

CMST5088  
CMST5089

**SUPERmini™  
SURFACE MOUNT  
NPN SILICON TRANSISTORS**

**SUPERmini™**



**SOT-323 CASE**

**Central™  
Semiconductor Corp.**

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMST5088, CMST5089 types are NPN silicon transistors manufactured by the epitaxial planar process, epoxy molded in a SUPERmini™ surface mount package, designed for applications requiring high gain and low noise. Marking Codes are 1QC, 1RC respectively.

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

	<b>SYMBOL</b>	<b>CMST5088</b>	<b>CMST5089</b>	<b>UNITS</b>
Collector-Base Voltage	$V_{CBO}$	35	30	V
Collector-Emitter Voltage	$V_{CEO}$	30	25	V
Emitter-Base Voltage	$V_{EBO}$	4.5		V
Collector Current	$I_C$	50		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		$^\circ\text{C/W}$

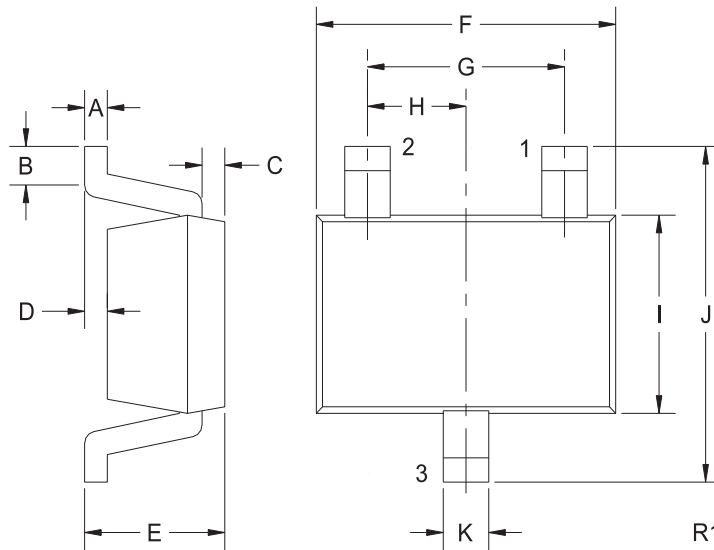
**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

<b>SYMBOL</b>	<b>TEST CONDITIONS</b>	<b>CMST5088</b>		<b>CMST5089</b>		<b>UNITS</b>
		<b>MIN</b>	<b>MAX</b>	<b>MIN</b>	<b>MAX</b>	
$I_{CBO}$	$V_{CB}=20\text{V}$		50			nA
$I_{CBO}$	$V_{CB}=15\text{V}$			50		nA
$I_{EBO}$	$V_{EB}=3.0\text{V}$		50			nA
$I_{EBO}$	$V_{EB}=4.5\text{V}$			100		nA
$BV_{CBO}$	$I_C=100\mu\text{A}$	35		30		V
$BV_{CEO}$	$I_C=1.0\text{mA}$	30		25		V
$BV_{EBO}$	$I_E=100\mu\text{A}$	4.5		4.5		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.5		0.5	V
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		0.8		0.8	V
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=0.1\text{mA}$	300	900	400	1200	
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}$	350		450		
$h_{FE}$	$V_{CE}=5.0\text{V}, I_C=10\text{mA}$	300		400		
$f_T$	$V_{CE}=5.0\text{V}, I_C=500\mu\text{A}, f=20\text{MHz}$	50		50		MHz
$C_{ob}$	$V_{CB}=5.0\text{V}, I_E=0, f=1.0\text{MHz}$		4.0		4.0	pF
$C_{ib}$	$V_{BE}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$		15		15	pF
$h_{fe}$	$V_{CE}=5.0\text{V}, I_C=1.0\text{mA}, f=1.0\text{kHz}$	350	1400	450	1800	
NF	$V_{CE}=5.0\text{V}, I_C=100\mu\text{A}, R_S=10\text{k}\Omega$ $f=10\text{Hz to } 15.7\text{kHz}$		3.0		2.0	dB

R1 ( 19-September 2001)

**SUPERmini**<sup>TM</sup>  
**SURFACE MOUNT**  
**NPN SILICON TRANSISTORS**

**SOT-323 CASE - MECHANICAL OUTLINE**



LEAD CODE:

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

**MARKING CODE:**  
CMST5088 - 1QC  
CMST5089 - 1RC

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.004	0.008	0.10	0.20
B	0.004	-	0.10	-
C	0.004	0.008	0.10	0.20
D	-	0.004	-	0.10
E	0.031	0.043	0.80	1.10
F	0.071	0.087	1.80	2.20
G	0.051		1.30	
H	0.026		0.65	
I	0.045	0.053	1.15	1.35
J	0.079	0.087	2.00	2.20
K	0.008	0.016	0.20	0.40

SOT-323 (REV: R1)

R1 ( 19-September 2001)