

CMPT3904 CMPT3904G\* NPN  
 CMPT3906 CMPT3906G\* PNP

**SURFACE MOUNT SILICON  
 COMPLEMENTARY TRANSISTORS**



**SOT-23 CASE**

\* Device is **Halogen Free** by design



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

These CENTRAL SEMICONDUCTOR devices are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose amplifier and switching applications.

**MARKING CODES:** CMPT3904: C1A  
 CMPT3906: C2A  
 CMPT3904G\*: CG1  
 CMPT3906G\*: CG2

**MAXIMUM RATINGS:** (T<sub>A</sub>=25°C)

Collector-Base Voltage  
 Collector-Emitter Voltage  
 Emitter-Base Voltage  
 Continuous Collector Current  
 Power Dissipation  
 Operating and Storage Junction Temperature  
 Thermal Resistance

SYMBOL	CMPT3904	CMPT3906	UNITS
	CMPT3904G*	CMPT3906G*	
V <sub>CBO</sub>	60	40	V
V <sub>CEO</sub>	40	40	V
V <sub>EBO</sub>	6.0	5.0	V
I <sub>C</sub>		200	mA
P <sub>D</sub>		350	mW
T <sub>J</sub> , T <sub>stg</sub>	-65 to +150		°C
θ <sub>JA</sub>	357		°C/W

**ELECTRICAL CHARACTERISTICS:** (T<sub>A</sub>=25°C)

SYMBOL	TEST CONDITIONS
I <sub>CEV</sub>	V <sub>CE</sub> =30V, V <sub>EB</sub> =3.0V
I <sub>BL</sub>	V <sub>CE</sub> =30V, V <sub>EB</sub> =3.0V
BV <sub>CBO</sub>	I <sub>C</sub> =10μA
BV <sub>CEO</sub>	I <sub>C</sub> =1.0mA
BV <sub>EBO</sub>	I <sub>E</sub> =10μA
V <sub>CE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA
V <sub>CE(SAT)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA
V <sub>BE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA
V <sub>BE(SAT)</sub>	I <sub>C</sub> =50mA, I <sub>B</sub> =5.0mA
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =0.1mA
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =1.0mA
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =10mA
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =50mA
h <sub>FE</sub>	V <sub>CE</sub> =1.0V, I <sub>C</sub> =100mA

SYMBOL	CMPT3904 CMPT3904G*		CMPT3906 CMPT3906G*		UNITS
	MIN	MAX	MIN	MAX	
I <sub>CEV</sub>	-	50	-	50	nA
I <sub>BL</sub>	-	50	-	50	nA
BV <sub>CBO</sub>	60	-	40	-	V
BV <sub>CEO</sub>	40	-	40	-	V
BV <sub>EBO</sub>	6.0	-	5.0	-	V
V <sub>CE(SAT)</sub>	-	0.20	-	0.25	V
V <sub>CE(SAT)</sub>	-	0.30	-	0.40	V
V <sub>BE(SAT)</sub>	0.65	0.85	0.65	0.85	V
V <sub>BE(SAT)</sub>	-	0.95	-	0.95	V
h <sub>FE</sub>	40	-	60	-	
h <sub>FE</sub>	70	-	80	-	
h <sub>FE</sub>	100	350	100	300	
h <sub>FE</sub>	60	-	60	-	
h <sub>FE</sub>	30	-	30	-	

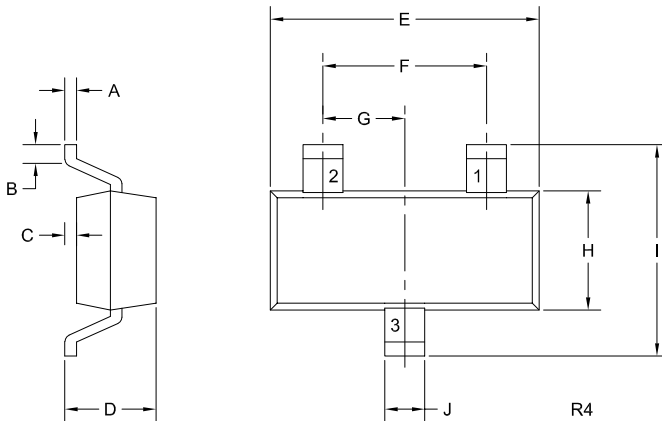
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ELECTRICAL CHARACTERISTICS - Continued: ( $T_A=25^\circ\text{C}$ )		CMPT3904		CMPT3906		UNITS
		MIN	MAX	MIN	MAX	
SYMBOL	TEST CONDITIONS					
$f_T$	$V_{CE}=20\text{V}$ , $I_C=10\text{mA}$ , $f=100\text{MHz}$	300	-	250	-	MHz
$C_{ob}$	$V_{CB}=5.0\text{V}$ , $I_E=0$ , $f=1.0\text{MHz}$	-	4.0	-	4.5	pF
$C_{ib}$	$V_{BE}=0.5\text{V}$ , $I_C=0$ , $f=1.0\text{MHz}$	-	12	-	12	pF
$t_d$	$V_{CC}=3.0\text{V}$ , $V_{BE}=0.5$ , $I_C=10\text{mA}$ , $I_{B1}=1.0\text{mA}$	-	35	-	35	ns
$t_r$	$V_{CC}=3.0\text{V}$ , $V_{BE}=0.5$ , $I_C=10\text{mA}$ , $I_{B1}=1.0\text{mA}$	-	35	-	35	ns
$t_s$	$V_{CC}=3.0\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=I_{B2}=1.0\text{mA}$	-	170	-	170	ns
$t_f$	$V_{CC}=3.0\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=I_{B2}=1.0\text{mA}$	-	80	-	80	ns

**SOT-23 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.003	0.007	0.08	0.18
B	0.006	-	0.15	-
C	-	0.005	-	0.13
D	0.035	0.044	0.89	1.12
E	0.110	0.120	2.80	3.05
F	0.075		1.90	
G	0.037		0.95	
H	0.047	0.055	1.19	1.40
I	0.083	0.104	2.10	2.64
J	0.014	0.020	0.35	0.50

SOT-23 (REV: R4)

**LEAD CODE:**

- 1) Base
- 2) Emitter
- 3) Collector

**MARKING CODES:**

**CMPT3904: C1A**  
**CMPT3906: C2A**  
**CMPT3904G\*: CG1**  
**CMPT3906G\*: CG2**

\* Device is *Halogen Free* by design

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

#### Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.  
145 Adams Avenue  
Hauppauge, NY 11788 USA  
Main Tel: (631) 435-1110  
Main Fax: (631) 435-1824  
Support Team Fax: (631) 435-3388  
[www.centrasemi.com](http://www.centrasemi.com)

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[www.centrasemi.com/wwreps](http://www.centrasemi.com/wwreps)

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