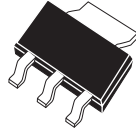


CZT3904 NPN  
CZT3906 PNP

COMPLEMENTARY  
SILICON TRANSISTORS



SOT-223 CASE

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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CZT3904, CZT3906 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	CZT3904	CZT3906	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	$P_D$		2.0	W
Operating and Storage				
Junction Temperature	$T_J, T_{stg}$	-65 to +150		$^\circ\text{C}$
Thermal Resistance	$\theta_{JA}$	62.5		$^\circ\text{C/W}$

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

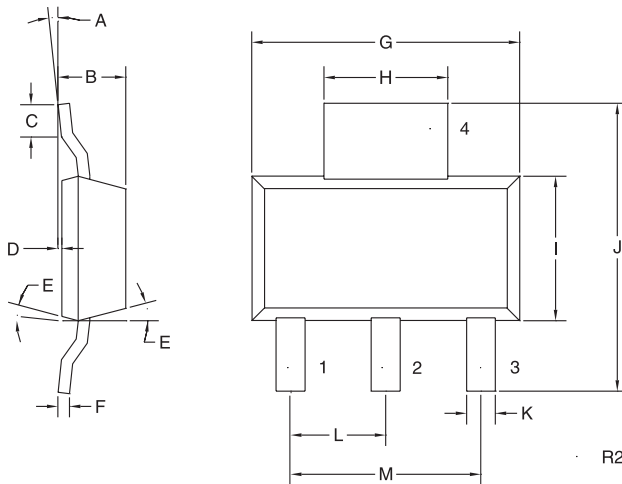
SYMBOL	TEST CONDITIONS	CZT3904		CZT3906		UNITS
		MIN	MAX	MIN	MAX	
$I_{CEV}$	$V_{CE}=30\text{V}, V_{EB}=3.0\text{V}$		50		50	nA
$BV_{CBO}$	$I_C=10\mu\text{A}$	60		40		V
$BV_{CEO}$	$I_C=1.0\text{mA}$	40		40		V
$BV_{EBO}$	$I_E=10\mu\text{A}$	6.0		5.0		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		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		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	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	$\text{k}\Omega$

R3 (26-September 2002)

COMPLEMENTARY  
SILICON TRANSISTORS

SYMBOL	TEST CONDITIONS	CZT3904		CZT3906		UNITS
		MIN	MAX	MIN	MAX	
$h_{re}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	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	$V_{CE}=5.0V, I_C=100\mu A, R_S=1.0k\Omega$ $f=10Hz$ to $15.7kHz$		5.0	4.0		dB
$t_d$	$V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA$		35	35		ns
$t_r$	$V_{CC}=3.0V, V_{BE}=0.5V, I_C=10mA, I_{B1}=1.0mA$		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-223 CASE - MECHANICAL OUTLINE



SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0°	7°	0°	7°
B	0.063	0.067	1.60	1.70
C	0.022		0.55	
D	0.001	0.004	0.03	0.10
E	15°		15°	
F	0.009	0.013	0.23	0.33
G	0.248	0.264	6.30	6.71
H	0.114	0.122	2.90	3.10
I	0.130	0.146	3.30	3.71
J	0.264	0.287	6.71	7.29
K	0.024	0.031	0.61	0.79
L	0.091		2.31	
M	0.181		4.60	

SOT-223 (REV: R2)

LEAD CODE:

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

MARKING CODE:

FULL PART NUMBER