

CMPT3904 CMPT3904G* NPN
 CMPT3906 CMPT3906G* PNP

**SURFACE MOUNT
 COMPLEMENTARY
 SILICON TRANSISTORS**



SOT-23 CASE

* Device is *Halogen Free* by design



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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		$^\circ\text{C}$
θ_{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	-	

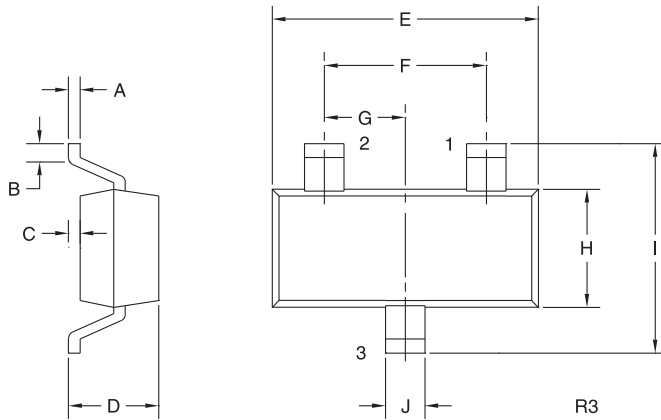
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ELECTRICAL CHARACTERISTICS - Continued: (T _A =25°C)		CMPT3904 CMPT3904G*		CMPT3906 CMPT3906G*		UNITS
		MIN	MAX	MIN	MAX	
f _T	V _{CE} =20V, I _C =10mA, f=100MHz	300	-	250	-	MHz
C _{ob}	V _{CB} =5.0V, I _E =0, f=1.0MHz	-	4.0	-	4.5	pF
C _{ib}	V _{BE} =0.5V, I _C =0, f=1.0MHz	-	8.0	-	10	pF
h _{ie}	V _{CE} =10V, I _C =1.0mA, f=1.0kHz	1.0	10	2.0	12	kΩ
h _{re}	V _{CE} =10V, I _C =1.0mA, f=1.0kHz	0.5	8.0	0.1	10	x10 ⁻⁴
h _{fe}	V _{CE} =10V, I _C =1.0mA, f=1.0kHz	100	400	100	400	
h _{oe}	V _{CE} =10V, I _C =1.0mA, f=1.0kHz	1.0	40	3.0	60	μS
NF	V _{CE} =5.0V, I _C =100μA, R _S =1.0kΩ, f=10Hz to 15.7kHz	-	5.0	-	4.0	dB
t _d	V _{CC} =3.0V, V _{BE} =0.5, I _C =10mA, I _{B1} =1.0mA	-	35	-	35	ns
t _r	V _{CC} =3.0V, V _{BE} =0.5, I _C =10mA, I _{B1} =1.0mA	-	35	-	35	ns
t _s	V _{CC} =3.0V, I _C =10mA, I _{B1} =I _{B2} =1.0mA	-	200	-	225	ns
t _f	V _{CC} =3.0V, I _C =10mA, I _{B1} =I _{B2} =1.0mA	-	50	-	75	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	0.043	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:

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R7 (1-February 2010)