

CMPT3904 NPN  
CMPT3906 PNP

COMPLEMENTARY  
SILICON TRANSISTORS



SOT-23 CASE

**Central**<sup>TM</sup>  
Semiconductor Corp.

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPT3904, CMPT3906 types 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 are C1A, C2A  
Respectively.**

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

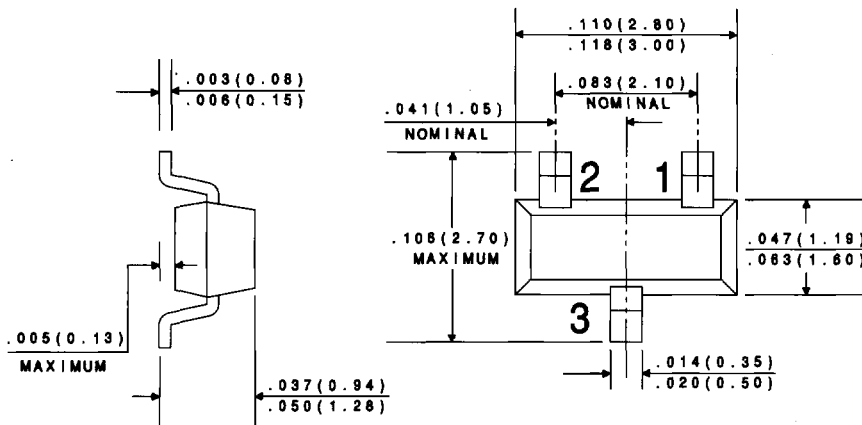
	SYMBOL	CMPT3904	CMPT3906	UNITS
Collector-Base Voltage	$V_{CBO}$	60	40	V
Collector-Emitter Voltage	$V_{CEO}$	40	40	V
Emitter-Base Voltage	$V_{EBO}$	6.0	5.0	V
Collector Current	$I_C$	200		mA
Power Dissipation	$P_D$	350		mW
Operating and Storage Junction Temperature	$T_J, T_{stg}$	-65 to +150		$^\circ\text{C}$
Thermal Resistance	$\Theta_{JA}$	357		$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	CMPT3904		CMPT3906		UNITS
		MIN	MAX	MIN	MAX	
$I_{CEV}$	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$		50		50	nA
$I_{BL}$	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$		50			nA
$BV_{CBO}$	$I_C=10\mu\text{A}$	60		40		V
$BV_{CEO}$	$I_C=1.0\text{mA}$	40		40		V
$BV_{EBO}$	$I_E=10\mu\text{A}$	6.0		5.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.20		0.25	V
$V_{CE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.30		0.40	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	0.65	0.85	0.65	0.85	V
$V_{BE(SAT)}$	$I_C=50\text{mA}, I_B=5.0\text{mA}$		0.95		0.95	V
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=0.1\text{mA}$	40		60		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=1.0\text{mA}$	70		80		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	100	300	100	300	
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=50\text{mA}$	60		60		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	30		30		

SYMBOL	TEST CONDITIONS	CMPT3904		CMPT3906		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	k $\Omega$
$h_{re}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	0.5	8.0	0.1	10	$\times 10^{-4}$
$h_{fe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	100	400	100	400	
$h_{oe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	1.0	40	3.0	60	$\mu mhos$
NF	$V_{CE}=5.0V, I_C=100mA, R_S=1.0k\Omega$ $f=10Hz$ 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

All dimensions in inches (mm).



DATA SHEET

LEAD CODE:

- 1) BASE
- 2) EMITTER
- 3) COLLECTOR

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