			Typical	1.27							
			Maximum	1.4							
	Reverse current	I_R	Maximum	10						μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	50						pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	0.5	0.6				0.5	mA	G3VM-41AY1/DY1 : I_O=1 A Others : I_O=Continuous load current ratings
			Maximum	3							
	Release LED forward current	I_{FC}	Minimum	0.1						mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	0.09 (0.06)	0.6	5	35 (25)	22 (17)	45 (30)	Ω	I_F=5 mA, I_O=Continuous load current ratings Values in parentheses are for t < 1 s.
			Maximum	0.15 (0.10)	2	8	50 (35)	35 (28)	60 (40)		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1						μA	V_{OFF}=Load voltage ratings
	Capacitance between terminals	C_{OFF}	Typical	300	130	90	30	80	75	pF	V=0, f=1 MHz
Capacitance between I/O terminals		C_{I-O}	Typical	0.8						pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000						MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8							
Turn-ON time		t_{ON}	Typical	2.8	1		0.3	0.6	0.5	ms	G3VM-41AY1/DY1 : R_L=200 Ω, I_F=10 mA, V_{DD}=20 V G3VM-601AY1/DY1 : R_L=200 Ω, I_F=5 mA, V_{DD}=10 V Others : R_L=200 Ω, I_F=5 mA, V_{DD}=20 V ✻
			Maximum	5	3		2				
Turn-OFF time		t_{OFF}	Typical	0.3	0.2	0.1		0.2			
			Maximum	1							

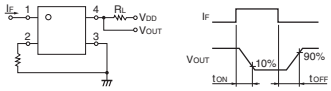
✻ Turn-ON and Turn-OFF Times



●High sensitive type

Item		Symbol		G3VM-41AY G3VM-41DY	G3VM-61AY G3VM-61DY	G3VM-201AY G3VM-201DY	G3VM-351AY G3VM-351DY	G3VM-401AY G3VM-401DY	G3VM-601AY G3VM-601DY	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.45						V	I_F=10 mA
			Typical	1.63							
			Maximum	1.75							
	Reverse current	I_R	Maximum	10						μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	40						pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	0.3						mA	G3VM-41AY/DY : I_O=1 A Others : I_O=Continuous load current ratings
			Maximum	2							
	Release LED forward current	I_{FC}	Minimum	0.1						mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	0.09 (0.06)	0.6	5	35 (25)	22 (17)	45 (30)	Ω	I_F=5 mA, I_O=Continuous load current ratings Values in parentheses are for t < 1 s.
			Maximum	0.15 (0.10)	2	8	50 (35)	35 (28)	60 (40)		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1						μA	V_{OFF}=Load voltage ratings
	Capacitance between terminals	C_{OFF}	Typical	300	130	90	30	80	75	pF	V=0, f=1 MHz
Capacitance between I/O terminals		C_{I-O}	Typical	0.8						pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000						MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8							
Turn-ON time		t_{ON}	Typical	2	0.5		0.1	0.2		ms	G3VM-601AY/DY : R_L=200 Ω, I_F=5 mA, V_{DD}=10 V Others : R_L=200 Ω, I_F=5 mA, V_{DD}=20 V ✻
			Maximum	5	1						
Turn-OFF time		t_{OFF}	Typical	0.3	0.2						
			Maximum	1							

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

●Standard type

Item	Symbol		G3VM-41AY1 G3VM-41DY1	G3VM-61AY1 G3VM-61DY1	G3VM-201AY1 G3VM-201DY1	G3VM-351AY1 G3VM-351DY1	G3VM-401AY1 G3VM-401DY1	G3VM-601AY1 G3VM-601DY1	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	32	48	160	280	320	480	V
Operating LED forward current	I_F	Minimum	5						mA
		Typical	7.5						
		Maximum	25						
Continuous load current (AC peak/DC)	I_O	Maximum	2000	500	250	100	120	90	
Ambient operating temperature	Ta	Minimum	–20						°C
		Maximum	65						

●High sensitive type

Item	Symbol		G3VM-41AY G3VM-41DY	G3VM-61AY G3VM-61DY	G3VM-201AY G3VM-201DY	G3VM-351AY G3VM-351DY	G3VM-401AY G3VM-401DY	G3VM-601AY G3VM-601DY	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	32	48	160	280	320	480	V
Operating LED forward current	I_F	Minimum	3						mA
		Typical	5						
		Maximum	15		20				
Continuous load current (AC peak/DC)	I_O	Maximum	2000	500	250	100	120	90	
Ambient operating temperature	Ta	Minimum	–20						°C
		Maximum	65						

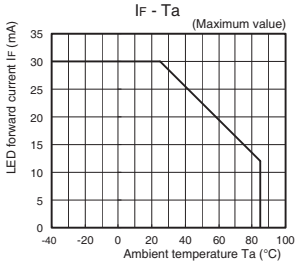
■Spacing and Insulation

●Standard type and High sensitive type

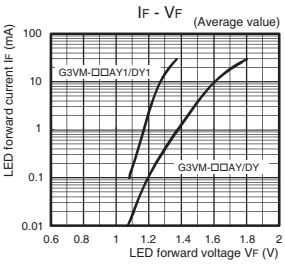
Item		Standard	Unit
Creepage distances	Minimum	7.0	mm
Clearance distances	Minimum	7.0	
Internal isolation thickness	Minimum	0.4	

■Engineering Data

●LED forward current vs. Ambient temperature

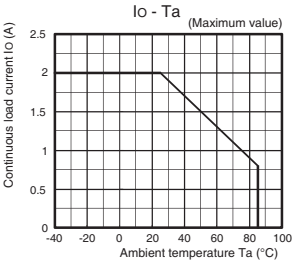


●LED forward current vs. LED forward voltage

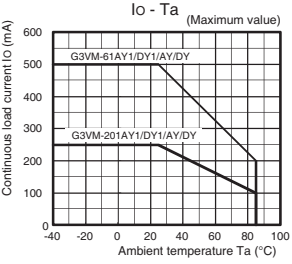


●Continuous load current vs. Ambient temperature

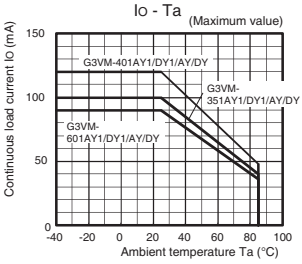
G3VM-41AY1/DY1/AY/DY



G3VM-61AY1/DY1/AY/DY
G3VM-201AY1/DY1/AY/DY

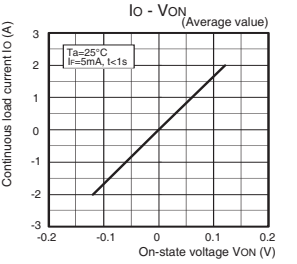


G3VM-351AY1/DY1/AY/DY
G3VM-401AY1/DY1/AY/DY
G3VM-601AY1/DY1/AY/DY

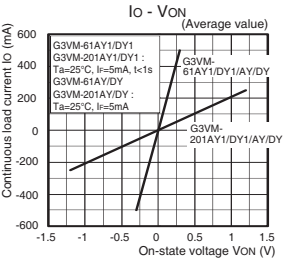


●Continuous load current vs. On-state voltage

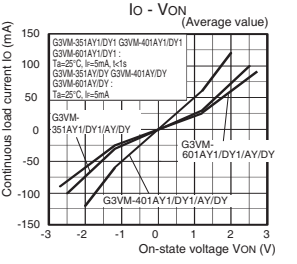
G3VM-41AY1/DY1/AY/DY



G3VM-61AY1/DY1/AY/DY
G3VM-201AY1/DY1/AY/DY

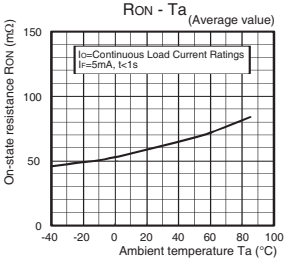


G3VM-351AY1/DY1/AY/DY
G3VM-401AY1/DY1/AY/DY
G3VM-601AY1/DY1/AY/DY

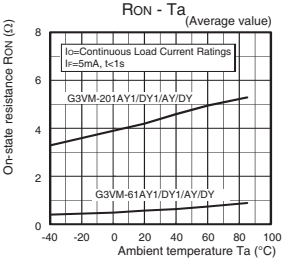


●On-state resistance vs. Ambient temperature

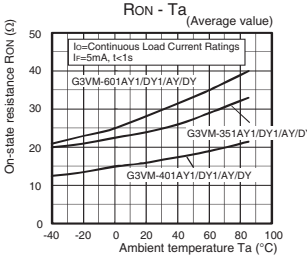
G3VM-41AY1/DY1/AY/DY



G3VM-61AY1/DY1/AY/DY
G3VM-201AY1/DY1/AY/DY



G3VM-351AY1/DY1/AY/DY
G3VM-401AY1/DY1/AY/DY
G3VM-601AY1/DY1/AY/DY

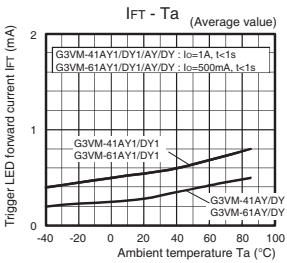


G3VM-□AY□/□DY□

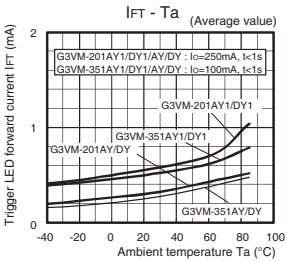
■Engineering Data

●Trigger LED forward current vs. Ambient temperature

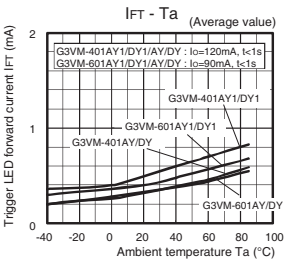
G3VM-41AY1/DY1/AY/DY
G3VM-61AY1/DY1/AY/DY



G3VM-201AY1/DY1/AY/DY
G3VM-351AY1/DY1/AY/DY

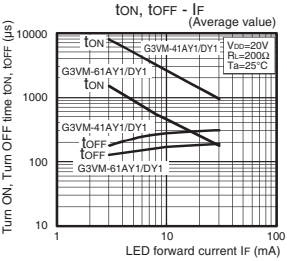


G3VM-401AY1/DY1/AY/DY
G3VM-601AY1/DY1/AY/DY

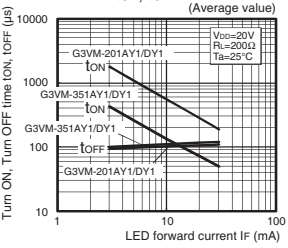


●Turn ON, Turn OFF time vs. LED forward current

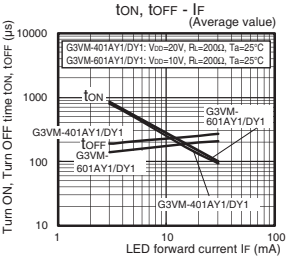
G3VM-41AY1/DY1
G3VM-61AY1/DY1



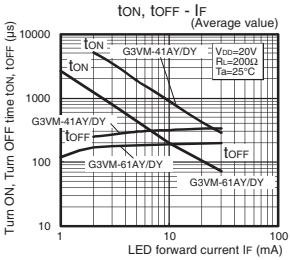
G3VM-201AY1/DY1
G3VM-351AY1/DY1



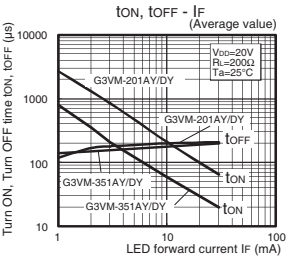
G3VM-401AY1/DY1
G3VM-601AY1/DY1



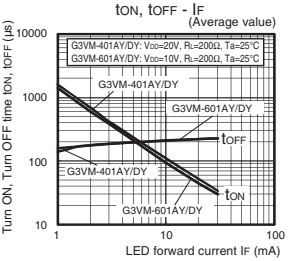
G3VM-41AY/DY
G3VM-61AY/DY



G3VM-201AY/DY
G3VM-351AY/DY

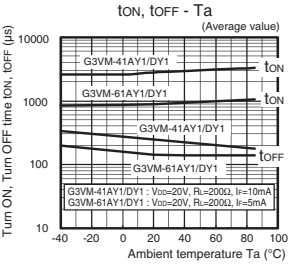


G3VM-401AY/DY
G3VM-601AY/DY

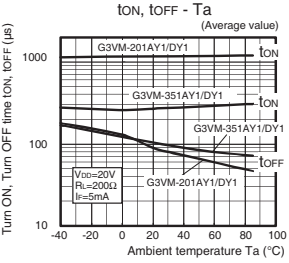


●Turn ON, Turn OFF time vs. Ambient temperature

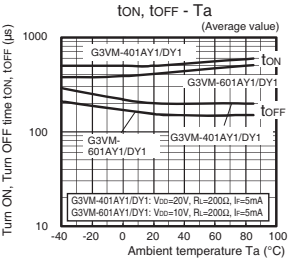
G3VM-41AY1/DY1
G3VM-61AY1/DY1



G3VM-201AY1/DY1
G3VM-351AY1/DY1



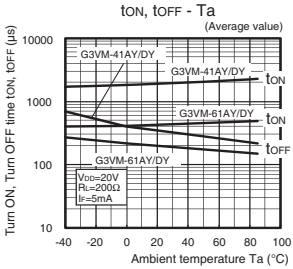
G3VM-401AY1/DY1
G3VM-601AY1/DY1



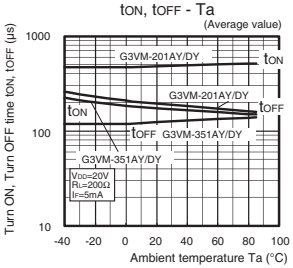
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

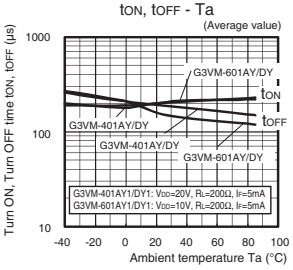
G3VM-41AY/DY
G3VM-61AY/DY



G3VM-201AY/DY
G3VM-351AY/DY

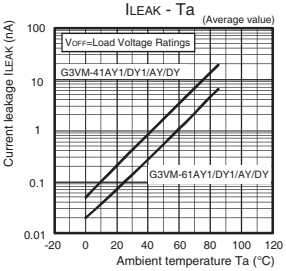


G3VM-401AY/DY
G3VM-601AY/DY

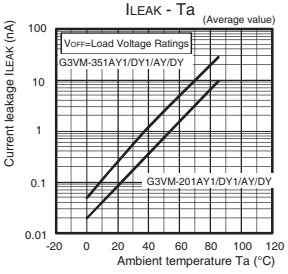


●Current leakage vs. Ambient temperature

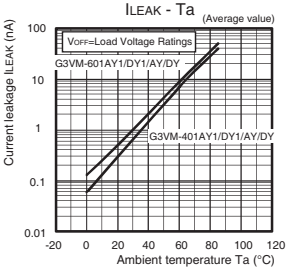
G3VM-41AY1/DY1/AY/DY
G3VM-61AY1/DY1/AY/DY



G3VM-201AY1/DY1/AY/DY
G3VM-351AY1/DY1/AY/DY



G3VM-401AY1/DY1/AY/DY
G3VM-601AY1/DY1/AY/DY



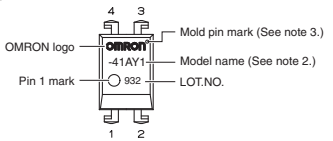
G3VM-□AY□/□DY□

■Apperance Terminal Arrangement Internal Connections

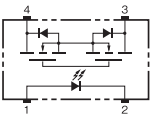
●Apperance

DIP (Dual Inline Package)

DIP 4-pin



●Terminal Arrangement/Internal Connections

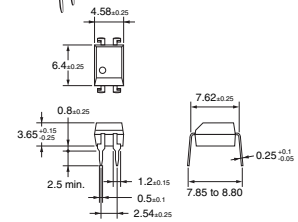


Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

PCB Terminals

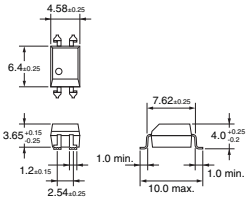
Weight: 0.25 g



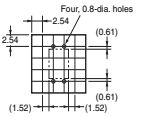
Note: The actual product is marked differently from the image shown here.

Surface-mounting Terminals

Weight: 0.25 g

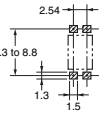


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



■Approved Standards

UL recognized

●Standard type and High sensitive type

Approved Standards	Contact form	File No.
UL recognized	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

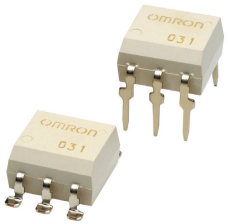
G3VM-□BY/□EY

MOS FET Relays DIP 6-pin, High-dielectric-strength Type

MOS FET Relays in DIP 6-pin packages that achieve a dielectric strength of 5,000 VAC between I/O

- **Load voltage: 400 V or 600 V**

RoHS Compliant



Note: The actual product is marked differently from the image shown here.

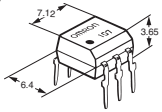
■Application Examples

- **Electrical power unit**
- **Test & Measurement equipment**
- **Security equipment**
- **Industrial equipment**
- **Medical equipment**

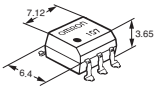
■Package (Unit : mm, Average)

DIP 6-pin

PCB Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□

1 2 3 4 5

1. Load Voltage
40 : 400 V
60 : 600 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
B : DIP 6-pin with PCB terminals
E : DIP 6-pin with surface-mounting terminals

4. Additional functions
Y: Dielectric strength between I/O above 2,500 V type

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻		Stick packaging			Tape packaging	
					Model		Minimum package quantity	Model	Minimum package quantity
			Connection A, B	Connection C	PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP6	1a (SPST-NO)	400 V	120 mA	240 mA	**G3VM-401BY**	**G3VM-401EY**	50 pcs.	**G3VM-401EY(TR)**	1,500 pcs.
		600 V	100 mA	200 mA	**G3VM-601BY**	**G3VM-601EY**		**G3VM-601EY(TR)**	

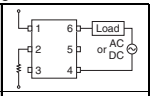
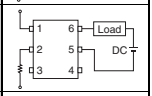
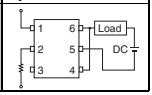
✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

	Item		Symbol	G3VM-401BY G3VM-401EY	G3VM-601BY G3VM-601EY	Unit	Measurement conditions
Input	LED forward current		I_F	50		mA	
	Repetitive peak LED forward current		I_{FP}	1		A	100 μs pulses, 100 pps
	LED forward current reduction rate		ΔI_F/°C	-0.5		mA/°C	Ta ≥ 25°C
	LED reverse voltage		V_R	5		V	
	Connection temperature		T_J	125		°C	
Output	Load voltage (AC peak/DC)		V_{OFF}	400	600	V	
	Continuous load current	Connection A	I_O	120	100	mA	Connection A: AC peak/DC Connection B and C: DC
		Connection B					
		Connection C		240	200		
	ON current reduction rate	Connection A	ΔI_O/°C	-1.2	-1.0	mA/°C	Ta ≥ 25°C
		Connection B		-2.4	-2.0		
		Connection C		20	35		
	Connection temperature		T_J	125		°C	
Dielectric strength between I/O ✻			V_{I-O}	5000		Vrms	AC for 1 min
Ambient operating temperature			Ta	-40 to +85		°C	With no icing or condensation
Ambient storage temperature			Tstg	-55 to +125		°C	
Soldering temperature			–	260		°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

Connection Diagram

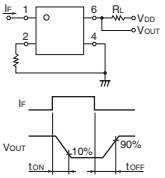
Connection A	
Connection B	
Connection C	

G3VM-□BY/□EY

■Electrical Characteristics (Ta = 25°C)

Item			Symbol		G3VM-401BY G3VM-401EY	G3VM-601BY G3VM-601EY	Unit	Measurement conditions
Input	LED forward voltage		V_F	Minimum	1		V	I_F=10 mA
				Typical	1.15			
				Maximum	1.3			
	Reverse current		I_R	Maximum	10		μA	V_R=5 V
	Capacitance between terminals		C_T	Typical	30		pF	V=0, f=1 MHz
	Trigger LED forward current		I_{FT}	Typical	–	1.6	mA	I_O=Continuous load current ratings
				Maximum	3	5		
Output	Maximum resistance with output ON	Connection A	R_{ON}	Typical	17	30 (25)	Ω	G3VM-401BY/EY : I_F= 5 mA, I_O=120 mA G3VM-601BY/EY : I_F=10 mA, I_O=100 mA Values in parentheses are for t < 1 s.
		Connection B			11	23		G3VM-401BY/EY : I_F= 5 mA, I_O=120 mA G3VM-601BY/EY : I_F=10 mA, I_O=100 mA
		Connection C			6	12		G3VM-401BY/EY : I_F= 5 mA, I_O=240 mA G3VM-601BY/EY : I_F=10 mA, I_O=200 mA
		Connection A		Maximum	35	45 (35)		G3VM-401BY/EY : I_F= 5 mA, I_O=120 mA G3VM-601BY/EY : I_F=10 mA, I_O=100 mA Values in parentheses are for t < 1 s.
		Connection B			20	35		G3VM-401BY/EY : I_F= 5 mA, I_O=120 mA G3VM-601BY/EY : I_F=10 mA, I_O=100 mA
		Connection C			10	18		G3VM-401BY/EY : I_F= 5 mA, I_O=240 mA G3VM-601BY/EY : I_F=10 mA, I_O=200 mA
	Current leakage when the relay is open		I_{LEAK}	Maximum	1		μA	V_{OFF}=Load voltage ratings
	Capacitance between terminals		C_{OFF}	Typical	40	120	pF	V=0, f=1 MHz
Capacitance between I/O terminals			C_{I-O}	Typical	0.8		pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals			R_{I-O}	Minimum	1000		MΩ	V_{I-O}=500 VDC, RoH≤60%
				Typical	10^8			
Turn-ON time			t_{ON}	Typical	0.3	0.2	ms	G3VM-401BY/EY : I_F=5mA, R_L=200Ω, V_{DD}=20V ✻ G3VM-601BY/EY : I_F=10mA, R_L=200Ω, V_{DD}=20V ✻
				Maximum	1.0	1.5		
Turn-OFF time			t_{OFF}	Typical	0.1	0.2		
				Maximum	1.0			

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

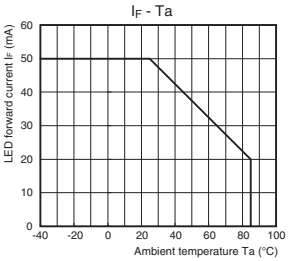
Item	Symbol		G3VM-401BY G3VM-401EY	G3VM-601BY G3VM-601EY	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	320	480	V
Operating LED forward current	I_F	Minimum	5	7.5	mA
		Typical	7.5	15	
		Maximum	25		
Continuous load current (AC peak/DC)	I_O	Maximum	120	100	
Ambient operating temperature	Ta	Minimum	-20		°C
		Maximum	65		

■Spacing and Insulation

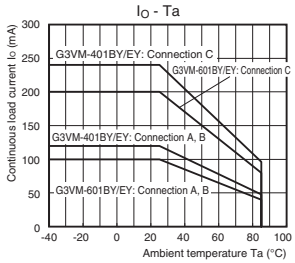
Item	Minimum	Unit
Creepage distances	7.0	mm
Clearance distances	7.0	
Internal isolation thickness	0.4	

■Engineering Data

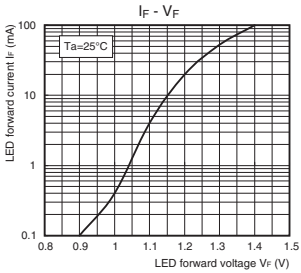
● **LED forward current vs. Ambient temperature**



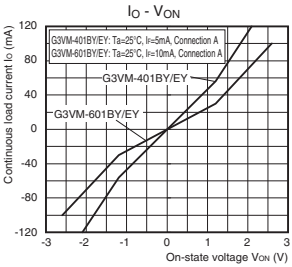
● **Continuous load current vs. Ambient temperature**



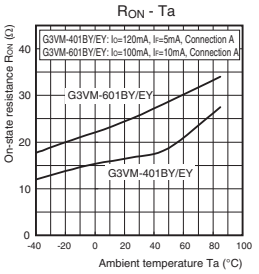
● **LED forward current vs. LED forward voltage**



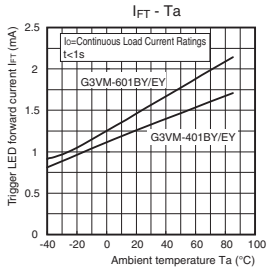
● **Continuous load current vs. On-state voltage**



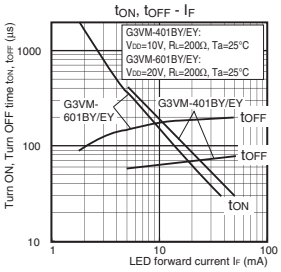
● **On-state resistance vs. Ambient temperature**



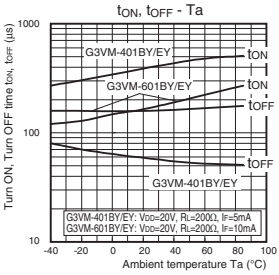
● **Trigger LED forward current vs. Ambient temperature**



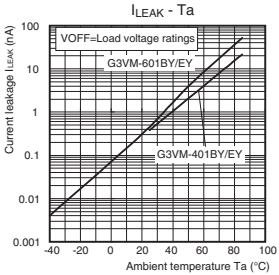
● **Turn ON, Turn OFF time vs. LED forward current**



● **Turn ON, Turn OFF time vs. Ambient temperature**



● **Current leakage vs. Ambient temperature**



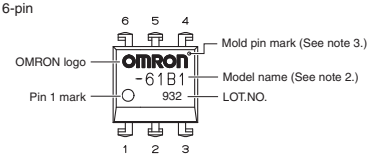
G3VM-□BY/□EY

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

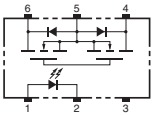
DIP (Dual Inline Package)

DIP 6-pin



Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

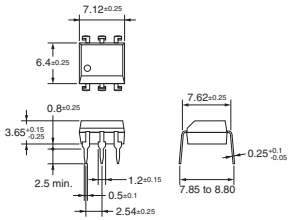
●Terminal Arrangement/Internal Connections (Top View)



■Dimensions (Unit: mm)

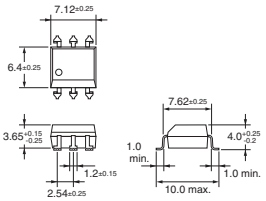
PCB Terminals

Weight: 0.4 g

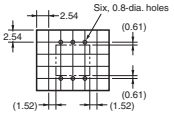


Surface-mounting Terminals

Weight: 0.4 g

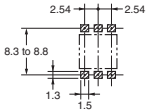


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

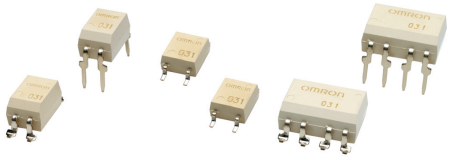
G3VM-□L/□FL/□GL

MOS FET Relays Current-limiting Type

MOS FET Relays that protect themselves from overcurrents with a current-limiting protection function

- **Package: DIP 4-pin, DIP 8-pin or SOP 4-pin**
- **Contact form: 1a (SPST-NO) or 2a (DPST-NO)**
- **Load voltage: 350 V**
- **Current limit: 150 to 300 mA**

RoHS Compliant



Note: The actual product is marked differently from the image shown here.

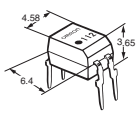
■Application Examples

- **Communication equipment**
- **Industrial equipment**
- **Test & Measurement equipment**

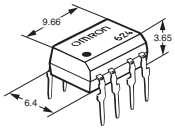
■Package

(Unit : mm, Average)

DIP 4-pin
PCB Terminals

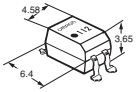


DIP 8-pin
PCB Terminals

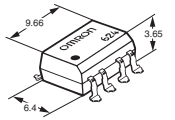


SOP 4-pin

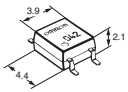
Surface-mounting Terminals



Surface-mounting Terminals



Surface-mounting Terminals



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□
1 2 3 4

1. Load Voltage
35 : 350 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
G : SOP 4-pin with surface-mounting terminals

4. Additional functions
L: Current limiting

Note: The model number legend for the G3VM-2L/2FL/WL/WFL is different from the above legend.

■Ordering Information

Package	Contact form	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging			Tape packaging	
				Model		Minimum package quantity	Model	Minimum package quantity
				PCB Terminals	Surface-mounting Terminals		Surface-mounting Terminals	
DIP4	1a (SPST-NO)	350 V	120 mA	**G3VM-2L**	**G3VM-2FL**	100 pcs.	**G3VM-2FL(TR)**	1,500 pcs.
DIP8	2a (DPST-NO)			**G3VM-WL**	**G3VM-WFL**	50 pcs.	**G3VM-WFL(TR)**	1,500 pcs.
SOP4	1a (SPST-NO)			–	**G3VM-351GL**	100 pcs.	**G3VM-351GL(TR)**	2,500 pcs.

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

Item		Symbol	G3VM-2L G3VM-2FL	G3VM-WL G3VM-WFL	G3VM-351GL	Unit	Measurement conditions
Input	LED forward current	I_F	50			mA	
	Repetitive peak LED forward current	I_{FP}	1			A	100 μs pulses, 100 pps
	LED forward current reduction rate	ΔI_F/°C	-0.5			mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	6		5	V	
	Connection temperature	T_J	125			°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	350			V	
	Continuous load current (AC peak/DC)	I_O	120			mA	
	ON current reduction rate	ΔI_O/°C	-1.2			mA/°C	Ta ≥ 25°C
	Connection temperature	T_J	125			°C	
Dielectric strength between I/O ✻		V_{I-O}	2500		1500	Vrms	AC for 1 min
Ambient operating temperature		Ta	-40 to +85			°C	With no icing or condensation
Ambient storage temperature		Tstg	-55 to +125			°C	
Soldering temperature		–	260			°C	10 s

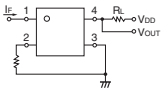
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

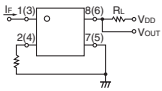
Item		Symbol		G3VM-2L G3VM-2FL	G3VM-WL G3VM-WFL	G3VM-351GL	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0			V	I_F=10 mA
			Typical	1.15				
			Maximum	1.3				
	Reverse current	I_R	Maximum	10			μA	G3VM-2L/2FL/WL/WFL : V_R=6 V G3VM-351GL : V_R=5 V
	Capacitance between terminals	C_T	Typical	30			pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1			mA	I_O=120 mA
			Maximum	3				
	Release LED forward current	I_{FC}	Minimum	0.1			mA	G3VM-2L/2FL/WL/WFL : I_{OFF}=10 μA G3VM-351GL : I_{OFF}=100 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	22		15	Ω	I_F=5 mA, I_O=120 mA
			Maximum	35				
	Current leakage when the relay is open	I_{LEAK}	Maximum	1.0			μA	V_{OFF}=350 V
	Capacitance between terminals	C_{OFF}	Typical	40		70	pF	V=0, f=1 MHz
Limit current		I_{LIM}	Minimum	150			mA	I_F=5 mA, V_{DD}=5 V, t=5 ms
			Maximum	300				
Capacitance between I/O terminals		C_{I-O}	Typical	0.8			pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000			MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8				
Turn-ON time		t_{ON}	Typical	–		0.3	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=2 V ✻
			Maximum	1.0				
Turn-OFF time		t_{OFF}	Typical	–		0.1		
			Maximum	1.0				

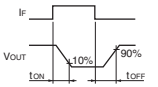
✻ Turn-ON and Turn-OFF Times

G3VM-2L/2FL/351GL



G3VM-WL/WFL





■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

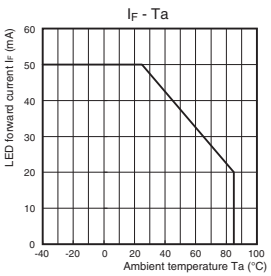
Item	Symbol		G3VM-2L G3VM-2FL	G3VM-WL G3VM-WFL	G3VM-351GL	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	280			V
Operating LED forward current	I_F	Minimum	5			mA
		Typical	7.5			
		Maximum	25			
Continuous load current (AC peak/DC)	I_O	Maximum	100			A
Ambient operating temperature	Ta	Minimum	-20			°C
		Maximum	65			

■Spacing and Insulation

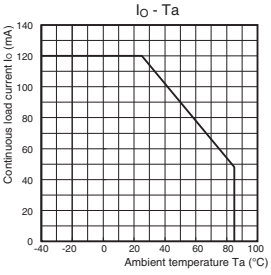
Item	Minimum		Unit
	G3VM-□L/□FL	G3VM-□GL	
Creepage distances	7.0	2.5	mm
Clearance distances	7.0	2.5	
Internal isolation thickness	0.4	0.1	

■Engineering Data

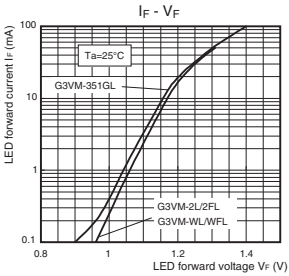
● **LED forward current vs. Ambient temperature**



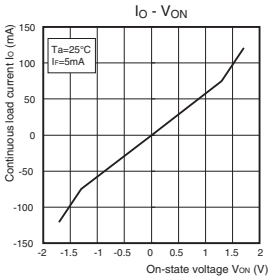
● **Continuous load current vs. Ambient temperature**



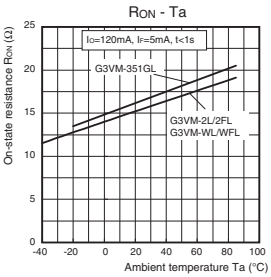
● **LED forward current vs. LED forward voltage**



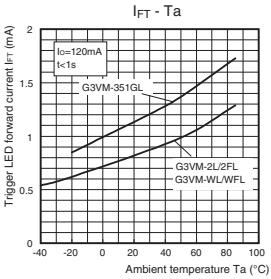
● **Continuous load current vs. On-state voltage**



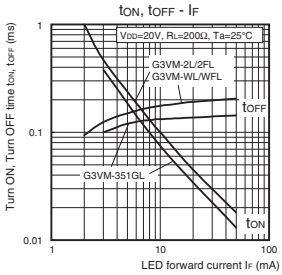
● **On-state resistance vs. Ambient temperature**



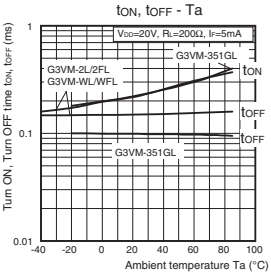
● **Trigger LED forward current vs. Ambient temperature**



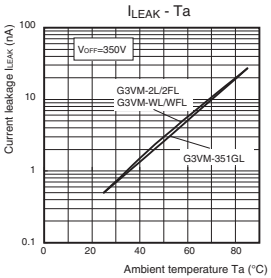
● **Turn ON, Turn OFF time vs. LED forward current**



● **Turn ON, Turn OFF time vs. Ambient temperature**



● **Current leakage vs. Ambient temperature**

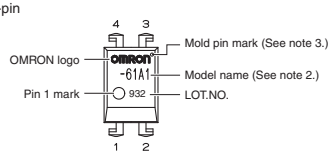


■Appearance / Terminal Arrangement / Internal Connections

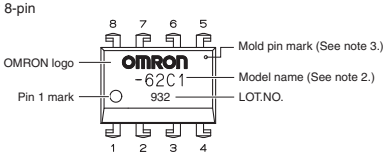
●Appearance

DIP (Dual Inline Package)

DIP 4-pin

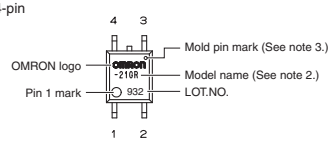


DIP 8-pin

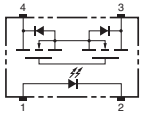


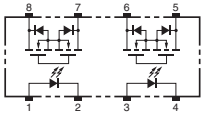
SOP (Small Outline Package)

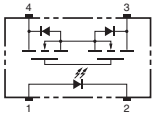
SOP 4-pin



●Terminal Arrangement/Internal Connections (Top View)







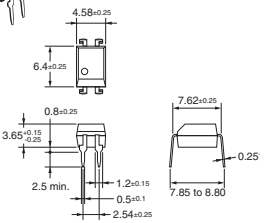
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

■Dimensions (Unit: mm)

G3VM-2L

PCB Terminals

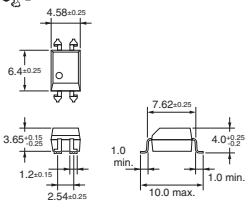
Weight: 0.4 g



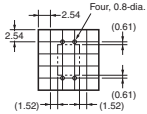
G3VM-2FL

Surface-mounting Terminals

Weight: 0.4 g

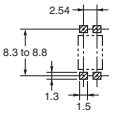


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)

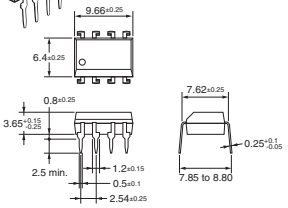


Note: The actual product is marked differently from the image shown here.

G3VM-WL

PCB Terminals

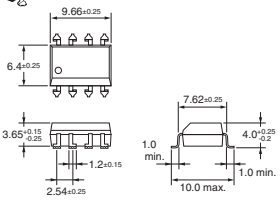
Weight: 0.54 g



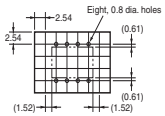
G3VM-WFL

Surface-mounting Terminals

Weight: 0.54 g

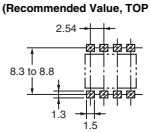


PCB Dimensions (BOTTOM VIEW)



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

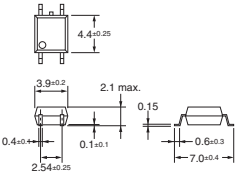
G3VM-□L/□FL/□GL

■Dimensions (Unit: mm)

G3VM-351GL

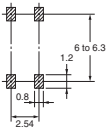
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Model	Approved Standards	Contact form	File No.
G3VM-2L G3VM-2FL	UL (recognized)	1a (SPST-NO)	E80555
G3VM-WL G3VM-WFL		2a (DPST-NO)	

■Safety Precautions

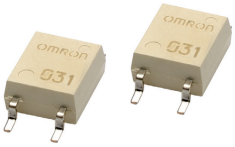
- Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-21GR□/41GR4/41GR5/41GR6/81GR□

MOS FET Relays SOP 4-pin, Low-output-capacitance and Low-ON-resistance Type (with Low C × R) G3VM-21PR10

MOS FET Relays in SOP 4-pin packages that achieve a low C × R

- **Load voltage: 20 V, 40 V, or 80 V**
- **G3VM-21GR: Low C × R = 5 pF·Ω, COFF (standard) = 1 pF, RON (standard) = 5 Ω**
- **G3VM-21GR1: Low C × R = 5 pF·Ω, COFF (standard) = 5 pF, RON (standard) = 1 Ω**
- **G3VM-41GR6: Low C × R = 10 pF·Ω, COFF (standard) = 1 pF, RON (standard) = 10 Ω**
- **G3VM-41GR4: Low C × R = 10 pF·Ω, COFF (standard) = 5 pF, RON (standard) = 2 Ω**
- **G3VM-41GR5: Low C × R = 10 pF·Ω, COFF (standard) = 10 pF, RON (standard) = 1 Ω**



Note: The actual product is marked differently from the image shown here.

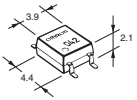
RoHS Compliant

■Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Security equipment**
- **Industrial equipment**
- **Power circuit**
- **Amusement equipment**

■Package (Unit : mm, Average)

SOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
2 : 20 V
4 : 40 V
8 : 80 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
G : SOP 4-pin

4. Additional functions
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Stick packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SOP4	1a (SPST-NO)	Surface-mounting Terminals	20 V	160 mA	G3VM-21GR	100 pcs.	G3VM-21GR(TR)	2,500 pcs.
				300 mA	G3VM-21GR1		G3VM-21GR1(TR)	
			40 V	120 mA	G3VM-41GR6		G3VM-41GR6(TR)	
				250 mA	G3VM-41GR4		G3VM-41GR4(TR)	
				300 mA	G3VM-41GR5		G3VM-41GR5(TR)	
			80 V	40 mA	G3VM-81GR		G3VM-81GR(TR)	
				200 mA	G3VM-81GR1		G3VM-81GR1(TR)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR)" to the end of the model number.

■Absolute Maximum Ratings (Ta = 25°C)

	Item	Symbol	G3VM-21GR	G3VM-21GR1	G3VM-41GR6	G3VM-41GR4	G3VM-41GR5	G3VM-81GR	G3VM-81GR1	Unit	Measurement conditions
Input	LED forward current	IF	50							mA	
	LED forward current reduction rate	ΔIF/°C	-0.5							mA/°C	Ta ≥ 25°C
	LED reverse voltage	VR	5							V	
	Connection temperature	TJ	125							°C	
Output	Load voltage (AC peak/DC)	VOFF	20		40			80		V	
	Continuous load current (AC peak/DC)	IO	160	300	120	250	300	40	200	mA	
	ON current reduction rate	ΔIO/°C	-1.6	-3.0	-1.2	-2.5	-3.0	-0.4	-2.0	mA/°C	Ta ≥ 25°C
	Pulse ON current	Iop	480	900	360	750	900	120	600	mA	t=100 ms, Duty=1/10
	Connection temperature	TJ	125							°C	
Dielectric strength between I/O ✻		VI-O	1500							Vrms	AC for 1 min
Ambient operating temperature		Ta	-20 to +85							°C	With no icing or condensation
Ambient storage temperature		Tstg	-40 to +125	-55 to +125			-40 to +125			°C	
Soldering temperature		–	260							°C	10 s

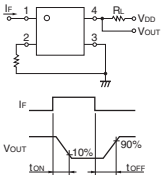
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

G3VM-21GR□/41GR4/41GR5/41GR6/81GR□ MOS FET Relays

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-21GR	G3VM-21GR1	G3VM-41GR6	G3VM-41GR4	G3VM-41GR5	G3VM-81GR	G3VM-81GR1	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0							V	I_F=10 mA
			Typical	1.15								
			Maximum	1.3								
	Reverse current	I_R	Maximum	10							μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	15							pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Maximum	4					3		mA	G3VM-21GR/21GR1/41GR4/41GR5/41GR6 : I_O=100 mA G3VM-81GR : I_O=40 mA G3VM-81GR1 : I_O=200 mA
	Release LED forward current	I_{FC}	Minimum	0.2					0.1		mA	I_{OFF}=10μA
Output	Maximum resistance with output ON	R_{ON}	Typical	5	1	10	2	1	16	5	Ω	G3VM-21GR/21GR1/41GR4/41GR5/41GR6 : I_F=5 mA, I_O=Continuous load current ratings, t<1s G3VM-81GR/81GR1 : I_F=5 mA, I_O=Continuous load current ratings
			Maximum	8	1.5	15	3	1.5	25	8		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1							nA	G3VM-21GR/21GR1 : V_{OFF}=20 V, Ta=50°C G3VM-41GR4/41GR5/41GR6 : V_{OFF}=30 V, Ta=50°C G3VM-81GR : V_{OFF}=80 V, Ta=60°C G3VM-81GR1 : V_{OFF}=80 V, Ta=50°C
	Capacitance between terminals	C_{OFF}	Typical	1	5	1	5	10	2.5	6.5	pF	G3VM-21GR/21GR1/41GR4/41GR5/41GR6 : V=0, f=100 MHz, t<1 s G3VM-81GR/81GR1 : V=0, f=100 MHz, t<10 s
			Maximum	2.5	12	2	7	14	3.5	11		
Capacitance between I/O terminals		C_{I-O}	Typical	0.8					0.7		pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000							MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8								
Turn-ON time		t_{ON}	Typical	–					0.07	0.13	ms	G3VM-21GR/21GR1/41GR4/41GR5/41GR6 : I_F=10 mA, R_L=200 Ω, V_{DD}=20 V ✻ G3VM-81GR/81GR1 :I_F=5 mA, R_L=200 Ω, V_{DD}=10 V ✻
			Maximum	0.5								
Turn-OFF time		t_{OFF}	Typical	–					0.07	0.17		
			Maximum	0.5								

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

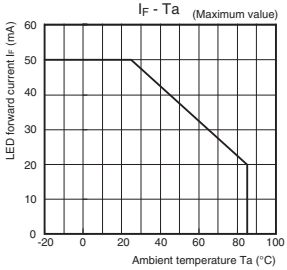
Item	Symbol		G3VM-21GR	G3VM-21GR1	G3VM-41GR6	G3VM-41GR4	G3VM-41GR5	G3VM-81GR	G3VM-81GR1	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	20		32			64		V
Operating LED forward current	I_F	Minimum	7		10			5		mA
		Maximum	30							
Continuous load current (AC peak/DC)	I_O	Maximum	160	300	120	250	300	40	200	
Ambient operating temperature	Ta	Minimum	-20							°C
		Maximum	60							

■Spacing and Insulation

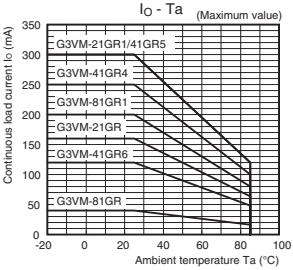
Item	Minimum	Unit
Creepage distances	4.0	mm
Clearance distances	4.0	
Internal isolation thickness	0.1	

■Engineering Data

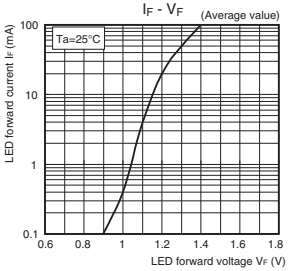
● **LED forward current vs. Ambient temperature**



● **Continuous load current vs. Ambient temperature**

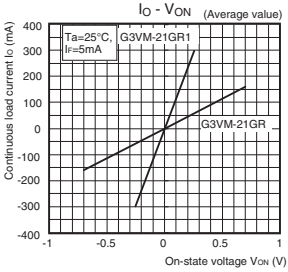


● **LED forward current vs. LED forward voltage**

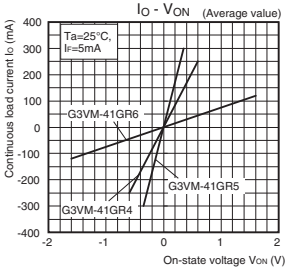


● **Continuous load current vs. On-state voltage**

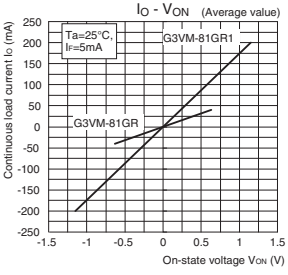
G3VM-21GR/21GR1



G3VM-41GR6/41GR4/41GR5

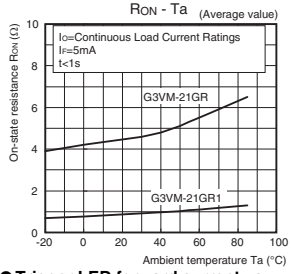


G3VM-81GR/81GR1

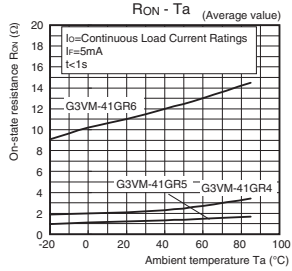


● **On-state resistance vs. Ambient temperature**

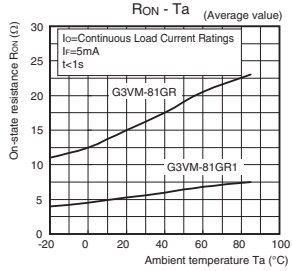
G3VM-21GR/21GR1



G3VM-41GR6/41GR4/41GR5

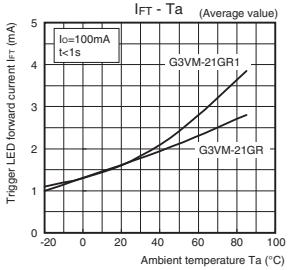


G3VM-81GR/81GR1

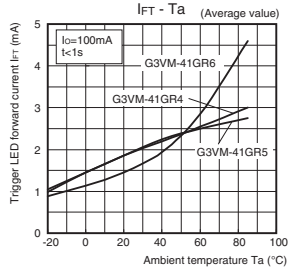


● **Trigger LED forward current vs. Ambient temperature**

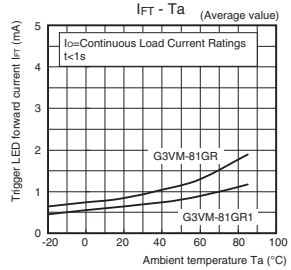
G3VM-21GR/21GR1



G3VM-41GR6/41GR4/41GR5



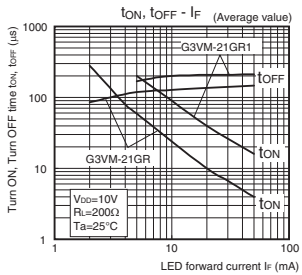
G3VM-81GR/81GR1



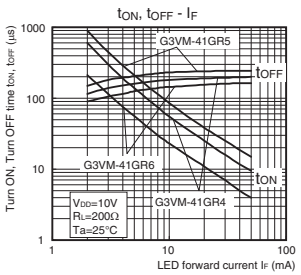
■Engineering Data

●Turn ON, Turn OFF time vs. LED forward current

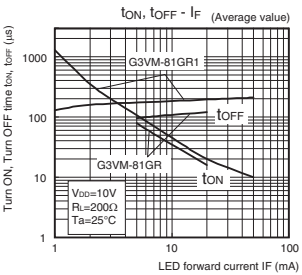
G3VM-21GR/21GR1



G3VM-41GR6/41GR4/41GR5

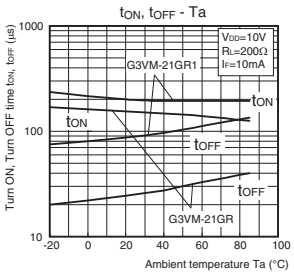


G3VM-81GR/81GR1

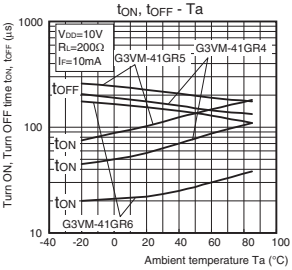


●Turn ON, Turn OFF time vs. Ambient temperature

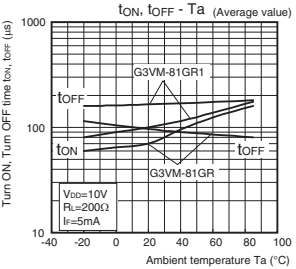
G3VM-21GR/21GR1



G3VM-41GR6/41GR4/41GR5

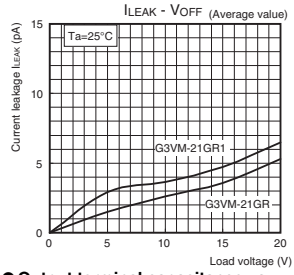


G3VM-81GR/81GR1

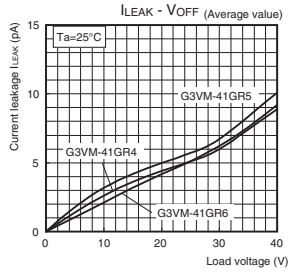


●Current leakage vs. Load voltage

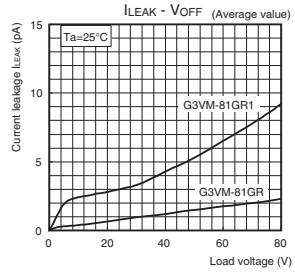
G3VM-21GR/21GR1



G3VM-41GR6/41GR4/41GR5

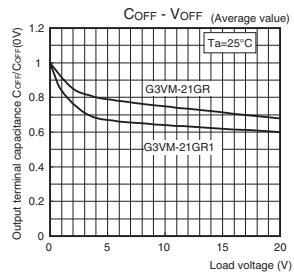


G3VM-81GR/81GR1

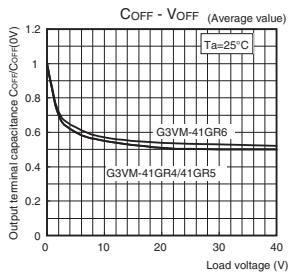


●Output terminal capacitance vs. Load voltage

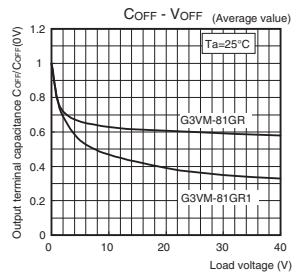
G3VM-21GR/21GR1



G3VM-41GR6/41GR4/41GR5



G3VM-81GR/81GR1

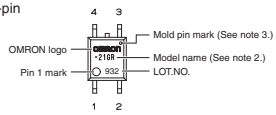


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

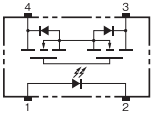
SOP (Small Outline Package)

SOP 4-pin



Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.
Note: 3. The indentation in the corner diagonally opposite from the pin 1 mark is from a pin on the mold.

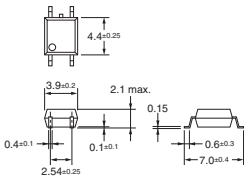
●Terminal Arrangement/Internal Connections (Top View)



■Dimensions (Unit: mm)

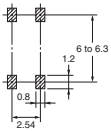
Surface-mounting Terminals

Weight: 0.1 g



Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-21LR□

MOS FET Relays SSOP, Low-output-capacitance and Low-ON-resistance Type (with Low C × R)

MOS FET Relays in SSOP packages that achieve a low C × R

- **Load voltage: 20 V**
- **G3VM-21LR: Low C × R = 5 pF·Ω, C_{OFF} (standard) = 1 pF, R_{ON} (standard) = 5 Ω**
- **G3VM-21LR10: Low C × R = 2.4 pF·Ω, C_{OFF} (standard) = 0.8 pF, R_{ON} (standard) = 3 Ω**
- **G3VM-21LR1: Low C × R = 4 pF·Ω, C_{OFF} (standard) = 5 pF, R_{ON} (standard) = 0.8 Ω**
- **G3VM-21LR11: Low C × R = 7.2 pF·Ω, C_{OFF} (standard) = 40 pF, R_{ON} (standard) = 0.18 Ω**

RoHS Compliant

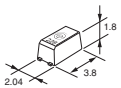
Note: The actual product is marked differently from the image shown here.

■Application Examples

- **Semiconductor test equipment**
- **Communication equipment**
- **Test & Measurement equipment**
- **Data loggers**

■Package (Unit : mm, Average)

SSOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. **Load Voltage**
2 : 20 V

2. **Contact form**
1 : 1a (SPST-NO)

3. **Package**
L : SSOP 4-pin

4. **Additional functions**
R: Low ON resistance

5. **Other informations**
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SSOP4	1a (SPST-NO)	Surface-mounting Terminals	20 V	160 mA	G3VM-21LR	1 pc.	G3VM-21LR(TR05)	500 pcs.
				200 mA	G3VM-21LR10		G3VM-21LR10(TR05)	
				450 mA	G3VM-21LR1		G3VM-21LR1(TR05)	
				900 mA	G3VM-21LR11		G3VM-21LR11(TR05)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut SSOPs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

■Absolute Maximum Ratings (Ta = 25°C)

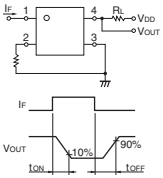
	Item	Symbol	G3VM-21LR	G3VM-21LR10	G3VM-21LR1	G3VM-21LR11	Unit	Measurement conditions
Input	LED forward current	I_F	50	30	50	50	mA	
	LED forward current reduction rate	ΔI_F/°C	-0.5	-0.3	-0.5		mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5				V	
	Connection temperature	T_J	125				°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	20				V	
	Continuous load current (AC peak/DC)	I_O	160	200	450	900	mA	
	ON current reduction rate	ΔI_O/°C	-1.6	-2.0	-4.5	-12	mA/°C	G3VM-21LR11 : Ta ≥ 50°C Others : Ta ≥25°C
	Pulse ON current	I_{OP}	480	600	1,350	2,700	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125				°C	
Dielectric strength between I/O ✻		V_{I-O}	1500				Vrms	AC for 1 min
Ambient operating temperature		Ta	-20 to +85				°C	With no icing or condensation
Ambient storage temperature		Tstg	-40 to +125				°C	
Soldering temperature		–	260				°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

	Item	Symbol		G3VM-21LR	G3VM-21LR10	G3VM-21LR1	G3VM-21LR11	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0	1.15	1.0		V	G3VM-21LR10 : I_F=5 mA G3VM-21LR/21LR1/21LR11 : I_F=10 mA
			Typical	1.15	1.35	1.15			
			Maximum	1.3	1.45	1.3			
	Reverse current	I_R	Maximum	10				μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	15	70	15		pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Maximum	4	3	4	3	mA	I_O=100 mA
	Release LED forward current	I_{FC}	Minimum	0.2	0.1	0.2	0.1	mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	5	3	0.8	0.18	Ω	G3VM-21LR/21LR1 : I_F=5 mA, I_O=Continuous load current ratings, t=10 ms G3VM-21LR10/21LR11 : I_F=5 mA, I_O=Continuous load current ratings, t<1 s
			Maximum	8	5	1.2	0.22		
	Current leakage when the relay is open	I_{LEAK}	Typical	–	0.01	–		nA	G3VM-21LR/21LR1: V_{OFF}=20 V, Ta=50°C G3VM-21LR10/21LR11 : V_{OFF}=20 V
			Maximum	1	0.2	1			
	Capacitance between terminals	C_{OFF}	Typical	1	0.8	5	40	pF	G3VM-21LR10 : V=0, f=100 MHz G3VM-21LR/21LR1/21LR11 : V=0, f=100 MHz, t<1 s
			Maximum	2.5	1.1	12	–		
Capacitance between I/O terminals		C_{I-O}	Typical	0.8	0.3	0.8	0.3	pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000				MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8					
Turn-ON time		t_{ON}	Typical	0.06	–	0.2	0.3	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=10 V ✻
			Maximum	0.5	0.2	0.5	2		
Turn-OFF time		t_{OFF}	Typical	0.12	–	0.2			
			Maximum	0.5	0.2	0.5	1		

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-21LR	G3VM-21LR10	G3VM-21LR1	G3VM-21LR11	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	20				V
Operating LED forward current	I_F	Minimum	10	–	10	–	mA
		Maximum	30	20	30	20	
Continuous load current (AC peak/DC)	I_O	Maximum	160	200	450	900	
Ambient operating temperature	Ta	Minimum	-20				°C
		Maximum	60			65	

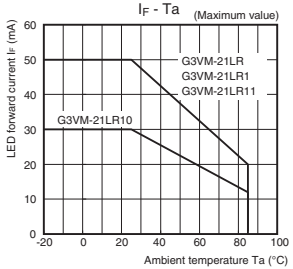
■Spacing and Insulation

Item	Minimum	Unit
Creepage distances	2.5	mm
Clearance distances	2.5	
Internal isolation thickness	0.1	

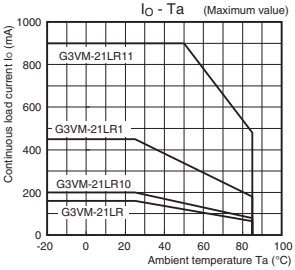
G3VM-21LR□

■Engineering Data

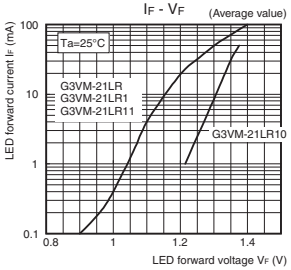
● **LED forward current vs. Ambient temperature**



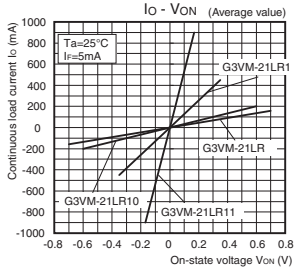
● **Continuous load current vs. Ambient temperature**



● **LED forward current vs. LED forward voltage**

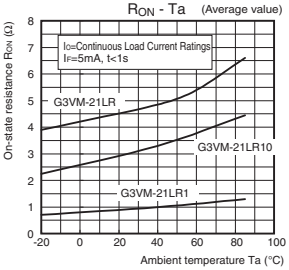


● **Continuous load current vs. On-state voltage**

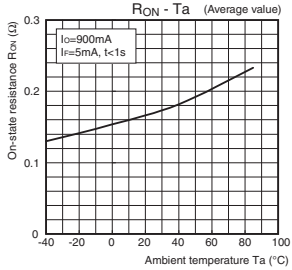


● **On-state resistance vs. Ambient temperature**

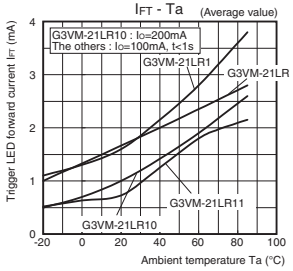
G3VM-21LR/21LR10/21LR1



G3VM-21LR11

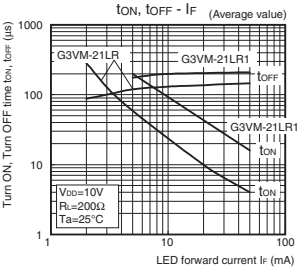


● **Trigger LED forward current vs. Ambient temperature**

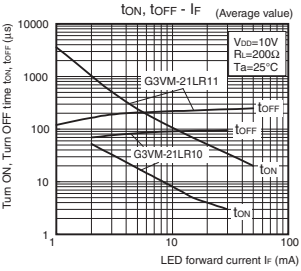


● **Turn ON, Turn OFF time vs. LED forward current**

G3VM-21LR/21LR1

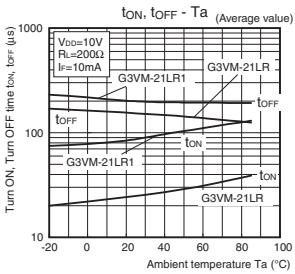


G3VM-21LR10/21LR11

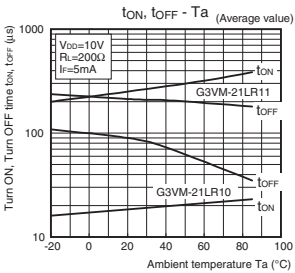


■Engineering Data

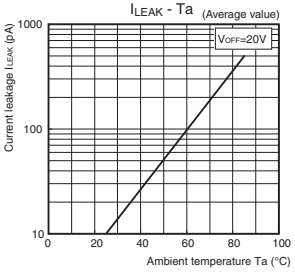
● **Turn ON, Turn OFF time vs. Ambient temperature**
G3VM-21LR/21LR1



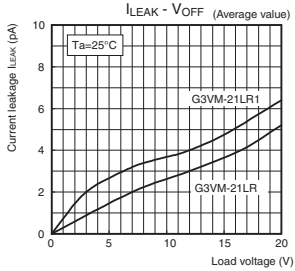
G3VM-21LR10/21LR11



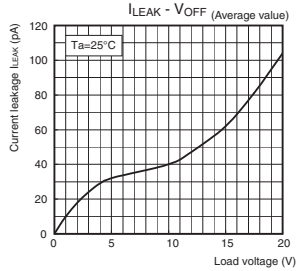
● **Current leakage vs. Ambient temperature**
G3VM-21LR10



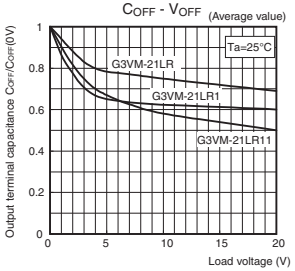
● **Current leakage vs. Load voltage**
G3VM-21LR/21LR1



G3VM-21LR11



● **Output terminal capacitance vs. Load voltage**
G3VM-21LR/21LR1/21LR11

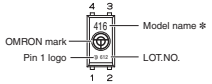


G3VM-21LR□

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

SSOP (Shrink Small Outline Package)
SSOP 4-pin

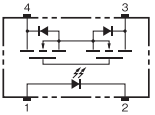


✻ Actual model name marking for each model

Model	Marking
G3VM-21LR	210
G3VM-21LR10	21A
G3VM-21LR1	211
G3VM-21LR11	21B

Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.

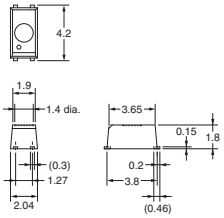
●Terminal Arrangement/ Internal Connections (Top View)



■Dimensions (Unit: mm)

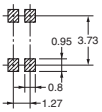
Surface-mounting Terminals

Weight: 0.03 g



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Actual Mounting Pad Dimensions
(Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-41LR□

MOS FET Relays SSOP, Low-output-capacitance and Low-ON-resistance Type (with Low C × R)

MOS FET Relays in SSOP packages that achieve a low C × R

- **Load voltage : 40 V**
- **G3VM-41LR10 : Low C × R = 5.4 pF·Ω, COFF (standard) = 0.45 pF, RON (standard) = 12 Ω**
- **G3VM-41LR6 : Low C × R = 10 pF·Ω, COFF (standard) = 1 pF, RON (standard) = 10 Ω**
- **G3VM-41LR11 : Low C × R = 4.9 pF·Ω, COFF (standard) = 0.7 pF, RON (standard) = 7 Ω**
- **G3VM-41LR4 : Low C × R = 10 pF·Ω, COFF (standard) = 5 pF, RON (standard) = 2 Ω**
- **G3VM-41LR5 : Low C × R = 10 pF·Ω, COFF (standard) = 10 pF, RON (standard) = 1 Ω**

RoHS Compliant

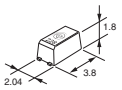
Note: The actual product is marked differently from the image shown here.

■Application Examples

- **Semiconductor test equipment**
- **Communication equipment**
- **Test & Measurement equipment**
- **Data loggers**

■Package (Unit : mm, Average)

SSOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. **Load Voltage**
4 : 40 V

2. **Contact form**
1 : 1a (SPST-NO)

3. **Package**
L : SSOP 4-pin

4. **Additional functions**
R: Low ON resistance

5. **Other informations**
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SSOP4	1a (SPST-NO)	Surface-mounting Terminals	40 V	120 mA	G3VM-41LR10	1 pc.	G3VM-41LR10(TR05)	500 pcs.
					G3VM-41LR6		G3VM-41LR6(TR05)	
				140 mA	G3VM-41LR11		G3VM-41LR11(TR05)	
				250 mA	G3VM-41LR4		G3VM-41LR4(TR05)	
				300 mA	G3VM-41LR5		G3VM-41LR5(TR05)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut SSOPs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

■Absolute Maximum Ratings (Ta = 25°C)

	Item	Symbol	G3VM-41LR10	G3VM-41LR6	G3VM-41LR11	G3VM-41LR4	G3VM-41LR5	Unit	Measurement conditions
Input	LED forward current	IF	30	50	30	50		mA	
	LED forward current reduction rate	ΔIF/°C	-0.3	-0.5	-0.3	-0.5		mA/°C	Ta ≥ 25°C
	LED reverse voltage	VR	5					V	
	Connection temperature	TJ	125					°C	
Output	Load voltage (AC peak/DC)	VOFF	40					V	
	Continuous load current (AC peak/DC)	IO	120		140	250	300	mA	
	ON current reduction rate	ΔIO/°C	-1.2		-1.4	-2.5	-3.0	mA/°C	Ta ≥ 25°C
	Pulse ON current	Iop	360		420	750	900	mA	t=100 ms, Duty=1/10
	Connection temperature	TJ	125					°C	
Dielectric strength between I/O ✻		VI-O	1500					Vrms	AC for 1 min
Ambient operating temperature		Ta	-20 to +85					°C	With no icing or condensation
Ambient storage temperature		Tstg	-40 to +125					°C	
Soldering temperature		–	260					°C	10 s

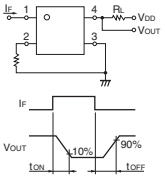
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

G3VM-41LR□

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-41LR10	G3VM-41LR6	G3VM-41LR11	G3VM-41LR4	G3VM-41LR5	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.15	1.0	1.15	1.0		V	I_F=10 mA G3VM-41LR4/41LR5/41LR6 : G3VM-41LR10/41LR11 : I_F=5 mA
			Typical	1.35	1.15	1.3	1.15			
			Maximum	1.45	1.3	1.45	1.3			
	Reverse current	I_R	Maximum	10					μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	70	15	70	15		pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Maximum	3	4	3	4		mA	I_O=100 mA
	Release LED forward current	I_{FC}	Minimum	0.1	0.2	0.1	0.2		mA	G3VM-41LR4/41LR5/41LR6/41LR10 : I_{OFF}=10 μA G3VM-41LR11 : I_{OFF}=1 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	12	10	7	2	1	Ω	G3VM-41LR4/41LR6 : I_F=5 mA, I_O=Continuous load current ratings, t=10 ms G3VM-41LR5/41LR10/41LR11 : I_F=5 mA, I_O=Continuous load current ratings, t<1 s
			Maximum	14	15	10	3	1.5		
	Current leakage when the relay is open	I_{LEAK}	Typical	0.01	–	0.01	–		nA	G3VM-41LR4/41LR5/41LR6: V_{OFF}=30 V, Ta=50°C G3VM-41LR10/41LR11 : V_{OFF}=35 V
			Maximum	0.2	1	0.2	1			
	Capacitance between terminals	C_{OFF}	Typical	0.45	1	0.7	5	10	pF	V=0, f=100 MHz, t<1 s
			Maximum	0.8	2	1.3	7	14		
Capacitance between I/O terminals		C_{I-O}	Typical	0.3	0.8	0.3	0.8		pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000					MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8						
Turn-ON time		t_{ON}	Typical	–	0.05	–	0.12	0.2	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=10 V ✻
			Maximum	0.2	0.5	0.2	0.5			
Turn-OFF time		t_{OFF}	Typical	–	0.12	–	0.14	0.2		
			Maximum	0.3	0.5	0.2	0.5			

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

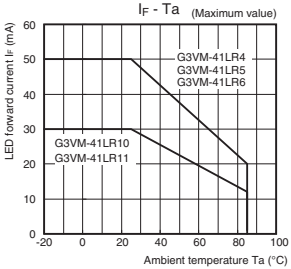
Item	Symbol		G3VM-41LR10	G3VM-41LR6	G3VM-41LR11	G3VM-41LR4	G3VM-41LR5	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	32					V
Operating LED forward current	I_F	Minimum	–	10	–	10		mA
		Maximum	20	30	20	30		
Continuous load current (AC peak/DC)	I_O	Maximum	120		140	250	300	
Ambient operating temperature	Ta	Minimum	-20					°C
		Maximum	60					

■Spacing and Insulation

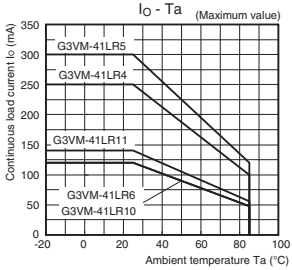
Item	Minimum	Unit
Creepage distances	2.5	mm
Clearance distances	2.5	
Internal isolation thickness	0.1	

■Engineering Data

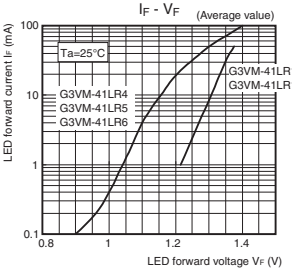
● **LED forward current vs. Ambient temperature**



● **Continuous load current vs. Ambient temperature**

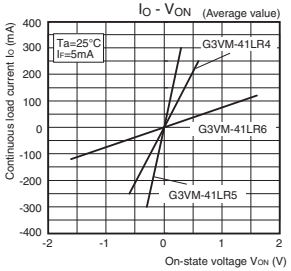


● **LED forward current vs. LED forward voltage**

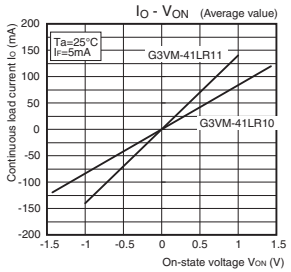


● **Continuous load current vs. On-state voltage**

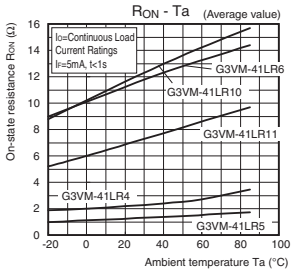
G3VM-41LR6/41LR4/41LR5



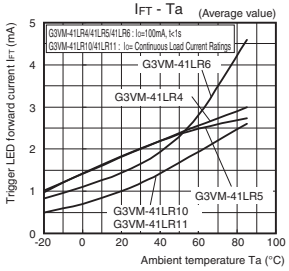
G3VM-41LR10/41LR11



● **On-state resistance vs. Ambient temperature**

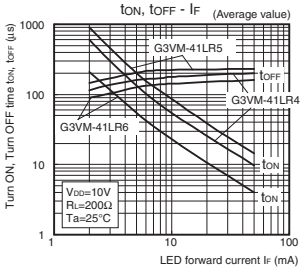


● **Trigger LED forward current vs. Ambient temperature**

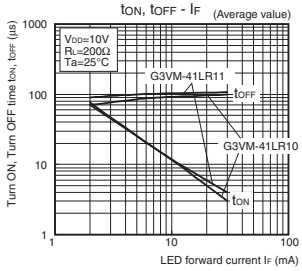


● **Turn ON, Turn OFF time vs. LED forward current**

G3VM-41LR6/41LR4/41LR5



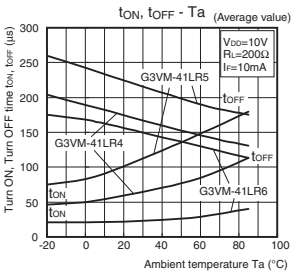
G3VM-41LR10/41LR11



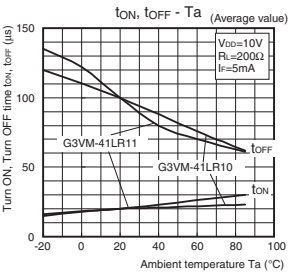
G3VM-41LR□

■Engineering Data

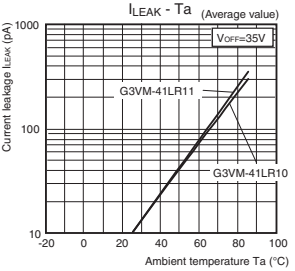
● **Turn ON, Turn OFF time vs. Ambient temperature**
G3VM-41LR6/41LR4/41LR5



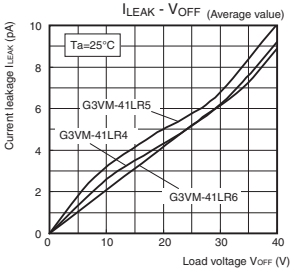
G3VM-41LR10/41LR11



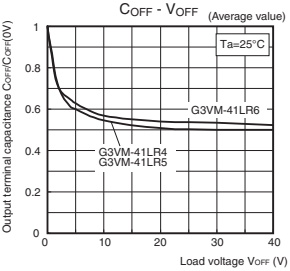
● **Current leakage vs. Ambient temperature**
G3VM-41LR10/41LR11



● **Current leakage vs. Load voltage**
G3VM-41LR6/41LR4/41LR5



● **Output terminal capacitance vs. Load voltage**
G3VM-41LR6/41LR4/41LR5

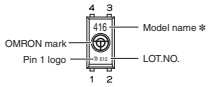


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

SSOP (Shrink Small Outline Package)

SSOP 4-pin



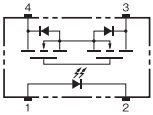
Note: 1. The actual product is marked differently from the image shown here.

Note: 2. "G3VM" does not appear in the model number on the Relay.

✻ Actual model name marking for each model

Model	Marking
G3VM-41LR10	41A
G3VM-41LR6	416
G3VM-41LR11	41B
G3VM-41LR4	414
G3VM-41LR5	415

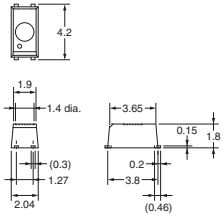
●Terminal Arrangement/ Internal Connections (Top View)



■Dimensions (Unit: mm)

Surface-mounting Terminals

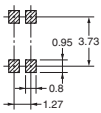
Weight: 0.03 g



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Actual Mounting Pad Dimensions

(Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

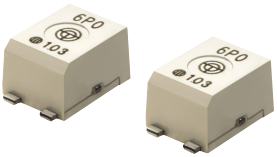
G3VM-21PR□

MOS FET Relays USOP, Low-output-capacitance and Low-ON-resistance Type (with Low C × R)

USOP Package with Low Output Capacitance and ON Resistance

- **Load voltage: 20 V**
- **G3VM-21PR10: Low C × R = 2.4 pF·Ω, C_{OFF} (standard) = 0.8 pF, R_{ON} (standard) = 3 Ω**
- **G3VM-21PR1: Low C × R = 3 pF·Ω, C_{OFF} (standard) = 5 pF, R_{ON} (standard) = 0.6 Ω**
- **G3VM-21PR11: Low C × R = 7.2 pF·Ω, C_{OFF} (standard) = 40 pF, R_{ON} (standard) = 0.18 Ω**

RoHS Compliant



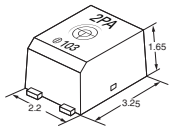
Note: The actual product is marked differently from the image shown here.

■Application Examples

- **Semiconductor test equipment**
- **Test & measurement equipment**
- **Communication equipment**
- **Data loggers**

■Package (Unit : mm, Average)

USOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
2: 20 V

2. Contact form
1: 1a (SPST-NO)

3. Package
P: USOP 4 pin

4. Additional functions
R: Low On-resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
USOP4	1a (SPST-NO)	Surface-mounting Terminals	20 V	200 mA	G3VM-21PR10	1 pc.	G3VM-21PR10(TR05)	500 pcs.
				450 mA	G3VM-21PR1		G3VM-21PR1(TR05)	
				900 mA	G3VM-21PR11		G3VM-21PR11(TR05)	

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut USOPs are packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

✻ The AC peak and DC value are given for the load voltage and continuous load current.

■Absolute Maximum Ratings (Ta = 25°C)

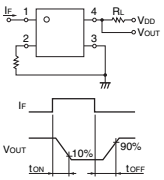
Item		Symbol	G3VM-21PR10	G3VM-21PR1	G3VM-21PR11	Unit	Measurement conditions
Input	LED forward current	I_F	50			mA	
	LED forward current reduction rate	ΔI_F/°C	−0.5			mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5			V	
	Connection temperature	T_J	125			°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	20			V	
	Continuous load current (AC peak/DC)	I_O	200	450	900	mA	
	ON current reduction rate	ΔI_O/°C	−2.0	−4.5	−12	mA/°C	G3VM-21PR10/21PR1 : Ta ≥ 25°C G3VM-21PR11 : Ta ≥ 50°C
	Pulse ON current	I_{OP}	600	1,300	2,700	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125			°C	
Dielectric strength between I/O ✻		V_{I-O}	500			Vrms	AC for 1 min
Ambient operating temperature		Ta	−40 to +85			°C	With no icing or condensation
Ambient storage temperature		Tstg	−40 to +125			°C	
Soldering temperature		–	260			°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

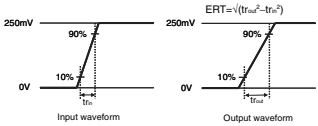
■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-21PR10	G3VM-21PR1	G3VM-21PR11	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0			V	I_F=10 mA
			Typical	1.15				
			Maximum	1.3				
	Reverse current	I_R	Maximum	10			μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	15			pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1	0.6		mA	I_O=100 mA
			Maximum	3				
	Release LED forward current	I_{FC}	Minimum	0.1			mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	3	0.6	0.18	Ω	I_F=5 mA, t<1 s I_O=Continuous load current ratings
			Maximum	5	1.2	0.22		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1			nA	V_{OFF}=20 V
	Capacitance between terminals	C_{OFF}	Typical	0.8	5	40	pF	V=0, f=100 MHz, t<1 s
			Maximum	1.1	12	–		
Capacitance between I/O terminals		C_{I-O}	Typical	0.4			pF	f=1 MHz, Vs=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000			MΩ	V_{I-O}=500VDC, RoH≤60%
			Typical	10^8				
Turn-ON time		t_{ON}	Typical	0.04	0.2	0.5	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=10 V ✻1
			Maximum	0.2	0.5	2		
Turn-OFF time		t_{OFF}	Typical	0.13	0.2	0.1		
			Maximum	0.2	0.5	1		
Equivalent rise time		ERT	Typical	–	40	–	ps	I_F=5 mA, V_{DD}=0.25 V, Tr(in)=25 ps ✻2
			Maximum	–	90	–		

✻1. Turn-ON and Turn-OFF Times



✻2. Equivalent Rise Time



■Recommended Operating Conditions

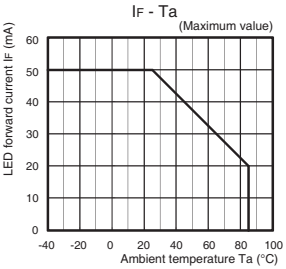
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

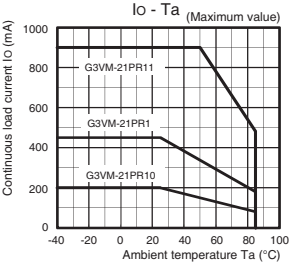
Item	Symbol		G3VM-21PR10	G3VM-21PR1	G3VM-21PR11	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	16			V
Operating LED forward current	I_F	Minimum	5			mA
		Typical	7.5			
		Maximum	20			
Continuous load current (AC peak/DC)	I_O	Maximum	200	450	900	
Ambient operating temperature	Ta	Minimum	−20			°C
		Maximum	65			

■Engineering Data

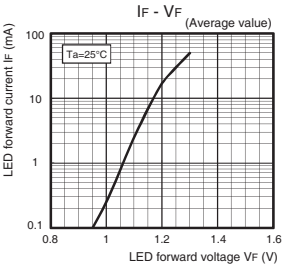
●LED forward current vs. Ambient temperature



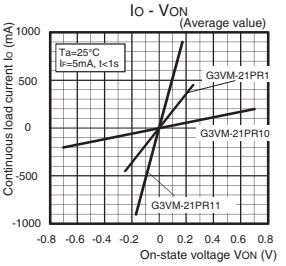
●Continuous load current vs. Ambient temperature



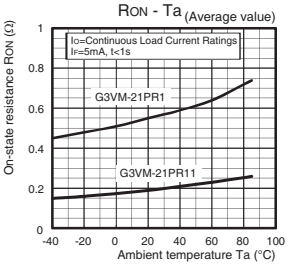
●LED forward current vs. LED forward voltage



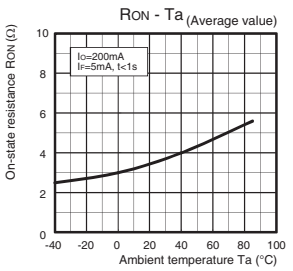
●Continuous load current vs. On-state voltage



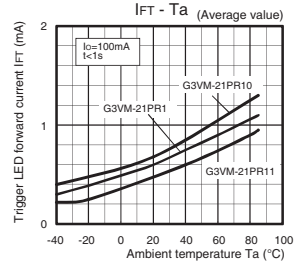
●On-state resistance vs. Ambient temperature
G3VM-21PR1/21PR11



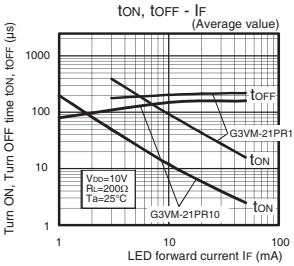
G3VM-21PR10



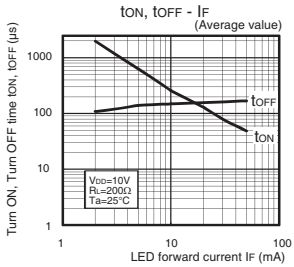
●Trigger LED forward current vs. Ambient temperature



●Turn ON, Turn OFF time vs. LED forward current
G3VM-21PR10/21PR1



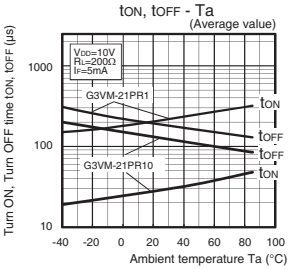
G3VM-21PR11



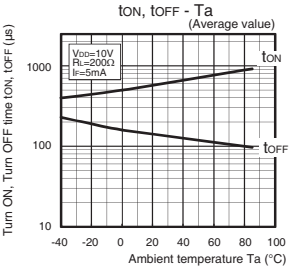
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

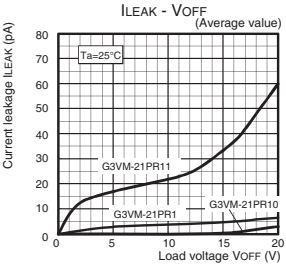
G3VM-21PR10/21PR1



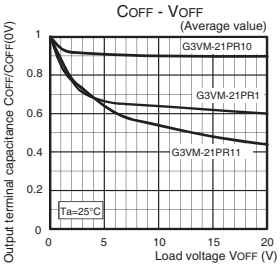
G3VM-21PR11



●Current leakage vs. Load voltage



●Output terminal capacitance vs. Load voltage



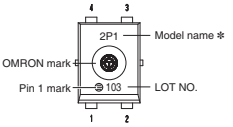
G3VM-21PR□

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

USOP (Ultra Small Outline Package)

USOP 4-pin

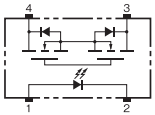


✻ Actual model name marking for each model

Model	Marking
G3VM-21PR10	2PA
G3VM-21PR1	2P1
G3VM-21PR11	2PB

Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.

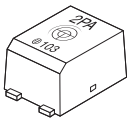
●Terminal Arrangement/Internal Connections (Top View)

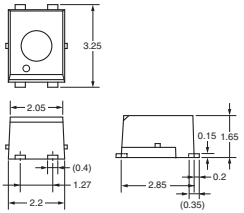


■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.03 g

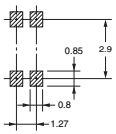




Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL recognized	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

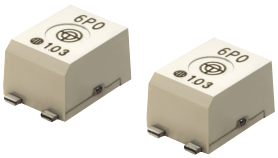
G3VM-41PR□/51PR

MOS FET Relays USOP, Low-output-capacitance and Low-ON-resistance Type (with Low C × R)

USOP Package with Low Output Capacitance and ON Resistance

- **Load voltage: 40 V or 50 V**
- **G3VM-41PR12: Low C × R = 4.5 pF·Ω, C_{OFF} (standard) = 0.3 pF, R_{ON} (standard) = 15 Ω**
- **G3VM-41PR6: Low C × R = 10 pF·Ω, C_{OFF} (standard) = 1 pF, R_{ON} (standard) = 10 Ω**
- **G3VM-41PR10: Low C × R = 5.4 pF·Ω, C_{OFF} (standard) = 0.45 pF, R_{ON} (standard) = 12 Ω**
- **G3VM-41PR11: Low C × R = 4.9 pF·Ω, C_{OFF} (standard) = 0.7 pF, R_{ON} (standard) = 7 Ω**
- **G3VM-41PR5: Low C × R = 10 pF·Ω, C_{OFF} (standard) = 10 pF, R_{ON} (standard) = 1 Ω**
- **G3VM-51PR: Low C × R = 12 pF·Ω, C_{OFF} (standard) = 12 pF, R_{ON} (standard) = 1 Ω**

RoHS Compliant



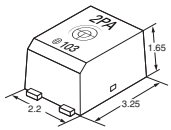
Note: The actual product is marked differently from the image shown here.

■Application Examples

- **Semiconductor test equipment**
- **Test & measurement equipment**
- **Communication equipment**
- **Data loggers**

■Package (Unit : mm, Average)

USOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
4: 40 V
5: 50 V

2. Contact form
1: 1a (SPST-NO)

3. Package
P: USOP 4-pin

4. Additional functions
R: Low On-resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
USOP4	1a (SPST-NO)	Surface-mounting Terminals	40 V	100 mA	G3VM-41PR12	1 pc.	G3VM-41PR12(TR05)	500 pcs.
				120 mA	G3VM-41PR6		G3VM-41PR6(TR05)	
					G3VM-41PR10		G3VM-41PR10(TR05)	
				140 mA	G3VM-41PR11		G3VM-41PR11(TR05)	
				300 mA	G3VM-41PR5		G3VM-41PR5(TR05)	
			50 V	300 mA	G3VM-51PR		G3VM-51PR(TR05)	

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut USOPs are packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

✻ The AC peak and DC value are given for the load voltage and continuous load current.

G3VM-41PR□/51PR

■Absolute Maximum Ratings (Ta = 25°C)

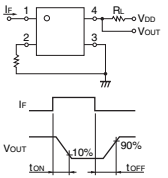
	Item	Symbol	G3VM-41PR12	G3VM-41PR6	G3VM-41PR10	G3VM-41PR11	G3VM-41PR5	G3VM-51PR	Unit	Measurement conditions
Input	LED forward current	I_F	50						mA	
	LED forward current reduction rate	ΔI_F/°C	−0.5						mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5						V	
	Connection temperature	T_J	125						°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	40					50	V	
	Continuous load current (AC peak/DC)	I_O	100	120		140	300		mA	
	ON current reduction rate	ΔI_O/°C	−1.0	−1.2		−1.4	−3		mA/°C	Ta≥25°C
	Pulse ON current	I_{OP}	300	360		420	900		mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125						°C	
Dielectric strength between I/O (See note 1.)		V_{I-O}	500						Vrms	AC for 1 min
Ambient operating temperature		Ta	−40 to +85						°C	With no icing or condensation
Ambient storage temperature		Tstg	−40 to +125						°C	
Soldering temperature		–	260						°C	10 s

Note: 1. The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

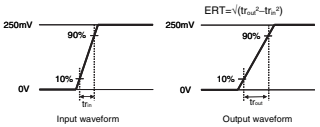
■Electrical Characteristics (Ta = 25°C)

	Item	Symbol		G3VM-41PR12	G3VM-41PR6	G3VM-41PR10	G3VM-41PR11	G3VM-41PR5	G3VM-51PR	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0						V	I_F=10 mA
			Typical	1.15							
			Maximum	1.3							
	Reverse current	I_R	Maximum	10						μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	15						pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1.0	0.6	0.5	1.0	0.6	0.5	mA	I_O=100 mA
			Maximum	3							
	Release LED forward current	I_{FC}	Minimum	0.1					0.2	mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	15	10	12	7	1		Ω	I_F=5 mA, t<1 s I_O=Continuous load current ratings
			Maximum	20	15	14	10	1.5			
	Current leakage when the relay is open	I_{LEAK}	Maximum	1	0.2	1				nA	V_{OFF}=Load voltage ratings
	Capacitance between terminals	C_{OFF}	Typical	0.3	1	0.45	0.7	10	12	pF	V=0, f=100 MHz, t<1 s
			Maximum	0.6	2	0.8	1.3	14	–		
Capacitance between I/O terminals		C_{I-O}	Typical	0.4						pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000						MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8							
Turn-ON time		t_{ON}	Typical	0.04	0.05	0.03	0.04	0.2		ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻1
			Maximum	0.2				0.5			
Turn-OFF time		t_{OFF}	Typical	0.12	0.16	0.2	0.14	0.2	0.1		
			Maximum	0.2	0.3		0.2	0.3	0.4		
Equivalent rise time		ERT	Typical	–					40	ps	I_F=5 mA, V_{DD}=0.25 V, Tr(in)=25 ps ✻2
			Maximum	–					90		

✻1. Turn-ON and Turn-OFF Times



✻2. Equivalent Rise Time



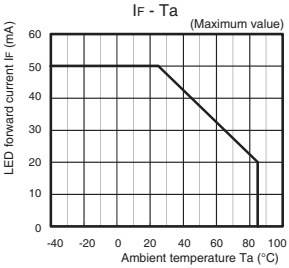
■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

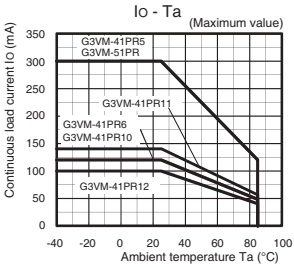
Item	Symbol		G3VM-41PR12	G3VM-41PR6	G3VM-41PR10	G3VM-41PR11	G3VM-41PR5	G3VM-51PR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	32					40	V
Operating LED forward current	I_F	Minimum	5						mA
		Typical	7.5						
		Maximum	20						
Continuous load current (AC peak/DC)	I_O	Maximum	100	120		140	300		
Ambient operating temperature	Ta	Minimum	−20						°C
		Maximum	65						

■Engineering Data

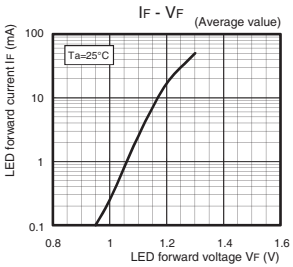
●LED forward current vs. Ambient temperature



●Continuous load current vs. Ambient temperature

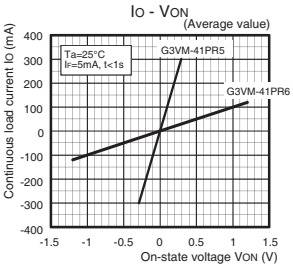


●LED forward current vs. LED forward voltage

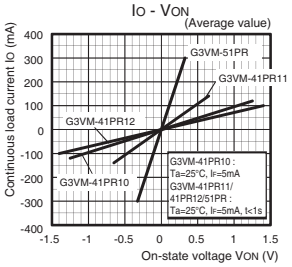


●Continuous load current vs. On-state voltage

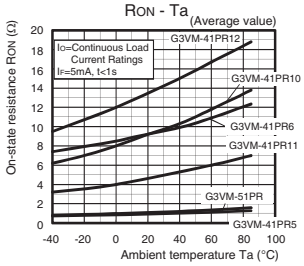
G3VM-41PR6/41PR5



G3VM-41PR12/41PR10/41PR11/51PR

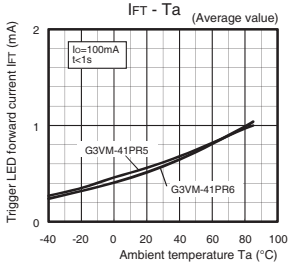


●On-state resistance vs. Ambient temperature

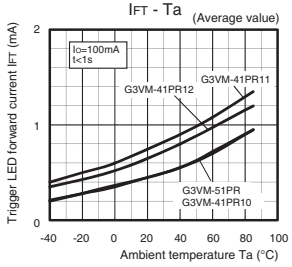


●Trigger LED forward current vs. Ambient temperature

G3VM-41PR6/41PR5

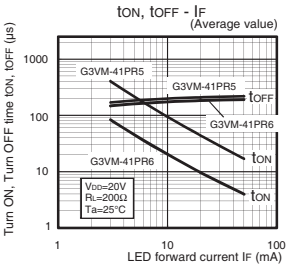


G3VM-41PR12/41PR10/41PR11/51PR

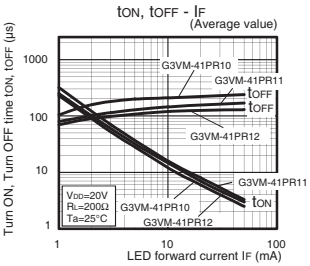


●Turn ON, Turn OFF time vs. LED forward current

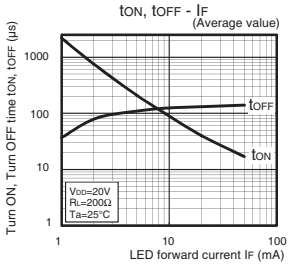
G3VM-41PR6/41PR5



G3VM-41PR12/41PR10/41PR11



G3VM-51PR

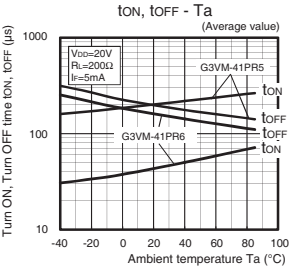


G3VM-41PR□/51PR

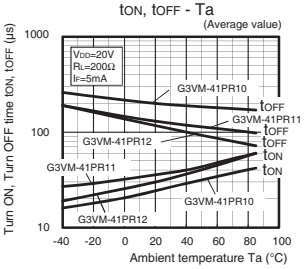
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

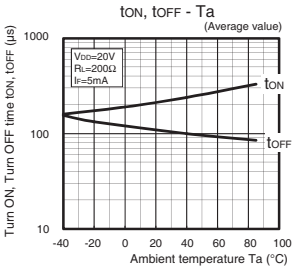
G3VM-41PR6/41PR5



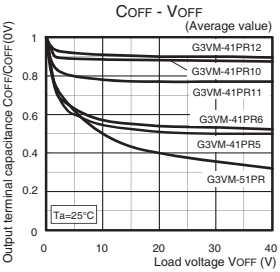
G3VM-41PR12/41PR10/41PR11



G3VM-51PR

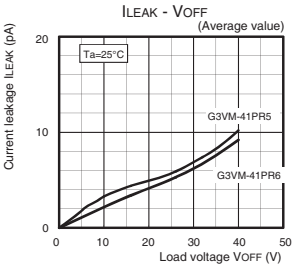


●Output terminal capacitance vs. Load voltage

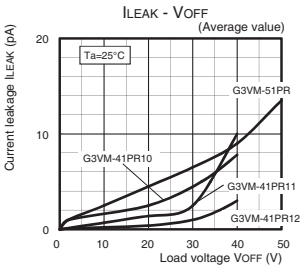


●Current leakage vs. Load voltage

G3VM-41PR6/41PR5



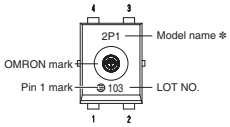
G3VM-41PR12/41PR10/41PR11/51PR



■Appearance / Terminal Arrangement / Internal Connections

●Appearance

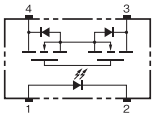
USOP (Ultra Small Outline Package)
USOP 4-pin



✻ Actual model name marking for each model

Model	Marking
G3VM-41PR12	4PC
G3VM-41PR6	4P6
G3VM-41PR10	4PA
G3VM-41PR11	4PB
G3VM-41PR5	4P5
G3VM-51PR	5P0

●Terminal Arrangement/Internal Connections (Top View)

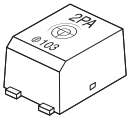


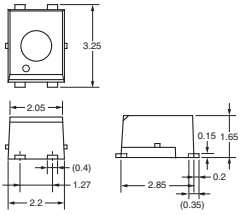
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.03 g

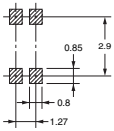




Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.2 mm.

Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL recognized	1a (SPST-NO)	E80555

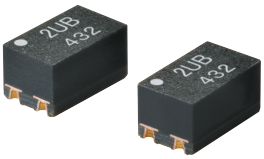
■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-21UR□

MOS FET Relays VSON, Low-output-capacitance and Low-ON-resistance Type (with Low C × R)

World's smallest class New VSON Package with Low Output Capacitance and Low ON Resistance



Note: The actual product is marked differently from the image shown here.

- **Load voltage: 20 V**
- **G3VM-21UR10: Low C × R = 2.4 pF·Ω, C_{OFF} (standard) = 0.8 pF, R_{ON} (standard) = 3 Ω**
- **G3VM-21UR1: Low C × R = 4 pF·Ω, C_{OFF} (standard) = 5 pF, R_{ON} (standard) = 0.8 Ω**
- **G3VM-21UR11: Low C × R = 7.2 pF·Ω, C_{OFF} (standard) = 40 pF, R_{ON} (standard) = 0.18 Ω**

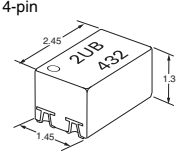
RoHS Compliant

■Application Examples

- **Semiconductor test equipment**
- **Test & measurement equipment**
- **Communication equipment**
- **Data loggers**

■Package (Unit : mm, Average)

VSON 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. **Load Voltage**
   2: 20 V
2. **Contact form**
   1: 1a (SPST-NO)
3. **Package**
   U: VSON 4-pin
4. **Additional functions**
   R: Low On-resistance
5. **Other informations**
   When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
VSON4	1a (SPST-NO)	Surface-mounting Terminals	20 V	200 mA	G3VM-21UR10	1 pc.	G3VM-21UR10(TR05)	500 pcs.
				450 mA	G3VM-21UR1		G3VM-21UR1(TR05)	
				1,000 mA	G3VM-21UR11		G3VM-21UR11(TR05)	

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut VSONs are packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

✻ The AC peak and DC value are given for the load voltage and continuous load current.

■Absolute Maximum Ratings (Ta = 25°C)

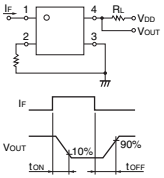
Item		Symbol	G3VM-21UR10	G3VM-21UR1	G3VM-21UR11	Unit	Measurement conditions
Input	LED forward current	I_F	30			mA	
	LED forward current reduction rate	ΔI_F/°C	−0.3			mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5			V	
	Connection temperature	T_J	125			°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	20			V	
	Continuous load current (AC peak/DC)	I_O	200	450	1,000	mA	
	ON current reduction rate	ΔI_O/°C	−2	−4.5	−10	mA/°C	Ta≥25°C
	Pulse ON current	I_{OP}	0.6	1.3	3	A	t=100 ms, Duty=1/10
	Connection temperature	T_J	125			°C	
Dielectric strength between I/O ✻		V_{I-O}	300			Vrms	AC for 1 min
Ambient operating temperature		Ta	−40 to +85			°C	With no icing or condensation
Ambient storage temperature		Tstg	−40 to +125			°C	
Soldering temperature		−	260			°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrvical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-21UR10	G3VM-21UR1	G3VM-21UR11	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.1			V	I_F=10 mA
			Typical	1.27				
			Maximum	1.4				
	Reverse current	I_R	Maximum	10			μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30			pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1	0.6	−	mA	I_O=100 mA
			Maximum	3				
	Release LED forward current	I_{FC}	Minimum	0.1			mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	3	0.8	0.18	Ω	I_F=5 mA, t<1 s, I_O=Continuous load current ratings
			Maximum	5	1.2	0.22		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1			nA	V_{OFF}=20 V
	Capacitance between terminals	C_{OFF}	Typical	0.8	5	40	pF	V=0, f=100 MHz, t<1 s
			Maximum	1.1	12	−		
Capacitance between I/O terminals		C_{I-O}	Typical	1		0.4	pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Typical	10^8			MΩ	V_{I-O}=500 VDC, RoH≤60%
Turn-ON time		t_{ON}	Typical	0.05	0.17	−	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=10 V ✻
			Maximum	0.2	0.4	2		
Turn-OFF time		t_{OFF}	Typical	0.02		−		
			Maximum	0.2	0.4	1		

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

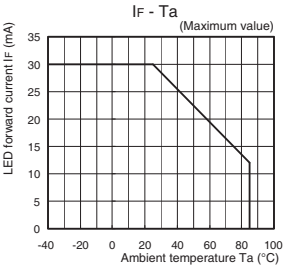
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-21UR10	G3VM-21UR1	G3VM-21UR11	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	16			V
Operating LED forward current	I_F	Minimum	5			mA
		Typical	7.5			
		Maximum	20			
Continuous load current (AC peak/DC)	I_O	Maximum	200	450	1,000	
Ambient operating temperature	Ta	Minimum	−20			°C
		Maximum	65			

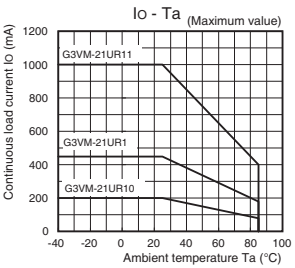
G3VM-21UR□

■Engineering Data

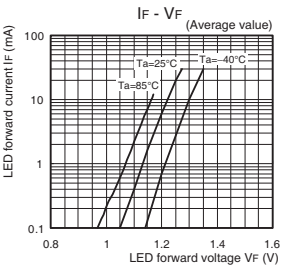
●LED forward current vs. Ambient temperature



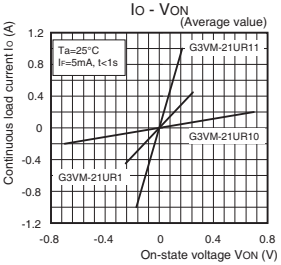
●Continuous load current vs. Ambient temperature



●LED forward current vs. LED forward voltage

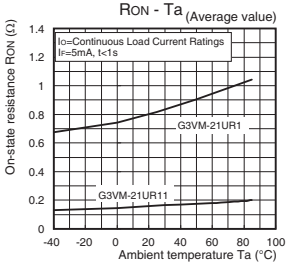


●Continuous load current vs. On-state voltage

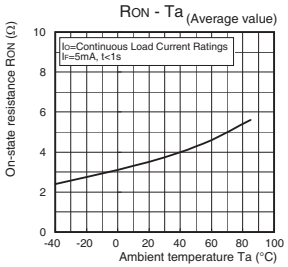


●On-state resistance vs. Ambient temperature

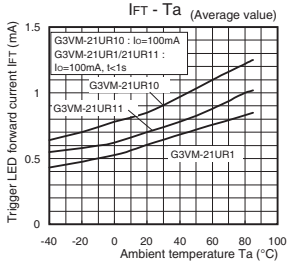
G3VM-21UR1/21UR11



G3VM-21UR10

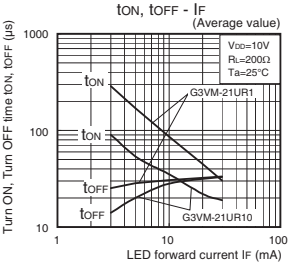


●Trigger LED forward current vs. Ambient temperature

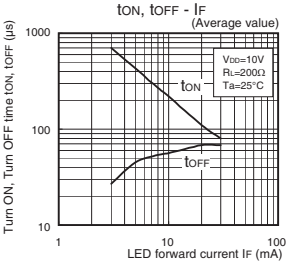


●Turn ON, Turn OFF time vs. LED forward current

G3VM-21UR10/21UR1



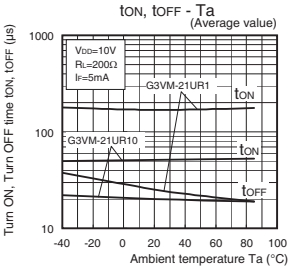
G3VM-21UR11



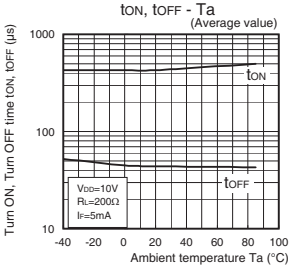
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

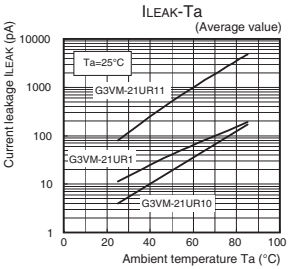
G3VM-21UR10/21UR1



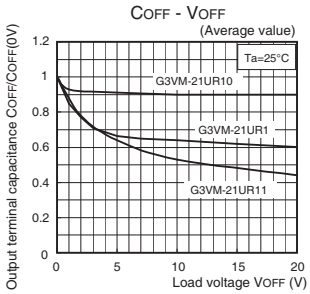
G3VM-21UR11



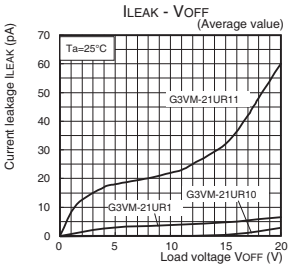
●Current leakage vs. Ambient temperature



●Output terminal capacitance vs. Load voltage



●Current leakage vs. Load voltage

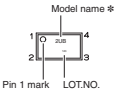


G3VM-21UR□

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

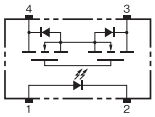
VSON (Very Small Outline Non-leaded)
VSON 4-pin



✻ Actual model name marking for each model

Model	Marking
G3VM-21UR10	2UA
G3VM-21UR1	2U1
G3VM-21UR11	2UB

●Terminal Arrangement/Internal Connections (Top View)

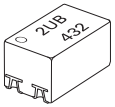


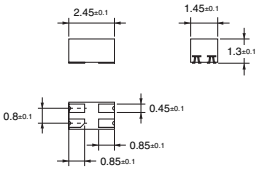
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

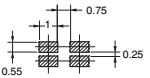
Weight: 0.01 g





Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Note: The actual product is marked differently from the image shown here.

■Approved Standards

Applying for UL recognition

■Safety Precautions

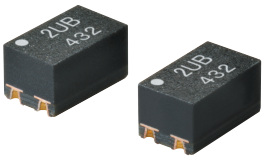
- Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-41UR□/51UR

MOS FET Relays VSON, Low-output-capacitance and Low-ON-resistance Type (with Low C × R)

World's smallest class New VSON Package with Low Output Capacitance and Low ON Resistance

- **Load voltage: 40 V or 50 V**
- **G3VM-41UR12: Low C × R = 4.5 pF·Ω, C_{OFF} (standard) = 0.3 pF, R_{ON} (standard) = 15 Ω**
- **G3VM-41UR10: Low C × R = 5.4 pF·Ω, C_{OFF} (standard) = 0.45 pF, R_{ON} (standard) = 12 Ω**
- **G3VM-41UR11: Low C × R = 4.9 pF·Ω, C_{OFF} (standard) = 0.7 pF, R_{ON} (standard) = 7 Ω**
- **G3VM-51UR: Low C × R = 12 pF·Ω, C_{OFF} (standard) = 12 pF, R_{ON} (standard) = 1 Ω**



Note: The actual product is marked differently from the image shown here.

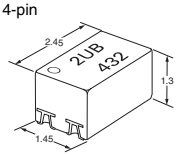
RoHS Compliant

■Application Examples

- **Semiconductor test equipment**
- **Test & measurement equipment**
- **Communication equipment**
- **Data loggers**

■Package (Unit : mm, Average)

VSON 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
4: 40 V
5: 50 V

2. Contact form
1: 1a (SPST-NO)

3. Package
U: VSON 4-pin

4. Additional functions
R: Low On-resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
VSON4	1a (SPST-NO)	Surface-mounting Terminals	40 V	100 mA	G3VM-41UR12	1 pc.	G3VM-41UR12(TR05)	500 pcs.
				120 mA	G3VM-41UR10		G3VM-41UR10(TR05)	
				140 mA	G3VM-41UR11		G3VM-41UR11(TR05)	
			50 V	300 mA	G3VM-51UR		G3VM-51UR(TR05)	

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut VSONs are packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

✻ The AC peak and DC value are given for the load voltage and continuous load current.

G3VM-41UR□/51UR

■Absolute Maximum Ratings (Ta = 25°C)

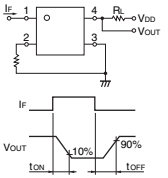
	Item	Symbol	G3VM-41UR12	G3VM-41UR10	G3VM-41UR11	G3VM-51UR	Unit	Measurement conditions
Input	LED forward current	I_F	30				mA	
	LED forward current reduction rate	$\Delta I_F/°C$	−0.3				mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5				V	
	Connection temperature	T_J	125				°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	40			50	V	
	Continuous load current (AC peak/DC)	I_O	100	120	140	300	mA	
	ON current reduction rate	$\Delta I_O/°C$	−1.0	−1.2	−1.4	−3	mA/°C	Ta≥25°C
	Pulse ON current	I_{OP}	300	360	420	900	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125				°C	
Dielectric strength between I/O ✻		V_{I-O}	300				Vrms	AC for 1 min
Ambient operating temperature		Ta	−40 to +85				°C	With no icing or condensation
Ambient storage temperature		Tstg	−40 to +125				°C	
Soldering temperature		–	260				°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

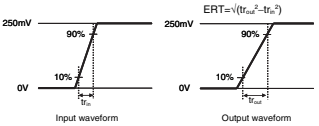
■Electrical Characteristics (Ta = 25°C)

	Item	Symbol		G3VM-41UR12	G3VM-41UR10	G3VM-41UR11	G3VM-51UR	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.1				V	I_F=10 mA
			Typical	1.27					
			Maximum	1.4					
	Reverse current	I_R	Maximum	10				μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30				pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	0.9	–	0.7	–	mA	I_O=100 mA
			Maximum	3					
	Release LED forward current	I_{FC}	Minimum	0.1				mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	15	12	7	1	Ω	I_F=5 mA, t<1 s, I_O=Continuous load current ratings
			Maximum	20	14	10	1.5		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1				nA	V_{OFF} =Load voltage ratings
	Capacitance between terminals	C_{OFF}	Typical	0.3	0.45	0.7	12	pF	V=0, f=100 MHz, t<1 s
			Maximum	0.6	0.8	1.3	20		
Capacitance between I/O terminals		C_{I-O}	Typical	1				pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Typical	10^8				MΩ	V_{I-O}=500 VDC, RoH≤60%
Turn-ON time		t_{ON}	Typical	0.05	–	0.06	–	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻1
			Maximum	0.2			0.5		
Turn-OFF time		t_{OFF}	Typical	0.03	–	0.03	–		
			Maximum	0.2	0.3	0.2	0.4		
Equivalent rise time		ERT	Typical	–			40	ps	I_F=5 mA, V_{DD}=0.25 V, Tr(in)=25 ps ✻2
			Maximum	–			90		

✻1. Turn-ON and Turn-OFF Times



✻2. Equivalent Rise Time



■Recommended Operating Conditions

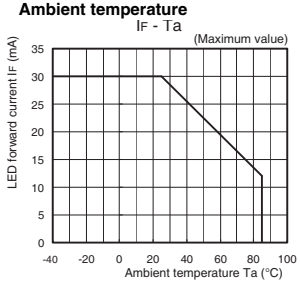
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

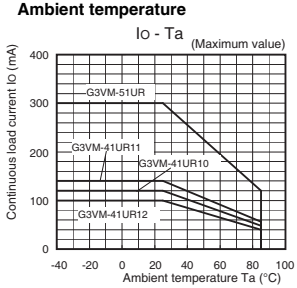
Item	Symbol		G3VM-41UR12	G3VM-41UR10	G3VM-41UR11	G3VM-51UR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	32			40	V
Operating LED forward current	I_F	Minimum	5				mA
		Typical	7.5				
		Maximum	20				
Continuous load current (AC peak/DC)	I_O	Maximum	100	120	140	300	
Ambient operating temperature	Ta	Minimum	−20				°C
		Maximum	65				

■Engineering Data

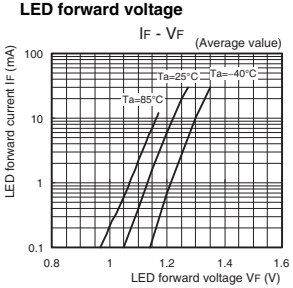
●LED forward current vs. Ambient temperature



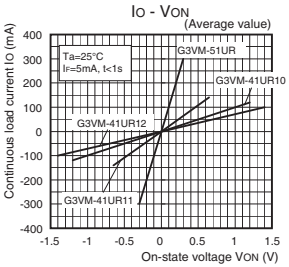
●Continuous load current vs. Ambient temperature



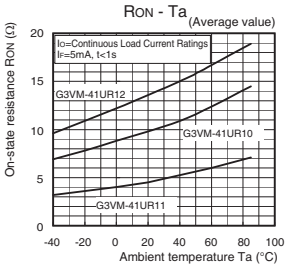
●LED forward current vs. LED forward voltage



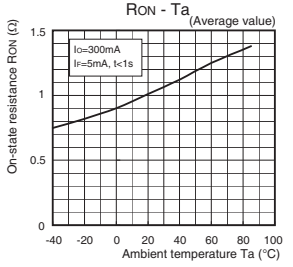
●Continuous load current vs. On-state voltage



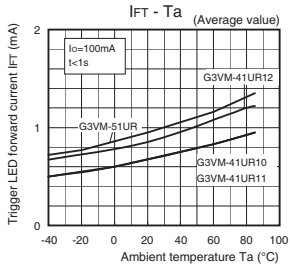
●On-state resistance vs. Ambient temperature
G3VM-41UR12/41UR10/41UR11



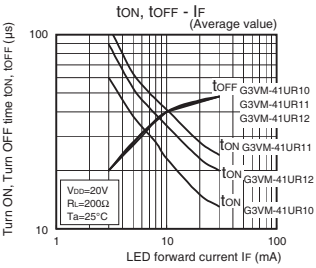
G3VM-51UR



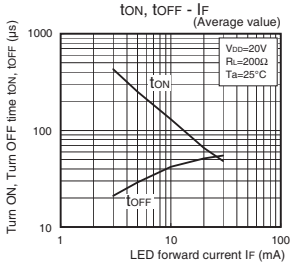
●Trigger LED forward current vs. Ambient temperature



●Turn ON, Turn OFF time vs. LED forward current
G3VM-41UR12/41UR10/41UR11



G3VM-51UR

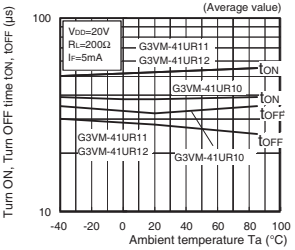


G3VM-41UR□/51UR

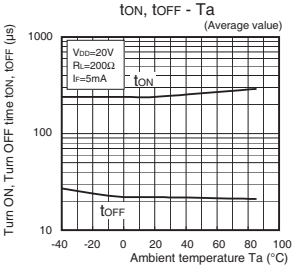
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

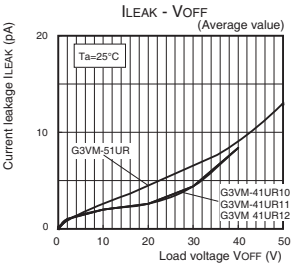
G3VM-41UR12/41UR10/41UR11



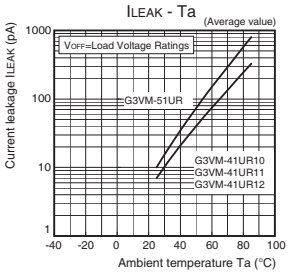
G3VM-51UR



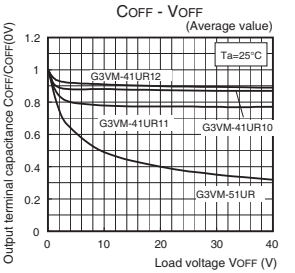
●Current leakage vs. Load voltage



●Current leakage vs. Ambient temperature



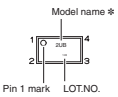
●Output terminal capacitance vs. Load voltage



■Appearance / Terminal Arrangement / Internal Connections

●Appearance

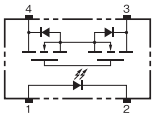
VSON (Very Small Outline Non-leaded)
VSON 4-pin



✻ Actual model name marking for each model

Model	Marking
G3VM-41UR12	4UC
G3VM-41UR10	4UA
G3VM-41UR11	4UB
G3VM-51UR	5U0

●Terminal Arrangement/Internal Connections (Top View)

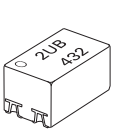


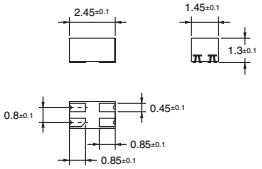
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

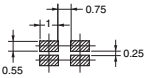
Weight: 0.01 g





Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Note: The actual product is marked differently from the image shown here.

■Approved Standards

Applying for UL recognition

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

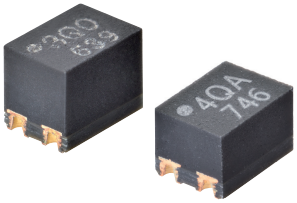
G3VM-41QR10/61QR

MOS FET Relays S-VSON 4-pin, Low-output-capacitance and Low-ON-resistance Type (with Low C × R)

World's smallest class ✻ New S-VSON Package with Low Output Capacitance and Low ON Resistance

- **Load voltage: 40 V / 60 V.**
- **G3VM-41QR10: Low C × R = 4.95 pF·Ω, C_{OFF} (standard) = 0.45 pF, R_{ON} (standard) = 11 Ω**
- **G3VM-61QR: Low C × R = 13.2 pF·Ω, C_{OFF} (standard) = 12 pF, R_{ON} (standard) = 1.1 Ω**
- **High Ambient operating temperature: -40°C to +110°C**

✻ As of March 2018 Survey by OMRON.



NEW

Note: The actual product is marked differently from the image shown here.

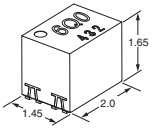
RoHS Compliant

■Application Examples

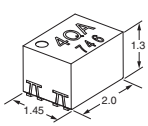
- **Semiconductor test equipment**
- **Test & measurement equipment**
- **Communication equipment**
- **Data loggers**

■Package (Unit: mm, Average)

S-VSON4 pin



S-VSON(L) 4 pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
4: 40V
6: 60 V

2. Contact form Package type
1: 1a (SPST-NO)

3. Package type
Q: S-VSON 4 pin
S-VSON(L)✻ 4 pin
✻ (L): Low profile type

4. Additional functions
R: Low On-resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package type	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Packing/Tape cut		Packing/Tape & reel	
					Model	Minimum package quantity	Model	Minimum package quantity
S-VSON4(L)4	1a (SPST-NO)	Surface-mounting Terminals	40 V	120 mA	G3VM-41QR10	1 pc.	G3VM-41QR10 (TR05)	500 pcs.
S-VSON4			60 V	400 mA	G3VM-61QR		G3VM-61QR (TR05)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: When ordering tape packing, add "(TR05)" (500 pcs/reel) to the model number.
Ask your OMRON representative for orders under 500 pcs. We can supply products with the tape already cut.
Tape-cut S-VSON is packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

■Absolute Maximum Ratings (Ta = 25°C)

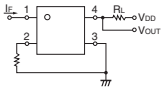
Item		Symbol	G3VM-41QR10	G3VM-61QR	Unit	Measurement conditions
Input	LED forward current	I_F	30		mA	
	LED forward current reduction rate	ΔI_F/°C	−0.3		mA/°C	Ta≥25°C
	LED reverse voltage	V_R	6		V	
	Connection temperature	T_J	125		°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	40	60	V	
	Continuous load current (AC peak/DC)	I_O	120	400	mA	
	ON current reduction rate	ΔI_O/°C	−1.2	−4	mA/°C	Ta≥25°C
	Pulse ON current	I_{OP}	0.36	1.2	A	t = 100 ms, Duty = 1/10
	Connection temperature	T_J	125		°C	
Dielectric strength between I/O ✻		V_{I-O}	500		Vrms	AC for 1 min
Ambient operating temperature		T_a	−40 to +110		°C	With no icing or condensation
Ambient storage temperature		T_{stg}	−40 to +125		°C	
Soldering temperature		−	260		°C	10 s

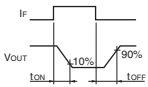
✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-41QR10	G3VM-61QR	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.1		V	I_F = 10 mA
			Typical	1.21			
			Maximum	1.4			
	Reverse current	I_R	Maximum	10		μA	V_R = 5 V
	Capacity between terminals	C_T	Typical	30		pF	V = 0, f = 1 MHz
	Trigger LED forward current	I_{FT}	Typical	0.8	−	mA	I_O = 100 mA
			Maximum	3			
	Release LED forward current	I_{FC}	Minimum	0.1		mA	I_{OFF} = 10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	11	1.1	Ω	G3VM-41QR10: I_F = 5 mA, t<1s, I_O = 120 mA G3VM-61QR: I_F = 5 mA, t<1s, I_O = 400 mA
			Maximum	14	1.5		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1	1000 (1)	nA	G3VM-41QR10: V_{OFF} = 40 V G3VM-61QR: V_{OFF} = 60 V (V_{OFF} = 50 V)
	Capacity between terminals	C_{off}	Typical	0.45	12	pF	V = 0, f = 100 MHz, t<1s
			Maximum	0.8	20		
Capacity between I/O terminals		C_{I-O}	Typical	1	0.9	pF	f = 1 MHz, V_S = 0V
Insulation resistance between I/O terminals		R_{I-O}	Typical	10^8		MΩ	V_{I-O} = 500 VDC, RoH≤60%
Turn-ON time		t_{ON}	Typical	0.08	−	ms	I_F = 5 mA, R_L = 200 Ω, V_{DD} = 20 V (I_F = 10 mA, R_L = 200 Ω, V_{DD} = 20 V) ✻
			Maximum	0.2	0.5 (0.25)		
Turn-OFF time		t_{OFF}	Typical	0.04	−	ms	
			Maximum	0.3	0.3 (0.3)		

✻ Turn-ON and Turn-OFF Times





■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

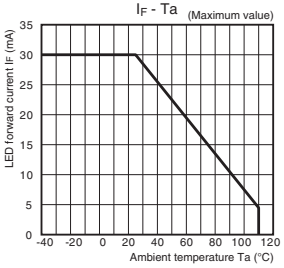
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-41QR10	G3VM-61QR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	32	48	V
Operating LED forward current	I_F	Minimum	5		mA
		Typical	7.5		
		Maximum	20		
Continuous load current (AC peak/DC)	I_O	Maximum	120	400	
Ambient operating temperature	T_a	Minimum	−20		°C
		Maximum	85	100	

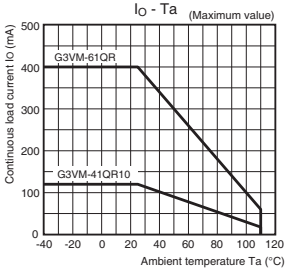
G3VM-41QR10/61QR

■Engineering Data

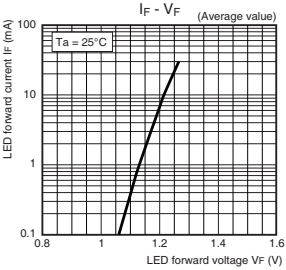
●**LED forward current vs. Ambient temperature**



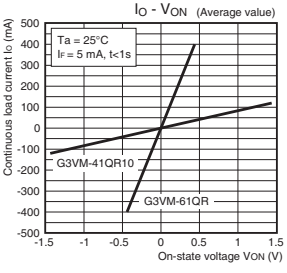
●**Continuous load current vs. Ambient temperature**



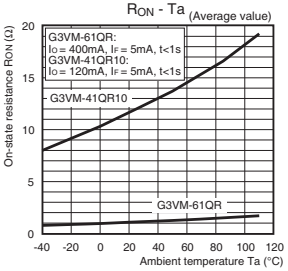
●**LED forward current vs. LED forward voltage**



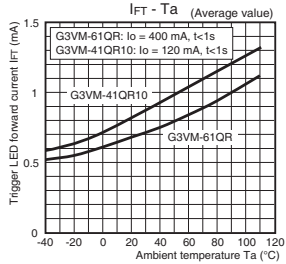
●**Continuous load current vs. On-state voltage**



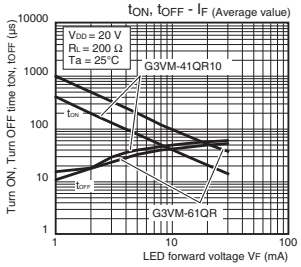
●**On-state resistance vs. Ambient temperature**



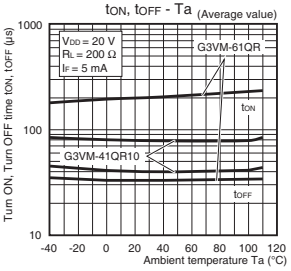
●**Trigger LED forward current vs. Ambient temperature**



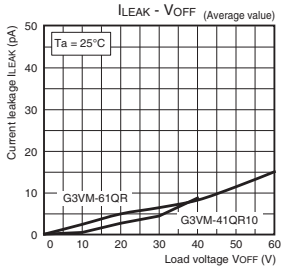
●**Turn ON, Turn OFF time vs. LED forward current**



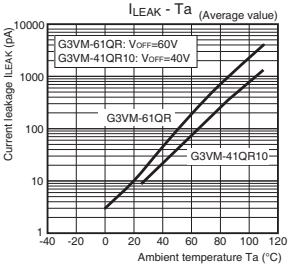
●**Turn ON, Turn OFF time vs. Ambient temperature**



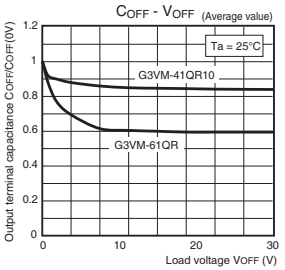
●**Current leakage vs. Load voltage**



●**Current leakage vs. Ambient temperature**



●**Output terminal capacitance vs. Load voltage**

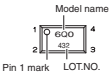


■Appearance / Terminal Arrangement / Internal Connections

■Appearance

S-VSON (Super-Very Small Outline Non-leaded)

S-VSON4 pin / S-VSON(L)4 pin

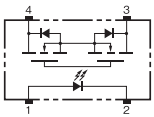


✻ Actual model name marking for each model

Model	Marking
G3VM-41QR10	4QA
G3VM-61QR	6Q0

Note 1. The actual product is marked differently from the image shown here.
2. "G3VM" does not appear in the model number on the Relay.

■Terminal Arrangement/Internal Connections (Top View)



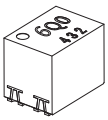
■Dimensions (Unit: mm)

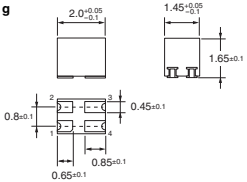
S-VSON (Super-Very Small Outline Non-leaded)

S-VSON4 pin

Surface-mounting Terminals

Weight: 0.01 g



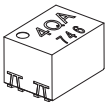


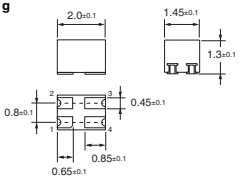
Note: The actual product is marked differently from the image shown here.

S-VSON(L)4 pin

Surface-mounting Terminals

Weight: 0.01 g

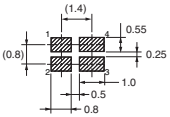




Note: The actual product is marked differently from the image shown here.

Actual Mounting Pad Dimensions

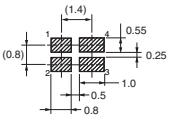
(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

■Safety Precautions

- Refer to "**Common Precautions**" for all G3VM models.

G3VM-61LR/81LR/101LR

MOS FET Relays SSOP, Small and High-load-voltage Type

MOS FET Relays in SSOP packages for high load voltages

- **Load voltage: 60 V, 80 V, or 100 V**

RoHS Compliant

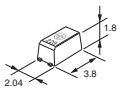
Note: The actual product is marked differently from the image shown here.

■Application Examples

- **Semiconductor test equipment**
- **Test & Measurement equipment**
- **Communication equipment**
- **Data loggers**

■Package (Unit : mm, Average)

SSOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
6 : 60 V
8 : 80 V
10 : 100 V

2. Contact form
1 : 1a (SPST-NO)

3. Package
L : SSOP 4-pin

4. Additional functions
R: Low ON resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
SSOP4	1a (SPST-NO)	Surface-mounting Terminals	60 V	400 mA	G3VM-61LR	1 pc.	G3VM-61LR(TR05)	500 pcs.
			80 V	120 mA	G3VM-81LR		G3VM-81LR(TR05)	
			100 V	80 mA	G3VM-101LR		G3VM-101LR(TR05)	

✻ The AC peak and DC value are given for the load voltage and continuous load current.
Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut SSOPs are packaged without humidity resistance. Use manual soldering to mount them. Refer to common precautions.

■Absolute Maximum Ratings (Ta = 25°C)

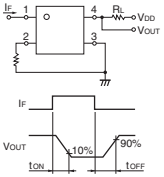
	Item	Symbol	G3VM-61LR	G3VM-81LR	G3VM-101LR	Unit	Measurement conditions
Input	LED forward current	I_F	50			mA	
	LED forward current reduction rate	ΔI_F/°C	-0.5			mA/°C	Ta ≥ 25°C
	LED reverse voltage	V_R	5			V	
	Connection temperature	T_J	125			°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	60	80	100	V	
	Continuous load current (AC peak/DC)	I_O	400	120	80	mA	
	ON current reduction rate	ΔI_O/°C	-4	-1.2	-0.8	mA/°C	Ta ≥ 25°C
	Pulse ON current	I_{OP}	1200	360	240	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125			°C	
Dielectric strength between I/O ✻		V_{I-O}	1500			Vrms	AC for 1 min
Ambient operating temperature		Ta	-20 to +85			°C	With no icing or condensation
Ambient storage temperature		Tstg	-40 to +125			°C	
Soldering temperature		–	260			°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

	Item	Symbol		G3VM-61LR	G3VM-81LR	G3VM-101LR	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0			V	I_F=10 mA
			Typical	1.15				
			Maximum	1.3				
	Reverse current	I_R	Maximum	10			μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	15			pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	2		1	mA	G3VM-61LR : I_O=100 mA G3VM-81LR : I_O=120 mA G3VM-101LR : I_O=80 mA
			Maximum	5				
	Release LED forward current	I_{FC}	Minimum	0.2	0.1	0.2	mA	G3VM-61LR/81LR : I_{OFF}=10 μA G3VM-101LR : I_{OFF}=1 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	1	7.5	8	Ω	G3VM-61LR : I_F=5 mA, I_O=Continuous load current ratings G3VM-81LR/101LR : I_F=10 mA, I_O=Continuous load current ratings, t=10 ms
			Maximum	1.5	12	14		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1,000	0.2		nA	G3VM-61LR : V_{OFF}=60 V G3VM-81LR : V_{OFF}=80 V, Ta=60°C G3VM-101LR : V_{OFF}=80 V
	Capacitance between terminals	C_{OFF}	Typical	20	5	6	pF	V=0, f=100 MHz, t<1 s
			Maximum	30	7	8		
Capacitance between I/O terminals		C_{I-O}	Typical	0.3	0.8	0.6	pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Minimum	1000			MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8				
Turn-ON time		t_{ON}	Typical	0.3	0.1		ms	G3VM-81LR : I_F=10 mA, R_L=200 Ω, V_{DD}=20 V G3VM-61LR/101LR : I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻
			Maximum	1	0.25	0.3		
Turn-OFF time		t_{OFF}	Typical	0.2	0.15	0.1		
			Maximum	1	0.2	0.3		

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-61LR	G3VM-81LR	G3VM-101LR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48	64	80	V
Operating LED forward current	I_F	Minimum	10			mA
		Maximum	20	30		
Continuous load current (AC peak/DC)	I_O	Maximum	400	120	80	
Ambient operating temperature	Ta	Minimum	-20			°C
		Maximum	70	60		

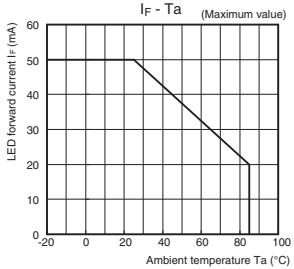
■Spacing and Insulation

Item	Minimum	Unit
Creepage distances	2.5	mm
Clearance distances	2.5	
Internal isolation thickness	0.1	

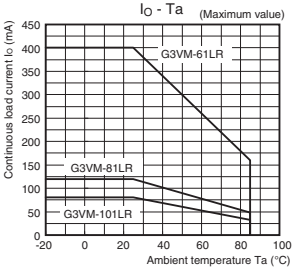
G3VM-61LR/81LR/101LR

■Engineering Data

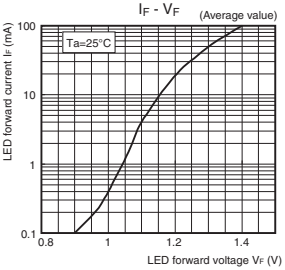
● **LED forward current vs. Ambient temperature**



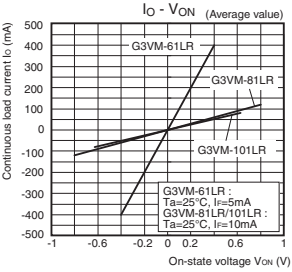
● **Continuous load current vs. Ambient temperature**



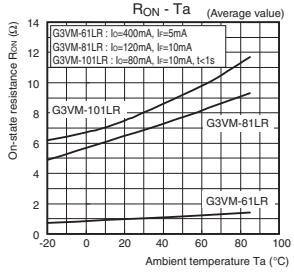
● **LED forward current vs. LED forward voltage**



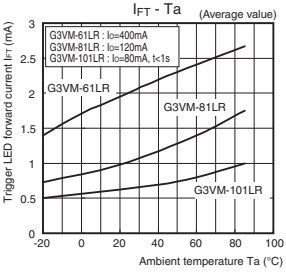
● **Continuous load current vs. On-state voltage**



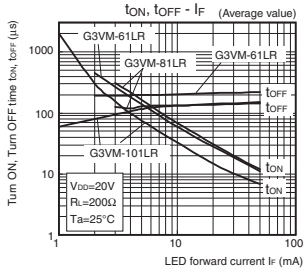
● **On-state resistance vs. Ambient temperature**



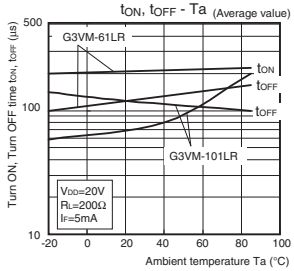
● **Trigger LED forward current vs. Ambient temperature**



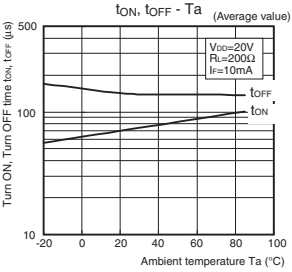
● **Turn ON, Turn OFF time vs. LED forward current**



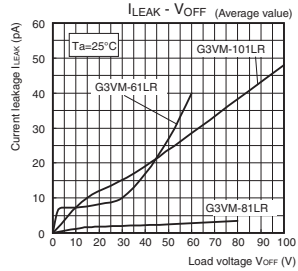
● **Turn ON, Turn OFF time vs. Ambient temperature**
G3VM-61LR/101LR



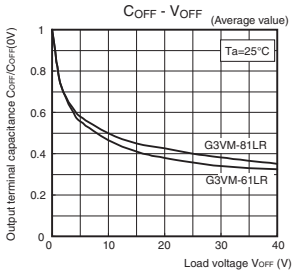
G3VM-81LR



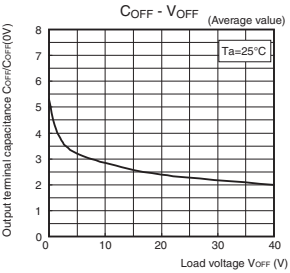
● **Current leakage vs. Ambient temperature**



● **Output terminal capacitance vs. Load voltage**
G3VM-61LR/81LR



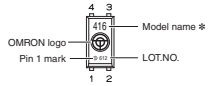
G3VM-101LR



■Appearance / Terminal Arrangement / Internal Connections

●Appearance

SSOP (Shrink Small Outline Package)
SSOP 4-pin

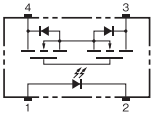


✻ Actual model name marking for each model

Model	Marking
G3VM-61LR	610
G3VM-81LR	810
G3VM-101LR	101

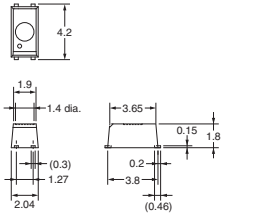
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.

●Terminal Arrangement/ Internal Connections (Top View)



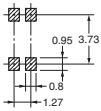
■Dimensions (Unit: mm)

Surface-mounting Terminals
Weight: 0.03 g



Unless otherwise specified, the dimensional tolerance is ± 0.1 mm.

Actual Mounting Pad Dimensions
(Recommended Value, TOP VIEW)



Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL (recognized)	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

G3VM-61PR□/71PR/81PR/101PR

MOS FET Relays USOP, Small and High-load-voltage Type

USOP Package with High Load voltage

- **Load voltage: 60 V, 75 V, 80 V, or 100 V**
- **G3VM-61PR1: Low C × R = 7 pF·Ω, C_{OFF} (standard) = 0.7 pF, R_{ON} (standard) = 10 Ω**

RoHS Compliant

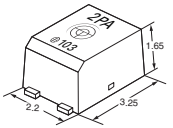
Note: The actual product is marked differently from the image shown here.

■Application Examples

- **Semiconductor test equipment**
- **Test & measurement equipment**
- **Communication equipment**
- **Data loggers**

■Package (Unit : mm, Average)

USOP 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□□□□□
1 2 3 4 5

1. Load Voltage
6: 60 V
7: 75 V
8: 80 V
10: 100 V

2. Contact form
1: 1a (SPST-NO)

3. Package
P: USOP 4-pin

4. Additional functions
R: Low On-resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
USOP4	1a (SPST-NO)	Surface-mounting Terminals	60 V	120 mA	G3VM-61PR1	1 pc.	G3VM-61PR1(TR05)	500 pcs.
				400 mA	G3VM-61PR		G3VM-61PR(TR05)	
			75 V		G3VM-71PR		G3VM-71PR(TR05)	
			80 V	120 mA	G3VM-81PR		G3VM-81PR(TR05)	
			100 V	100 mA	G3VM-101PR		G3VM-101PR(TR05)	

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut USOPs are packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

✻ The AC peak and DC value are given for the load voltage and continuous load current.

■Absolute Maximum Ratings (Ta = 25°C)

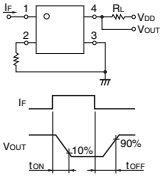
Item		Symbol	G3VM-61PR1	G3VM-61PR	G3VM-71PR	G3VM-81PR	G3VM-101PR	Unit	Measurement conditions
Input	LED forward current	I_F	50					mA	
	LED forward current reduction rate	ΔI_F/°C	−0.5					mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5					V	
	Connection temperature	T_J	125					°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	60		75	80	100	V	
	Continuous load current (AC peak/DC)	I_O	120	400		120	100	mA	
	ON current reduction rate	ΔI_O/°C	−1.2	−4		−1.2	−1	mA/°C	Ta≥25°C
	Pulse ON current	I_{OP}	360	1,200		360	300	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125					°C	
Dielectric strength between I/O ✻		V_{I-O}	500					Vrms	AC for 1 min
Ambient operating temperature		Ta	−40 to +85					°C	With no icing or condensation
Ambient storage temperature		Tstg	−40 to +125					°C	
Soldering temperature		–	260					°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-61PR1	G3VM-61PR	G3VM-71PR	G3VM-81PR	G3VM-101PR	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.0					V	I_F=10 mA
			Typical	1.15						
			Maximum	1.3						
	Reverse current	I_R	Maximum	10					μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	15					pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1.0	0.5		0.6	0.5	mA	I_O=100 mA
			Maximum	3						
	Release LED forward current	I_{FC}	Minimum	0.1	0.2	0.1			mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	10	1		7	8	Ω	G3VM-61PR : I_F=5 mA, I_O=400 mA Others : I_F=5 mA, I_O=Continuous load current ratings, t<1 s
			Maximum	15	1.5		12	14		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1			0.02	0.2	nA	V_{OFF}=Load voltage ratings
	Capacitance between terminals	C_{OFF}	Typical	0.7	20	30	5	6	pF	G3VM-61PR : V=0, f=1 MHz, t<1 s Others : V=0, f=100 MHz, t<1 s
			Maximum	1.3	30	–	7	8		
Capacitance between I/O terminals		C_{I-O}	Typical	0.4	0.3	0.4			pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Maximum	1000					MΩ	V_{I-O}=500 VDC, RoH≤60%
			Typical	10^8						
Turn-ON time		t_{ON}	Typical	0.04	0.3	0.4	0.14	0.12	ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻
			Maximum	0.2	0.5	2	0.5	0.3		
Turn-OFF time		t_{OFF}	Typical	0.12	0.3	0.2	0.16	0.18		
			Maximum	0.2	0.5	1	0.2	0.3		

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

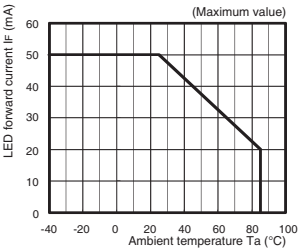
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.
Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

Item	Symbol		G3VM-61PR1	G3VM-61PR	G3VM-71PR	G3VM-81PR	G3VM-101PR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48		60	64	80	V
Operating LED forward current	I_F	Minimum	5					mA
		Typical	7.5					
		Maximum	20					
Continuous load current (AC peak/DC)	I_O	Maximum	120	400		120	100	
Ambient operating temperature	Ta	Minimum	−20					°C
		Maximum	65					

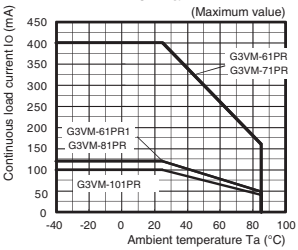
G3VM-61PR□/71PR/81PR/101PR

■Engineering Data

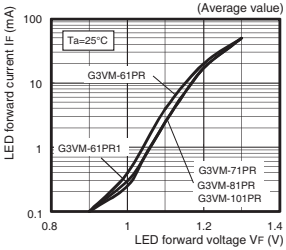
●LED forward current vs. Ambient temperature



●Continuous load current vs. Ambient temperature

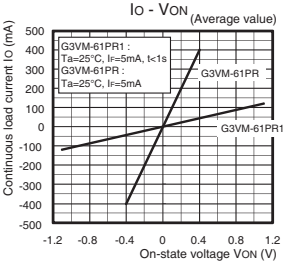


●LED forward current vs. LED forward voltage

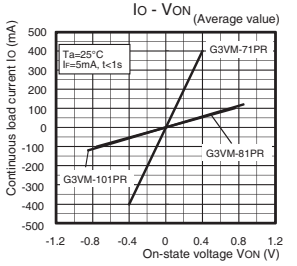


●Continuous load current vs. On-state voltage

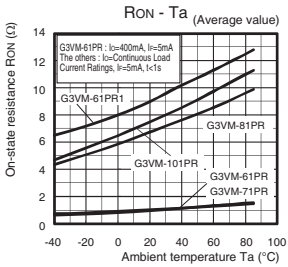
G3VM-61PR1/61PR



G3VM-71PR/81PR/101PR

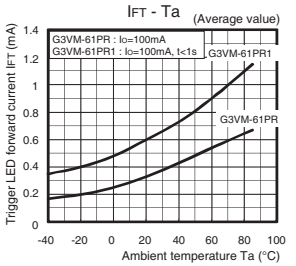


●On-state resistance vs. Ambient temperature

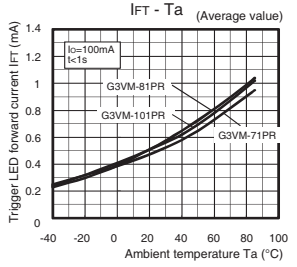


●Trigger LED forward current vs. Ambient temperature

G3VM-61PR1/61PR

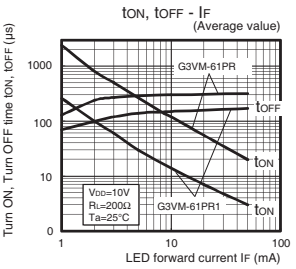


G3VM-71PR/81PR/101PR

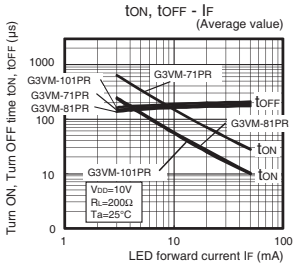


●Turn ON, Turn OFF time vs. LED forward current

G3VM-61PR1/61PR



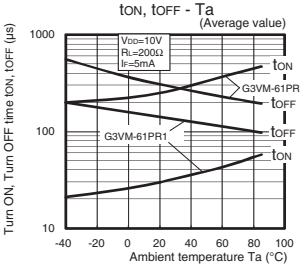
G3VM-71PR/81PR/101PR



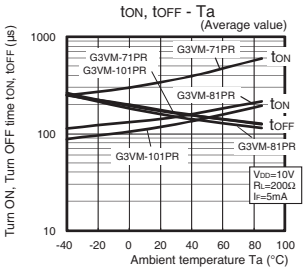
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

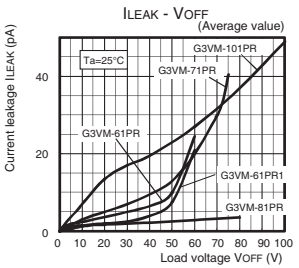
G3VM-61PR1/61PR



G3VM-71PR/81PR/101PR

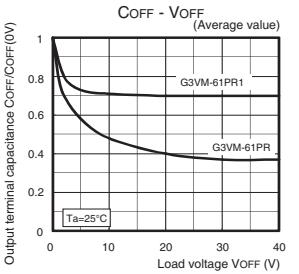


●Current leakage vs. Load voltage

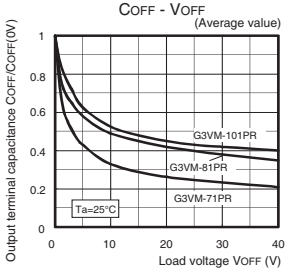


●Output terminal capacitance vs. Load voltage

G3VM-61PR1/61PR

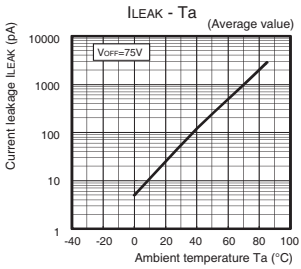


G3VM-71PR/81PR/101PR



●Current leakage vs. Ambient temperature

G3VM-71PR



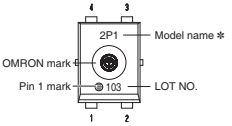
G3VM-61PR□/71PR/81PR/101PR

■Appearance / Terminal Arrangement / Internal Connections

●Appearance

USOP (Ultra Small Outline Package)

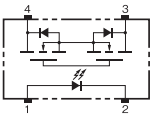
USOP 4-pin



✻ Actual model name marking for each model

Model	Marking
G3VM-61PR1	6P1
G3VM-61PR	6P0
G3VM-71PR	7P0
G3VM-81PR	8P0
G3VM-101PR	AP0

●Terminal Arrangement/Internal Connections (Top View)

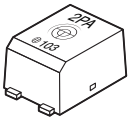


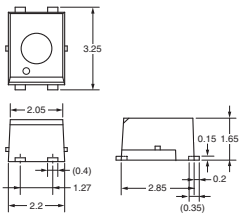
Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.

■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.03 g

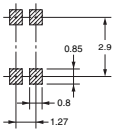




Unless otherwise specified, the dimensional tolerance is ±0.2 mm.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ±0.2 mm.

Note: The actual product is marked differently from the image shown here.

■Approved Standards

UL recognized

Approved Standards	Contact form	File No.
UL recognized	1a (SPST-NO)	E80555

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

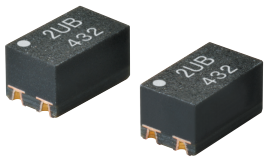
G3VM-61UR□/81UR□/101UR

MOS FET Relays VSON, Small and High-load-voltage Type

World's smallest class New VSON Package with High Load voltage

- **Load voltage: 60 V, 80 V, or 100 V**
- **G3VM-61UR1: Low C × R = 7 pF·Ω, C_{OFF} (standard) = 0.7 pF, R_{ON} (standard) = 10 Ω**

RoHS Compliant



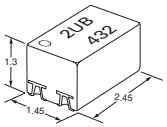
Note: The actual product is marked differently from the image shown here.

■Application Examples

- **Semiconductor test equipment**
- **Test & measurement equipment**
- **Communication equipment**
- **Data loggers**

■Package (Unit : mm, Average)

VSON 4-pin



Note: The actual product is marked differently from the image shown here.

■Model Number Legend

G3VM-□ □ □ □ □
1 2 3 4 5

1. Load Voltage
6: 60 V
8: 80 V
10: 100 V

2. Contact form
1: 1a (SPST-NO)

3. Package
U: VSON 4-pin

4. Additional functions
R: Low On-resistance

5. Other informations
When specifications overlap, serial code is added in the recorded order.

■Ordering Information

Package	Contact form	Terminals	Load voltage (peak value) ✻	Continuous load current (peak value) ✻	Tape cut packaging		Tape packaging	
					Model	Minimum package quantity	Model	Minimum package quantity
VSON4	1a (SPST-NO)	Surface-mounting Terminals	60 V	120 mA	G3VM-61UR1	1 pc.	G3VM-61UR1(TR05)	500 pcs.
				400 mA	G3VM-61UR		G3VM-61UR(TR05)	
			80 V	120 mA	G3VM-81UR		G3VM-81UR(TR05)	
				200 mA	G3VM-81UR1		G3VM-81UR1(TR05)	
			100 V	100 mA	G3VM-101UR		G3VM-101UR(TR05)	

Note: To order tape packaging for Relays with surface-mounting terminals, add "(TR05)" to the end of the model number.
Tape-cut VSONs are packaged without humidity resistance. Use manual soldering to mount them.
Refer to common precautions.

✻ The AC peak and DC value are given for the load voltage and continuous load current.

G3VM-61UR□/81UR□/101UR

■Absolute Maximum Ratings (Ta = 25°C)

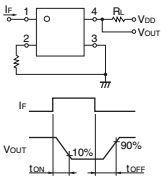
Item		Symbol	G3VM-61UR1	G3VM-61UR	G3VM-81UR	G3VM-81UR1	G3VM-101UR	Unit	Measurement conditions
Input	LED forward current	I_F	30					mA	
	LED forward current reduction rate	ΔI_F/°C	−0.3					mA/°C	Ta≥25°C
	LED reverse voltage	V_R	5					V	
	Connection temperature	T_J	125					°C	
Output	Load voltage (AC peak/DC)	V_{OFF}	60		80		100	V	
	Continuous load current (AC peak/DC)	I_O	120	400	120	200	100	mA	
	ON current reduction rate	ΔI_O/°C	−1.2	−4.0	−1.2	−2	−1	mA/°C	Ta≥25°C
	Pulse ON current	Iop	360	1200	360	600	300	mA	t=100 ms, Duty=1/10
	Connection temperature	T_J	125					°C	
Dielectric strength between I/O ✻		V_{I-O}	300					Vrms	AC for 1 min
Ambient operating temperature		Ta	−40 to +85					°C	With no icing or condensation
Ambient storage temperature		Tstg	−40 to +125					°C	
Soldering temperature		–	260					°C	10 s

✻ The dielectric strength between the input and output was checked by applying voltage between all pins as a group on the LED side and all pins as a group on the light-receiving side.

■Electrical Characteristics (Ta = 25°C)

Item		Symbol		G3VM-61UR1	G3VM-61UR	G3VM-81UR	G3VM-81UR1	G3VM-101UR	Unit	Measurement conditions
Input	LED forward voltage	V_F	Minimum	1.1					V	I_F=10 mA
			Typical	1.27						
			Maximum	1.4						
	Reverse current	I_R	Maximum	10					μA	V_R=5 V
	Capacitance between terminals	C_T	Typical	30					pF	V=0, f=1 MHz
	Trigger LED forward current	I_{FT}	Typical	1	–		1	–	mA	I_O=100 mA
			Maximum	3						
	Release LED forward current	I_{FC}	Minimum	0.1					mA	I_{OFF}=10 μA
Output	Maximum resistance with output ON	R_{ON}	Typical	10	1.0	7	6	8	Ω	I_F=5 mA, t<1 s, I_O=Continuous load current ratings
			Maximum	15	1.5	12	8	14		
	Current leakage when the relay is open	I_{LEAK}	Maximum	1		0.02	1	0.2	nA	V_{OFF}=Load voltage ratings
	Capacitance between terminals	C_{OFF}	Typical	0.7	20	5	6.5	6	pF	V=0, f=100 MHz, t<1 s
			Maximum	1.3	–	7	11	8		
Capacitance between I/O terminals		C_{I-O}	Typical	1					pF	f=1 MHz, V_S=0 V
Insulation resistance between I/O terminals		R_{I-O}	Typical	10^8					MΩ	V_{I-O}=500 VDC, RoH≤60%
Turn-ON time		t_{ON}	Typical	0.05	–				ms	I_F=5 mA, R_L=200 Ω, V_{DD}=20 V ✻
			Maximum	0.2	0.5		0.4	0.3		
Turn-OFF time		t_{OFF}	Typical	0.015	–					
			Maximum	0.2	0.5	0.2	0.4	0.3		

✻ Turn-ON and Turn-OFF Times



■Recommended Operating Conditions

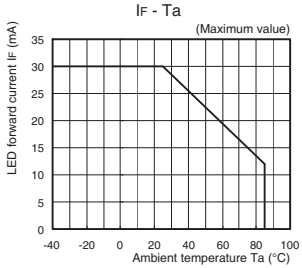
For usage with high reliability, Recommended Operation Conditions is a measure that takes into account the derating of Absolute Maximum Ratings and Electrical Characteristics.

Each item on this list is an independent condition, so it is not simultaneously satisfy several conditions.

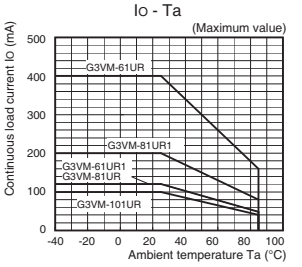
Item	Symbol		G3VM-61UR1	G3VM-61UR	G3VM-81UR	G3VM-81UR1	G3VM-101UR	Unit
Load voltage (AC peak/DC)	V_{DD}	Maximum	48		64		80	V
Operating LED forward current	I_F	Minimum	5					mA
		Typical	7.5					
		Maximum	20					
Continuous load current (AC peak/DC)	I_O	Maximum	120	400	120	200	100	
Ambient operating temperature	Ta	Minimum	−20					°C
		Maximum	65					

■Engineering Data

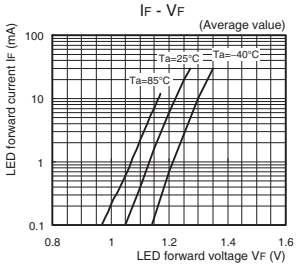
●LED forward current vs. Ambient temperature



●Continuous load current vs. Ambient temperature

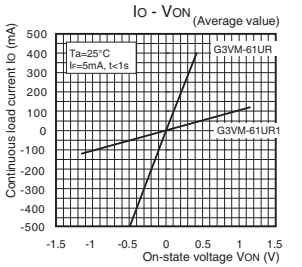


●LED forward current vs. LED forward voltage

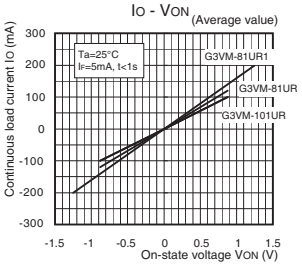


●Continuous load current vs. On-state voltage

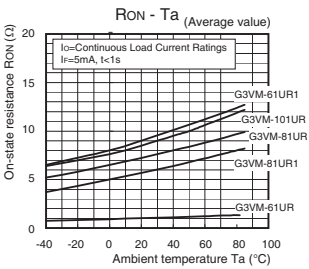
G3VM-61UR1/61UR



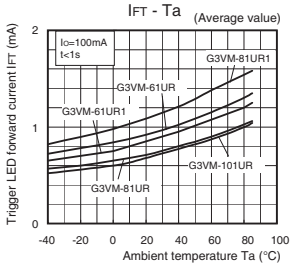
G3VM-81UR/81UR1/101UR



●On-state resistance vs. Ambient temperature

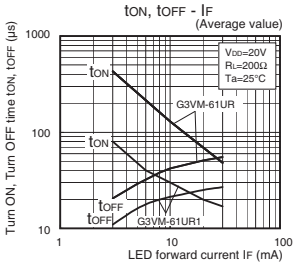


●Trigger LED forward current vs. Ambient temperature

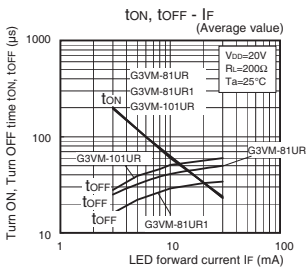


●Turn ON, Turn OFF time vs. LED forward current

G3VM-61UR1/61UR



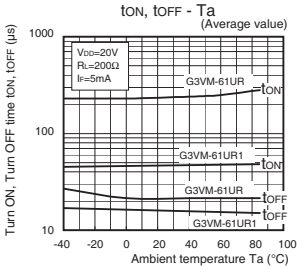
G3VM-81UR/81UR1/101UR



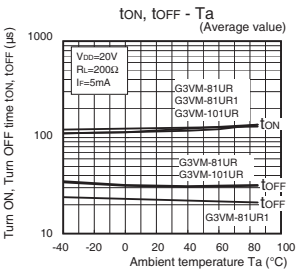
■Engineering Data

●Turn ON, Turn OFF time vs. Ambient temperature

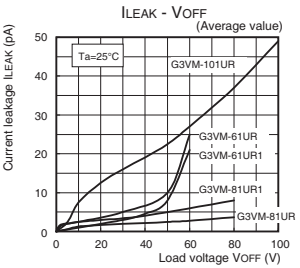
G3VM-61UR1/61UR



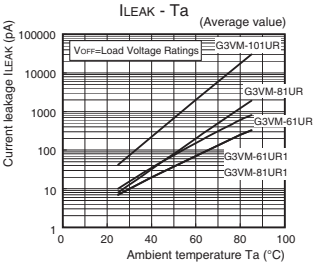
G3VM-81UR/81UR1/101UR



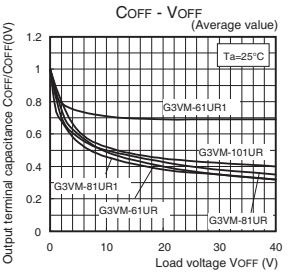
●Current leakage vs. Load voltage



●Current leakage vs. Ambient temperature



●Output terminal capacitance vs. Load voltage

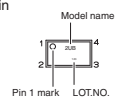


■Appearance / Terminal Arrangement / Internal Connections

●Appearance

VSON (Very Small Outline Non-leaded)

VSON 4-pin

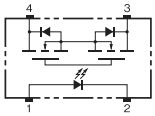


✻ Actual model name marking for each model

Model	Marking
G3VM-61UR1	6U1
G3VM-61UR	6U0
G3VM-81UR	8U0
G3VM-81UR1	8U1
G3VM-101UR	AU0

Note: 1. The actual product is marked differently from the image shown here.
Note: 2. "G3VM" does not appear in the model number on the Relay.

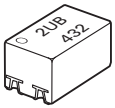
●Terminal Arrangement/Internal Connections (Top View)

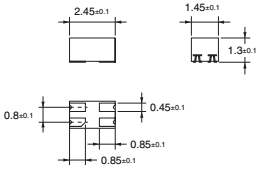


■Dimensions (Unit: mm)

Surface-mounting Terminals

Weight: 0.01 g

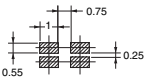




Note: The actual product is marked differently from the image shown here.

Actual Mounting Pad Dimensions

(Recommended Value, Top View)



Unless otherwise specified, the dimensional tolerance is ±0.1 mm.

■Approved Standards

Applying for UL recognition

■Safety Precautions

• Refer to the *Common Precautions for All MOS FET Relays* for precautions that apply to all MOS FET Relays.

Models with Standards Certification

July 2018

Consult your OMRON sales representative for specific models with standard approvals.

●MOS FET Relay

DIP (Dual Inline Package)

Model	Standard	Contact	Standard No.	Coil ratings	Page
G3VM-21AR/DR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	3000 mA 20 V (AC peak/DC)	110
G3VM-21BR/ER	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	4000 mA 20 V (AC peak/DC)	115
G3VM-41AY/DY	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2000 mA 40 V (AC peak/DC)	147
G3VM-41AY1/DY1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2000 mA 40 V (AC peak/DC)	147
G3VM-41AR/DR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2500 mA 40 V (AC peak/DC)	110
G3VM-41BR/ER	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	3500 mA 40 V (AC peak/DC)	115
G3VM-61A1/D1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	500 mA 60 V (AC peak/DC)	62
G3VM-61AY/DY	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	500 mA 60 V (AC peak/DC)	147
G3VM-61AY1/DY1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	500 mA 60 V (AC peak/DC)	147
G3VM-61AR/DR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2000 mA 60 V (AC peak/DC)	110
G3VM-61B1/E1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	500 mA 60 V (AC peak/DC)	62
G3VM-61BR/ER	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2500 mA 60 V (AC peak/DC)	115
G3VM-61BR1/ER1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	3000 mA 60 V (AC peak/DC)	115
G3VM-61CR1/FR1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	5000mA 60V (AC peak/DC)	121
G3VM-62C1/F1	UL Approved Models (Recognized)	2a (DPST-NO)	E80555	500 mA 60 V (AC peak/DC)	98
G3VM-101AR/DR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	1000 mA 100 V (AC peak/DC)	110
G3VM-101BR/ER	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2000 mA 100 V (AC peak/DC)	115
G3VM-101CR/FR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	3000mA 100V (AC peak/DC)	121
G3VM-201AY/DY	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	250 mA 200 V (AC peak/DC)	147
G3VM-201AY1/DY1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	250 mA 200 V (AC peak/DC)	147
G3VM-201CR/FR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	1500mA 200V (AC peak/DC)	121
G3VM-351AY/DY	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	100 mA 350 V (AC peak/DC)	147
G3VM-351AY1/DY1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	100 mA 350 V (AC peak/DC)	147
G3VM-2L/2FL	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 350 V (AC peak/DC)	159
G3VM-351A/D	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 350 V (AC peak/DC)	62
	EN62368-1 Approved Models (BSI certified)	1a (SPST-NO)	VC669156	---	
G3VM-353A/D	UL Approved Models (Recognized)	1b (SPST-NC)	E80555	150 mA 350 V (AC peak/DC)	62
G3VM-351B/E	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 350 V (AC peak/DC)	62
G3VM-353B/E	UL Approved Models (Recognized)	1b (SPST-NC)	E80555	150 mA 350 V (AC peak/DC)	62
G3VM-352C/F	UL Approved Models (Recognized)	2a (DPST-NO)	E80555	120 mA 350 V (AC peak/DC)	98
	EN62368-1 Approved Models (BSI certified)	2a (DPST-NO)	VC669156	---	
G3VM-WL/WFL	UL Approved Models (Recognized)	2a (DPST-NO)	E80555	120 mA 350 V (AC peak/DC)	159
G3VM-354C/F	UL Approved Models (Recognized)	2b (DPST-NC)	E80555	150 mA 350 V (AC peak/DC)	98
G3VM-401A/D	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 400 V (AC peak/DC)	62
G3VM-401AY/DY	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 400 V (AC peak/DC)	147
G3VM-401AY1/DY1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 400 V (AC peak/DC)	147
G3VM-401B/E	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 400 V (AC peak/DC)	62
G3VM-401BY/EY	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 400 V (AC peak/DC)	155
G3VM-401CR/FR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	400mA 400V (AC peak/DC)	121
G3VM-402C/F	UL Approved Models (Recognized)	2a (DPST-NO)	E80555	120 mA 400 V (AC peak/DC)	98
G3VM-601AY/DY	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	90 mA 600 V (AC peak/DC)	147
G3VM-601AY1/DY1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	90 mA 600 V (AC peak/DC)	147
G3VM-601BY/EY	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	100 mA 600 V (AC peak/DC)	155
G3VM-601CR/FR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	600mA 600V (AC peak/DC)	121

Models with Standards Certification

July 2018

Consult your OMRON sales representative for specific models with standard approvals.

SOP (Small Outline Package)

Model	Standard	Contact	Standard No.	Coil ratings	Page
G3VM-21GR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	160 mA 20 V (AC peak/DC)	165
G3VM-21GR1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	300 mA 20 V (AC peak/DC)	165
G3VM-21HR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2500 mA 20 V (AC peak/DC)	131
G3VM-31HR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	4000mA 30V (AC peak/DC)	131
G3VM-41GR6	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 40 V (AC peak/DC)	165
G3VM-41GR4	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	250 mA 40 V (AC peak/DC)	165
G3VM-41GR5	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	300 mA 40 V (AC peak/DC)	165
G3VM-41GR8	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	1000 mA 40 V (AC peak/DC)	127
G3VM-41HR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2500 mA 40 V (AC peak/DC)	131
G3VM-61VY1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	100 mA 60 V (AC peak/DC)	68
G3VM-61G1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	400 mA 60 V (AC peak/DC)	68
G3VM-61G2	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	400 mA 60 V (AC peak/DC)	68
G3VM-61G3	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	400 mA 60 V (AC peak/DC)	68
G3VM-61VY2	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	500mA 60V (AC peak/DC)	68
G3VM-61VY3	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	700mA 60V (AC peak/DC)	68
G3VM-61GR1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	1000 mA 60 V (AC peak/DC)	127
G3VM-61GR2	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	1700mA 60V (AC peak/DC)	127
G3VM-61VR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	1400mA 60V (AC peak/DC)	127
G3VM-63G	UL Approved Models (Recognized)	1b (SPST-NC)	E80555	500mA 60V (AC peak/DC)	68
G3VM-61H1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	400 mA 60 V (AC peak/DC)	88
G3VM-61HR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2300 mA 60 V (AC peak/DC)	131
G3VM-61HR1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	3300mA 60V (AC peak/DC)	131
G3VM-62J1	UL Approved Models (Recognized)	2a (DPST-NO)	E80555	400 mA 60 V (AC peak/DC)	104
G3VM-81GR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	40 mA 80 V (AC peak/DC)	165
G3VM-81GR1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	200 mA 80 V (AC peak/DC)	165
G3VM-81G1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	350 mA 80 V (AC peak/DC)	73
G3VM-81HR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	1250 mA 80 V (AC peak/DC)	137
G3VM-101HR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	1400 mA 100 V (AC peak/DC)	137
G3VM-101HR1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	2000mA 100V (AC peak/DC)	137
G3VM-201G	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	50 mA 200 V (AC peak/DC)	77
G3VM-201G1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	200 mA 200 V (AC peak/DC)	77
G3VM-201G2	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	200 mA 200 V (AC peak/DC)	77
G3VM-S5	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	200 mA 200 V (AC peak/DC)	77
G3VM-201H1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	200 mA 200 V (AC peak/DC)	88
G3VM-202J1	UL Approved Models (Recognized)	2a (DPST-NO)	E80555	200 mA 200 V (AC peak/DC)	104
G3VM-351G1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	100 mA 350 V (AC peak/DC)	82
G3VM-351G	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	110 mA 350 V (AC peak/DC)	82
G3VM-351VY	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	110mA 350V (AC peak/DC)	82
G3VM-353G	UL Approved Models (Recognized)	1b (SPST-NC)	E80555	120 mA 350 V (AC peak/DC)	82
G3VM-351H	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	110 mA 350 V (AC peak/DC)	88
G3VM-353H	UL Approved Models (Recognized)	1b (SPST-NC)	E80555	120 mA 350 V (AC peak/DC)	88
G3VM-355JR	UL Approved Models (Recognized)	1a1b (SPST-NO/SPST-NC)	E80555	120 mA 350 V (AC peak/DC)	104
G3VM-352J	UL Approved Models (Recognized)	2a (DPST-NO)	E80555	110 mA 350 V (AC peak/DC)	104
G3VM-354J	UL Approved Models (Recognized)	2b (DPST-NC)	E80555	120 mA 350 V (AC peak/DC)	104
G3VM-401G1	UL certification pending.	1a (SPST-NO)	E80555	100 mA 400 V (AC peak/DC)	82
G3VM-401G	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 400 V (AC peak/DC)	82
	EN62368-1 Approved Models (BSI certified)	1a (SPST-NO)	VC669262	---	
G3VM-401H	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 400 V (AC peak/DC)	88
	EN62368-1 Approved Models (BSI certified)	1a (SPST-NO)	VC669262	---	
G3VM-402J	UL Approved Models (Recognized)	2a (DPST-NO)	E80555	120 mA 400 V (AC peak/DC)	104
	EN62368-1 Approved Models (BSI certified)	2a (DPST-NO)	VC669262	---	
G3VM-601G1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	70 mA 600 V (AC peak/DC)	94
G3VM-601G	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	90 mA 600 V (AC peak/DC)	94

Models with Standards Certification

July 2018

Consult your OMRON sales representative for specific models with standard approvals.

SSOP (Shrink Small Outline Package)

Model	Standard	Contact	Standard No.	Coil ratings	Page
G3VM-21LR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	160 mA 20 V (AC peak/DC)	170
G3VM-21LR10	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	200 mA 20 V (AC peak/DC)	170
G3VM-21LR1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	450 mA 20 V (AC peak/DC)	170
G3VM-21LR11	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	900 mA 20 V (AC peak/DC)	170
G3VM-41LR10	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 40 V (AC peak/DC)	175
G3VM-41LR6	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 40 V (AC peak/DC)	175
G3VM-41LR11	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	140 mA 40 V (AC peak/DC)	175
G3VM-41LR4	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	250 mA 40 V (AC peak/DC)	175
G3VM-41LR5	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	300 mA 40 V (AC peak/DC)	175
G3VM-61LR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	400 mA 60 V (AC peak/DC)	204
G3VM-81LR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 80 V (AC peak/DC)	204
G3VM-101LR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	80 mA 100 V (AC peak/DC)	204

USOP (Ultra Small Outline Package)

Model	Standard	Contact	Standard No.	Coil ratings	Page
G3VM-21PR10	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	200 mA 20 V (AC peak/DC)	180
G3VM-21PR1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	450 mA 20 V (AC peak/DC)	180
G3VM-21PR11	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	900 mA 20 V (AC peak/DC)	180
G3VM-41PR12	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	100 mA 40 V (AC peak/DC)	185
G3VM-41PR10	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 40 V (AC peak/DC)	185
G3VM-41PR6	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 40 V (AC peak/DC)	185
G3VM-41PR11	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	140 mA 40 V (AC peak/DC)	185
G3VM-41PR5	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	300 mA 40 V (AC peak/DC)	185
G3VM-51PR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	300 mA 50 V (AC peak/DC)	185
G3VM-61PR1	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 60 V (AC peak/DC)	208
G3VM-61PR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	400 mA 60 V (AC peak/DC)	208
G3VM-71PR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	400 mA 75V (AC peak/DC)	208
G3VM-81PR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	120 mA 80 V (AC peak/DC)	208
G3VM-101PR	UL Approved Models (Recognized)	1a (SPST-NO)	E80555	100 mA 100 V (AC peak/DC)	208

VSON (Very Small Outline Non-leaded)

Model	Standard	Contact	Standard No.	Coil ratings	Page
G3VM-21UR10	UL certification pending.	1a (SPST-NO)	E80555	200 mA 20 V (AC peak/DC)	190
G3VM-21UR1	UL certification pending.	1a (SPST-NO)	E80555	450 mA 20 V (AC peak/DC)	190
G3VM-21UR11	UL certification pending.	1a (SPST-NO)	E80555	1000 mA 20 V (AC peak/DC)	190
G3VM-41UR12	UL certification pending.	1a (SPST-NO)	E80555	100 mA 40 V (AC peak/DC)	195
G3VM-41UR10	UL certification pending.	1a (SPST-NO)	E80555	120 mA 40 V (AC peak/DC)	195
G3VM-41UR11	UL certification pending.	1a (SPST-NO)	E80555	140 mA 40 V (AC peak/DC)	195
G3VM-51UR	UL certification pending.	1a (SPST-NO)	E80555	300 mA 50 V (AC peak/DC)	195
G3VM-61UR1	UL certification pending.	1a (SPST-NO)	E80555	120 mA 60 V (AC peak/DC)	213
G3VM-61UR	UL certification pending.	1a (SPST-NO)	E80555	400 mA 60 V (AC peak/DC)	213
G3VM-81UR	UL certification pending.	1a (SPST-NO)	E80555	120 mA 80 V (AC peak/DC)	213
G3VM-81UR1	UL certification pending.	1a (SPST-NO)	E80555	200 mA 80 V (AC peak/DC)	213
G3VM-101UR	UL certification pending.	1a (SPST-NO)	E80555	100 mA 100 V (AC peak/DC)	213

A Selection Guide is available in addition to this MOS FET Relay General Catalog.

- The Selection Guide allows you to easily search for products using tables of basic specifications.
- You can use simple searches in the Selection Guide and then check for details in this General Catalog.
- Basic information is summarized in the booklet so that you can easily take the Selection Guide with you wherever you might need it.

Let us know how we can help you.

Please check each region's Terms & Conditions by region website.

OMRON Corporation
Electronic and Mechanical Components Company

Regional Contact

Americas
https://www.components.omron.com/

Asia-Pacific
https://ecb.omron.com.sg/

Korea
https://www.omron-ecb.co.kr/

Europe
http://components.omron.eu/

China
https://www.ecb.omron.com.cn/

Japan
https://www.omron.co.jp/ecb/

Cat. No. X083-E1-02
0318 (1215)(O)