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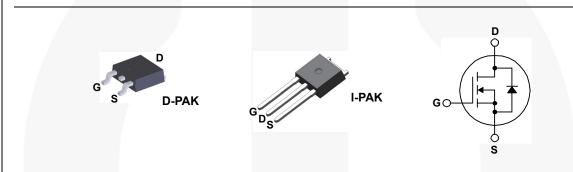
FQD13N10L / FQU13N10L N-Channel QFET[®] MOSFET 100 V, 10 A, 180 mΩ

Description

This N-Channel enhancement mode power MOSFET is produced using Fairchild Semiconductor's proprietary planar stripe and DMOS technology. This advanced MOSFET technology has been especially tailored to reduce on-state resistance, and to provide superior switching performance and high avalanche energy strength. These devices are suitable for switched mode power supplies, audio amplifier, DC motor control, and variable switching . Low Level Gate Drive Requirement Allowing power applications.

Features

- 10 A, 100 V, $R_{DS(on)}$ = 180 m Ω (Max.) @ V_{GS} = 10 V, I_D = 5.0 A
- Low Gate Charge (Typ. 8.7 nC)
- Low Crss (Typ. 20 pF)
- 100% Avalanche Tested
- **Direct Operation Form Logic Drivers**



Absolute Maximum Ratings T_c = 25°C unless otherwise noted.

Symbol	Parameter	FQD13N10LTM / FQU13N10LTU	Unit	
V _{DSS}	Drain-Source Voltage	100	V	
I _D	Drain Current - Continuous ($T_C = 25^{\circ}C$)	10	А	
	- Continuous (T _C = 100°C)	6.3	А	
I _{DM}	Drain Current - Pulsed (Note	1) 40	А	
V _{GSS}	Gate-Source Voltage	± 20	V	
E _{AS}	Single Pulsed Avalanche Energy (Note	2) 95	mJ	
I _{AR}	Avalanche Current (Note	1) 10	А	
E _{AR}	Repetitive Avalanche Energy (Note	1) 4.0	mJ	
dv/dt	Peak Diode Recovery dv/dt (Note	3) 6.0	V/ns	
P _D	Power Dissipation (T _A = 25°C) *	2.5	W	
	Power Dissipation ($T_C = 25^{\circ}C$)	40	W	
	- Derate above 25°C	0.32		
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +150	°C	
Τ _L	Maximum Lead Temperature for Soldering, 1/8" from Case for 5 Seconds	300	°C	

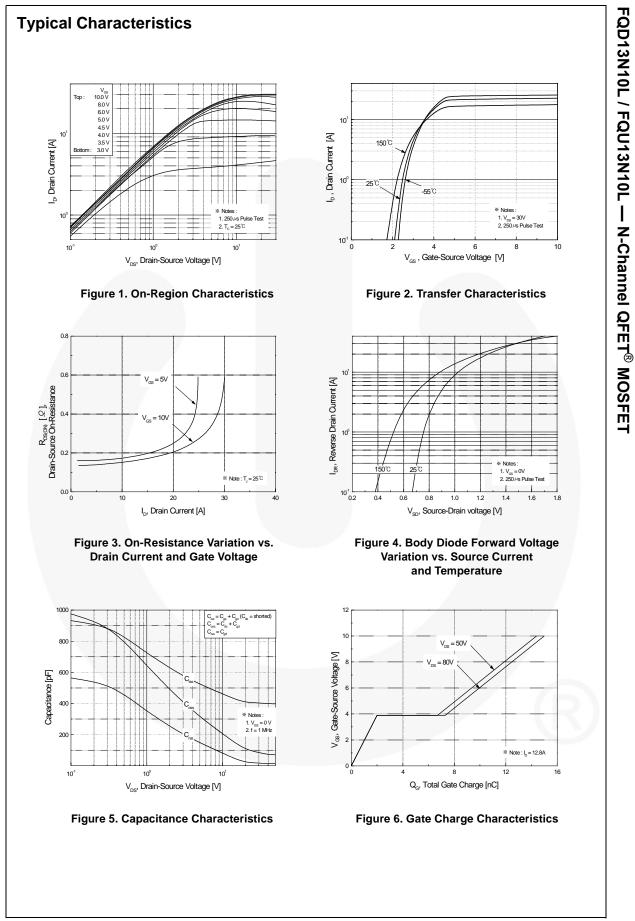
Thermal Characteristics

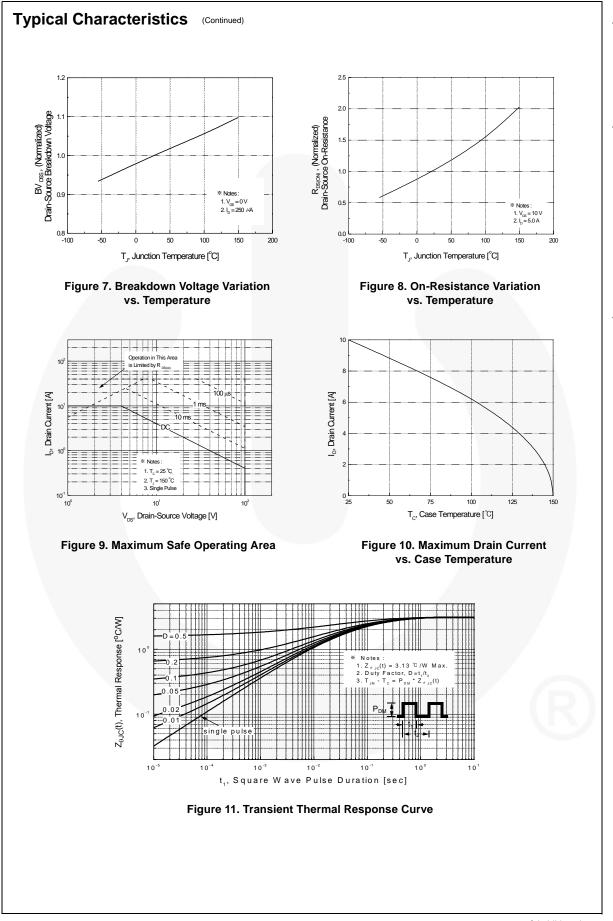
Symbol	Parameter	FQD13N10LTM / FQU13N10LTU	Unit	
$R_{ ext{ heta}JC}$	Thermal Resistance, Junction to Case, Max.	3.13		
P	Thermal Resistance, Junction to Ambient (Minimum Pad of 2-oz Copper), Max.	110	°C/W	
R_{\thetaJA}	Thermal Resistance, Junction to Ambient (*1 in ² Pad of 2-oz Copper), Max.	50		

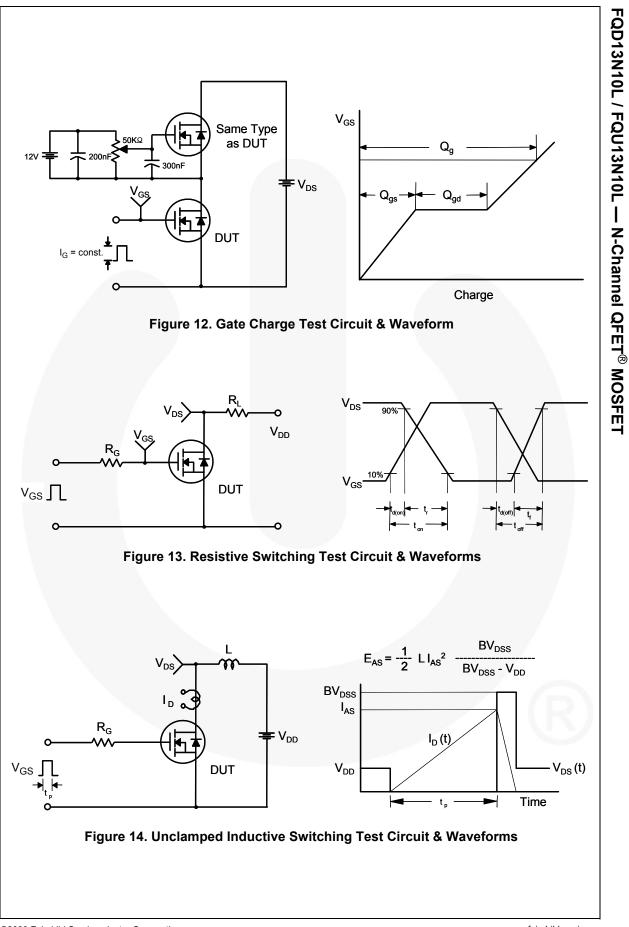
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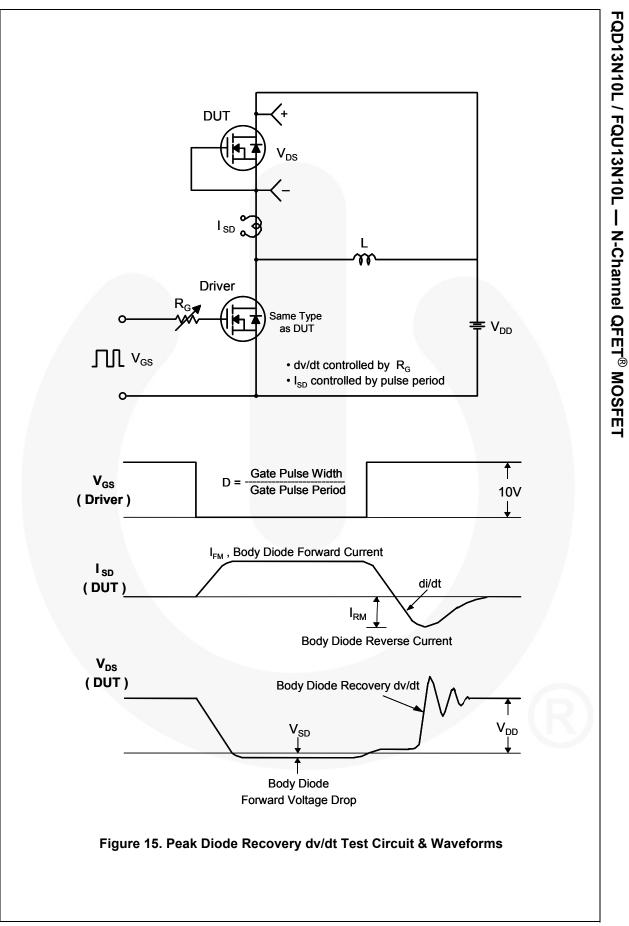
Part Number		Top Mark	Pack	kage	Packing Meth	nod Ree	Size	Tape W	idth	Quantity	
FQD13	3N10LTM	FQD13N10L	D-P	AK	Tape and Re	el 330	mm	16 mr	n	2500 units	
FQU13N10LTU FQU13N10L I-P.		AK Tube N/		/A	N/A		70 units				
lectri	cal Chai	racteristics	T _C = 25°0	C unless oth	nerwise noted.						
Symbol		Parameter			Test Condition	ns	Min.	Тур.	Max	. Unit	
)ff Cha	racteristi	ics									
V _{DSS}	Drain-Source Breakdown Voltage		V _{GS} = 0 V, I _D = 250 μA			100			V		
BV _{DSS}	Breakdown Voltage Temperature		$I_D = 250 \ \mu\text{A}$, Referenced to 25°C				0.09		V/°C		
ΔT_{J}	Coefficient					0.00					
SS	Zero Gate Voltage Drain Current Gate-Body Leakage Current, Forward		$V_{DS} = 100 \text{ V}, V_{GS} = 0 \text{ V}$ $V_{DS} = 80 \text{ V}, T_{C} = 125^{\circ}\text{C}$				1 10	μA μA			
SSSF			$V_{GS} = 20 \text{ V}, V_{DS} = 0 \text{ V}$				100	nA			
SSR		Leakage Current,	_		-20 V, V _{DS} = 0 V				-100		
				00							
	racteristi		_								
GS(th)		shold Voltage			$V_{GS}, I_{D} = 250 \mu A$	۱ <u>ــــــــــــــــــــــــــــــــــــ</u>	1.0		2.0	V	
DS(on)	Static Drai On-Resista			00	10 V, I _D = 5.0 A 5 V, I _D = 5.0 A			0.142 0.158	0.18 0.2	Ω	
FS		ransconductance	_		30 V, I _D = 5.0 A			8.7		S	
				- 03				0.1			
-	ic Charac							400	500	-	
iss	Input Capa		_		$25 \text{ V}, \text{ V}_{\text{GS}} = 0 \text{ V},$			400	520	pF	
oss	Output Ca			f = 1.0 MHz				95	125	pF	
rss	Reverse I	ransfer Capacitance	3					20	25	pF	
witchi	ng Chara	cteristics									
l(on)	Turn-On D	elay Time		V	50 V, I _D = 12.8 A			7.5	25	ns	
	Turn-On R	ise Time		$R_G = 2$	-	,		220	450	ns	
(off)	Turn-Off D	elay Time		NG = 2	0 12			22	55	ns	
	Turn-Off F	all Time				(Note 4)		72	150	ns	
g	Total Gate	Charge		V _{DS} =	80 V, I _D = 12.8 A			8.7	12	nC	
gs	Gate-Sour	ce Charge		V _{GS} =		,		2.0		nC	
gd	Gate-Drair	h Charge		00		(Note 4)	5.3		nC	
		ode Characteri				gs		1			
3		Continuous Drain-S							10	A	
SM		Pulsed Drain-Sourc							40	A	
SD		rce Diode Forward	Voltage		0 V, I _S = 10 A				1.5	V	
r		ecovery Time			0 V, I _S = 12.8 A,			75		ns	
) ^{rr}	Dovoroo D	ecovery Charge		I dl_/ dt	= 100 A/µs			0.17		μC	

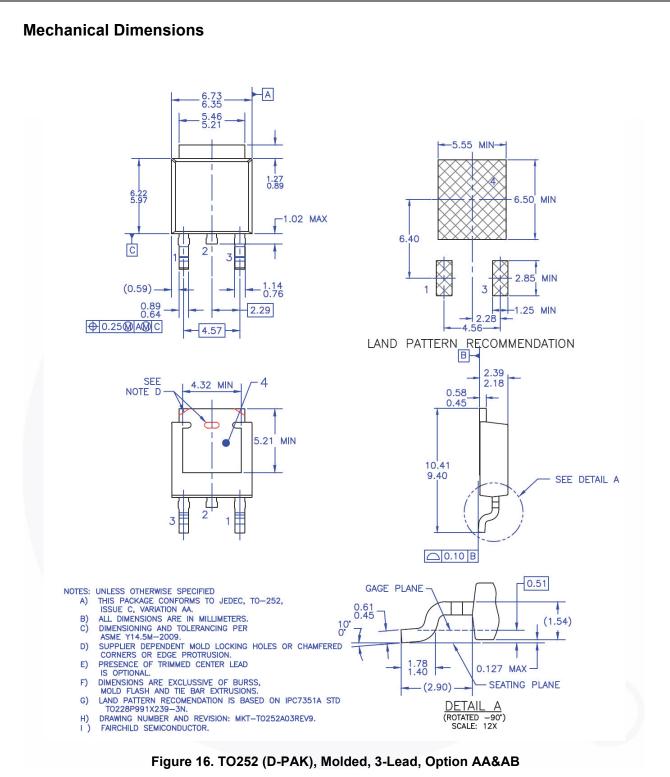
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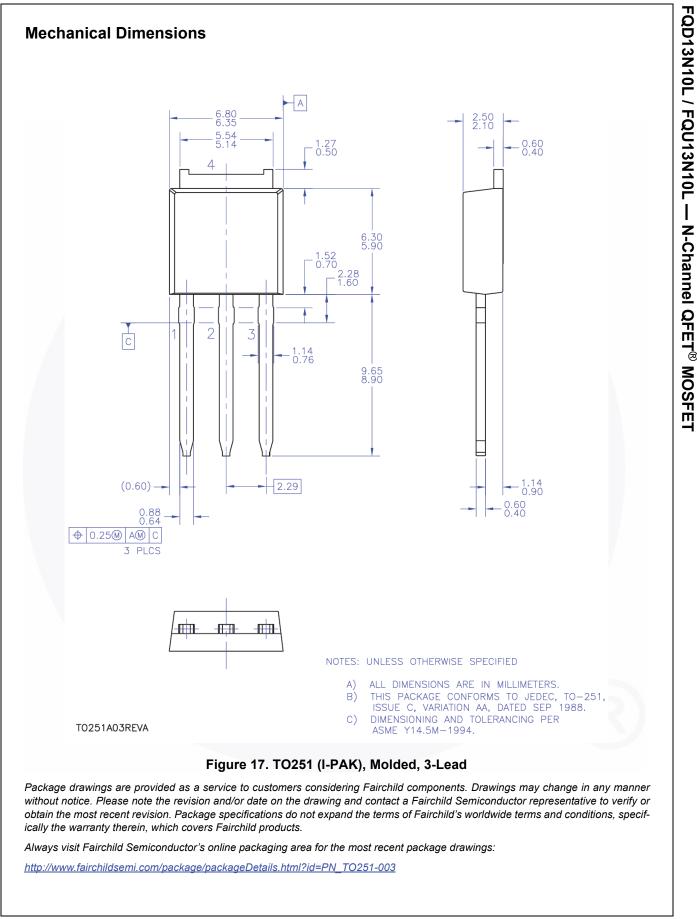


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http://www.fairchildsemi.com/package/packageDetails.html?id=PN_TT252-003

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No Identification Needed

Obsolete

Full Production

Not In Production

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Datasheet contains specifications on a product that is discontinued by Fairchild

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Rev. 166

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