



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:** ( $T_A=25^\circ\text{C}$ )

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*	
$V_{CBO}$	60	40	V
$V_{CEO}$	40	40	V
$V_{EBO}$	6.0	5.0	V
$I_C$		200	mA
$P_D$		350	mW
$T_J, T_{stg}$	-65 to +150		$^\circ\text{C}$
$\theta_{JA}$	357		$^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$ )

SYMBOL	TEST CONDITIONS
$I_{CEV}$	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$
$I_{BL}$	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$
$BV_{CBO}$	$I_C=10\mu\text{A}$
$BV_{CEO}$	$I_C=1.0\text{mA}$
$BV_{EBO}$	$I_E=10\mu\text{A}$
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=50\text{mA}$
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$

SYMBOL	CMPT3904 CMPT3904G*		CMPT3906 CMPT3906G*		UNITS
	MIN	MAX	MIN	MAX	
$I_{CEV}$	-	50	-	50	nA
$I_{BL}$	-	50	-	50	nA
$BV_{CBO}$	60	-	40	-	V
$BV_{CEO}$	40	-	40	-	V
$BV_{EBO}$	6.0	-	5.0	-	V
$V_{CE(SAT)}$	-	0.20	-	0.25	V
$V_{CE(SAT)}$	-	0.30	-	0.40	V
$V_{BE(SAT)}$	0.65	0.85	0.65	0.85	V
$V_{BE(SAT)}$	-	0.95	-	0.95	V
$h_{FE}$	40	-	60	-	
$h_{FE}$	70	-	80	-	
$h_{FE}$	100	300	100	300	
$h_{FE}$	60	-	60	-	
$h_{FE}$	30	-	30	-	

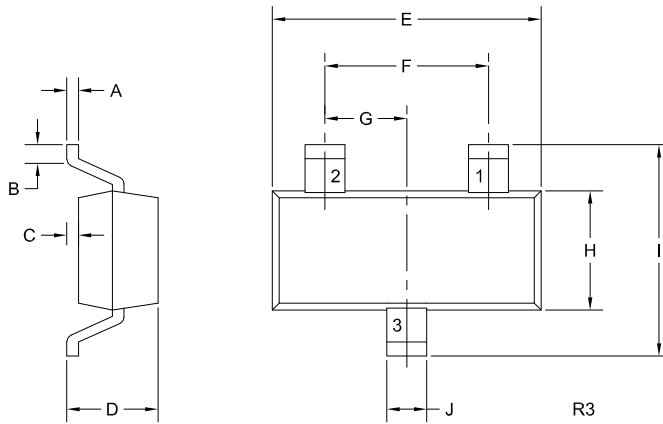
CMPT3904 CMPT3904G\* NPN  
 CMPT3906 CMPT3906G\* PNP

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 COMPLEMENTARY TRANSISTORS**



ELECTRICAL CHARACTERISTICS - Continued: (T <sub>A</sub> =25°C)		CMPT3904 CMPT3904G*		CMPT3906 CMPT3906G*		UNITS
		MIN	MAX	MIN	MAX	
f <sub>T</sub>	V <sub>CE</sub> =20V, I <sub>C</sub> =10mA, f=100MHz	300	-	250	-	MHz
C <sub>ob</sub>	V <sub>CB</sub> =5.0V, I <sub>E</sub> =0, f=1.0MHz	-	4.0	-	4.5	pF
C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz	-	12	-	10	pF
h <sub>ie</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	1.0	10	2.0	12	kΩ
h <sub>re</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	0.5	8.0	0.1	10	x10 <sup>-4</sup>
h <sub>fe</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	100	400	100	400	
h <sub>oe</sub>	V <sub>CE</sub> =10V, I <sub>C</sub> =1.0mA, f=1.0kHz	1.0	40	3.0	60	μS
NF	V <sub>CE</sub> =5.0V, I <sub>C</sub> =100μA, R <sub>S</sub> =1.0kΩ, f=10Hz to 15.7kHz	-	5.0	-	4.0	dB
t <sub>d</sub>	V <sub>CC</sub> =3.0V, V <sub>BE</sub> =0.5, I <sub>C</sub> =10mA, I <sub>B1</sub> =1.0mA	-	35	-	35	ns
t <sub>r</sub>	V <sub>CC</sub> =3.0V, V <sub>BE</sub> =0.5, I <sub>C</sub> =10mA, I <sub>B1</sub> =1.0mA	-	35	-	35	ns
t <sub>s</sub>	V <sub>CC</sub> =3.0V, I <sub>C</sub> =10mA, I <sub>B1</sub> =I <sub>B2</sub> =1.0mA	-	200	-	225	ns
t <sub>f</sub>	V <sub>CC</sub> =3.0V, I <sub>C</sub> =10mA, I <sub>B1</sub> =I <sub>B2</sub> =1.0mA	-	50	-	75	ns

**SOT-23 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
A	0.003	0.007	0.08	0.18
B	0.006	-	0.15	-
C	-	0.005	-	0.13
D	0.035	0.043	0.89	1.09
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	0.098	2.10	2.49
J	0.014	0.020	0.35	0.50

SOT-23 (REV: R3)

**LEAD CODE:**

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

**MARKING CODES:**

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

\* Device is *Halogen Free* by design

R8 (21-September 2018)

## 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

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