

CXT3904 NPN
CXT3906 PNP

SURFACE MOUNT
COMPLEMENTARY
SILICON TRANSISTORS



SOT-89 CASE

CentralTM
Semiconductor Corp.

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CXT3904, CXT3906 types are complementary silicon transistors manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications.

MARKING CODE: FULL PART NUMBER

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

	SYMBOL	CXT3904	CXT3906	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	1.2		W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +150		$^\circ\text{C}$
Thermal Resistance	θ_{JA}	104		$^\circ\text{C/W}$

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

SYMBOL	TEST CONDITIONS	CXT3904		CXT3906		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		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		

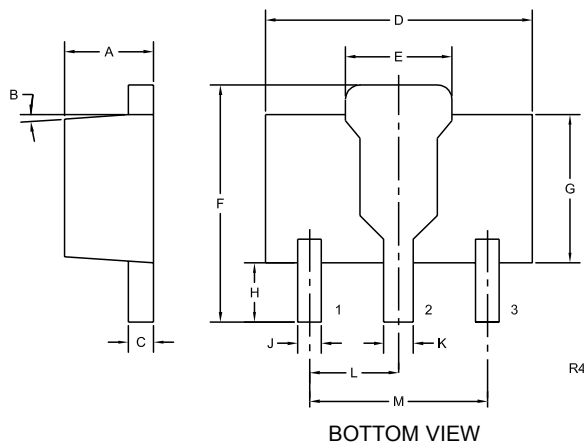
R6 (20-May 2004)

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

SYMBOL	TEST CONDITIONS	CXT3904		CXT3906		UNITS
		MIN	MAX	MIN	MAX	
h_{FE}	$V_{CE}=1.0\text{V}$, $I_C=100\text{mA}$	30		30		
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}	$V_{BE}=0.5\text{V}$, $I_C=0$, $f=1.0\text{MHz}$		8.0		10	pF
h_{ie}	$V_{CE}=10\text{V}$, $I_C=1.0\text{mA}$, $f=1.0\text{kHz}$	1.0	10	2.0	12	$k\Omega$
h_{re}	$V_{CE}=10\text{V}$, $I_C=1.0\text{mA}$, $f=1.0\text{kHz}$	0.5	8.0	0.1	10	$\times 10^{-4}$
h_{fe}	$V_{CE}=10\text{V}$, $I_C=1.0\text{mA}$, $f=1.0\text{kHz}$	100	400	100	400	
h_{oe}	$V_{CE}=10\text{V}$, $I_C=1.0\text{mA}$, $f=1.0\text{kHz}$	1.0	40	3.0	60	mmhos
NF	$V_{CE}=5.0\text{V}$, $I_C=100\mu\text{A}$, $R_S=1.0k\Omega$ $f=10\text{Hz}$ to 15.7kHz		5.0		4.0	dB
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	$V_{CC}=3.0\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1.0\text{mA}$		200		225	ns
t_f	$V_{CC}=3.0\text{V}$, $I_C=10\text{mA}$, $I_{B1}=I_{B2}=1.0\text{mA}$		50		75	ns

SOT-89 CASE - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.055	0.067	1.40	1.70
B	4°		4°	
C	0.014	0.018	0.35	0.46
D	0.173	0.185	4.40	4.70
E	0.064	0.074	1.62	1.87
F	0.146	0.177	3.70	4.50
G	0.090	0.106	2.29	2.70
H	0.028	0.051	0.70	1.30
J	0.014	0.019	0.36	0.48
K	0.017	0.023	0.44	0.58
L	0.059		1.50	
M	0.118		3.00	

SOT-89 (REV: R4)

LEAD CODE:

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

MARKING CODE: FULL PART NUMBER

R6 (20-May 2004)



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