



**CMST2222A**

**SUPER-MINI  
NPN SILICON TRANSISTOR**

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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMST2222A type is an NPN silicon transistor manufactured by the epitaxial planar process, epoxy molded in a super-mini surface mount package, designed for small signal general purpose and switching applications.

**SUPER<sup>TM</sup>  
mini**



**SOT-323 CASE**

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

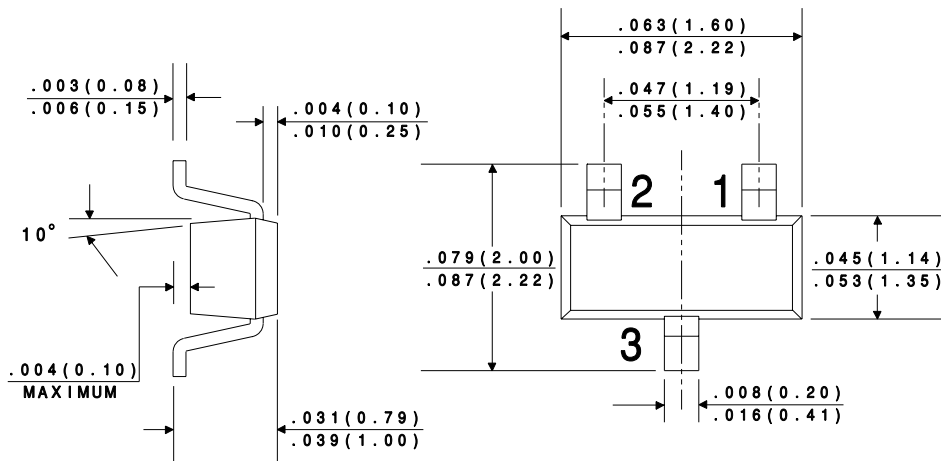
	<b>SYMBOL</b>		<b>UNITS</b>
Collector-Base Voltage	$V_{CBO}$	75	V
Collector-Emitter Voltage	$V_{CEO}$	40	V
Emitter-Base Voltage	$V_{EBO}$	6.0	V
Collector Current	$I_C$	600	mA
Power Dissipation	$P_D$	250	mW
Operating and Storage			
Junction Temperature	$T_J, T_{stg}$	-65 to +150	$^\circ\text{C}$
Thermal Resistance	$\theta_{JA}$	500	$^\circ\text{C}/\text{W}$

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

<b>SYMBOL</b>	<b>TEST CONDITIONS</b>	<b>MIN</b>	<b>MAX</b>	<b>UNITS</b>
$I_{CBO}$	$V_{CB}=60\text{V}$		10	nA
$I_{CBO}$	$V_{CB}=60\text{V}, T_A=125^\circ\text{C}$		10	$\mu\text{A}$
$I_{EBO}$	$V_{EB}=3.0\text{V}$		10	nA
$I_{CEV}$	$V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$		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		

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$h_{FE}$	$V_{CE}=10V, I_C=150mA$	100	300	
$h_{FE}$	$V_{CE}=1.0V, I_C=150mA$	50		
$h_{FE}$	$V_{CE}=10V, I_C=500mA$	40		
$f_T$	$V_{CE}=20V, I_C=20mA, f=100MHz$	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	$V_{CE}=10V, I_C=100mA, R_S=1.0k\Omega, f=1.0kHz$		4.0	dB
$t_d$	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		10	ns
$t_r$	$V_{CC}=30V, V_{BE}=0.5, I_C=150mA, I_{B1}=15mA$		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

All dimensions in inches (mm).



LEAD CODE:

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

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