

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

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Manufacturers of World Class Discrete Semiconductors

CMXT2222A

SURFACE MOUNT  
DUAL NPN SILICON TRANSISTOR

SOT-26 CASE

## DESCRIPTION:

The CENTRAL SEMICONDUCTOR CMXT2222A type is a dual NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a surface mount package, designed for small signal general purpose and switching applications. Marking Code is **X1P**.

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

	<u>SYMBOL</u>		<u>UNITS</u>
Collector-Base Voltage	$V_{CBO}$	75	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	6.0	V
Collector Current	$I_C$	600	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 PER TRANSISTOR: ( $T_A=25^\circ\text{C}$ unless otherwise noted)

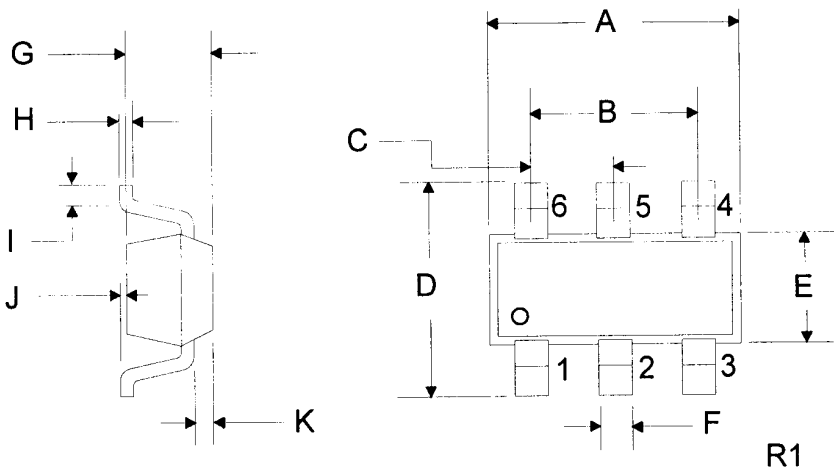
<u>SYMBOL</u>	<u>TEST CONDITIONS</u>	<u>MIN</u>	<u>MAX</u>	<u>UNITS</u>
$I_{CBO}$	$V_{CB}=60\text{V}$		10	nA
$I_{CBO}$	$V_{CB}=60\text{V}, T_A=125^\circ\text{C}$		10	$\mu\text{A}$
$I_{CEV}$	$V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$		10	nA
$I_{EBO}$	$V_{EB}=3.0\text{V}$		10	nA
$BV_{CBO}$	$I_C=10\mu\text{A}$	75		V
$BV_{CEO}$	$I_C=10\text{mA}$	40		V
$BV_{EBO}$	$I_E=10\mu\text{A}$	6.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.3	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		1.0	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	0.6	1.2	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$		2.0	V
$h_{FE}$	$V_{CE}=10\text{V}, I_C=0.1\text{mA}$	35		
$h_{FE}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	50		
$h_{FE}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75		
$h_{FE}$	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100	300	
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=150\text{mA}$	50		
$h_{FE}$	$V_{CE}=10\text{V}, I_C=500\text{mA}$	40		

ELECTRICAL CHARACTERISTICS PER TRANSISTOR: Continued

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$f_T$	$V_{CE}=20V, I_C=20mA, f=100MHz$	300		MHz
$C_{ob}$	$V_{CB}=10V, I_E=0, f=1.0MHz$		8.0	pF
$C_{ib}$	$V_{EB}=0.5V, I_C=0, f=1.0MHz$		25	pF
$h_{ie}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	2.0	8.0	k $\Omega$
$h_{ie}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	0.25	1.25	k $\Omega$
$h_{re}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$		8.0	$\times 10^{-4}$
$h_{re}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$		4.0	$\times 10^{-4}$
$h_{fe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	50	300	
$h_{fe}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	75	375	
$h_{oe}$	$V_{CE}=10V, I_C=1.0mA, f=1.0kHz$	5.0	35	$\mu$ mhos
$h_{oe}$	$V_{CE}=10V, I_C=10mA, f=1.0kHz$	25	200	$\mu$ mhos
$r_b' C_c$	$V_{CB}=10V, I_E=20mA, f=31.8MHz$		150	ps
NF	$V_{CE}=10V, I_C=100\mu A, R_S=1.0k\Omega, f=1.0kHz$		4.0	dB
$t_d$	$V_{CC}=30V, V_{BE}=0.5V, I_C=150mA, I_{B1}=15mA$		10	ns
$t_r$	$V_{CC}=30V, V_{BE}=0.5V, I_C=150mA, I_{B1}=15mA$		25	ns
$t_s$	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$		225	ns
$t_f$	$V_{CC}=30V, I_C=150mA, I_{B1}=I_{B2}=15mA$		60	ns

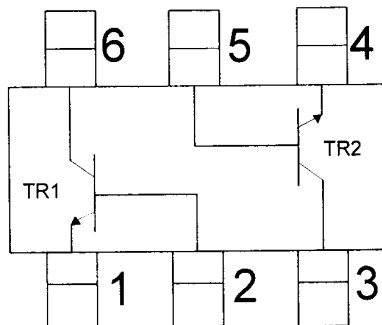
SOT-26 CASE - MECHANICAL OUTLINE

TOP VIEW



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.110	0.118	2.80	3.00
B	0.074	0.075	1.88	1.92
C	0.037	0.038	0.93	0.97
D	0.102	0.118	2.60	3.00
E	0.059	0.067	1.50	1.70
F	0.016	0.018	0.40	0.45
G	0.039	0.047	1.00	1.20
H	0.004	0.007	0.11	0.19
I	0.016	-	0.40	-
J	-	0.004	-	0.10
K	0.010	0.014	0.25	0.35

SOT-26 (REV: R1)



- Lead Code:
- 1) TR1 Emitter
  - 2) TR1 Base
  - 3) TR2 Collector
  - 4) TR2 Emitter
  - 5) TR2 Base
  - 6) TR1 Collector

R1