

CMST5088  
CMST5089

SURFACE MOUNT  
NPN SILICON TRANSISTOR

SUPERmini™



SOT-323 CASE

**Central**  
Semiconductor Corp.

www.centrasemi.com

**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: CMST5088: 1QC  
CMST5089: 1RC**

**MAXIMUM RATINGS:** (T<sub>A</sub>=25°C)

Collector-Base Voltage  
Collector-Emitter Voltage  
Emitter-Base Voltage  
Continuous Collector Current  
Power Dissipation  
Operating and Storage Junction Temperature  
Thermal Resistance

SYMBOL	CMST5088	CMST5089	UNITS
V <sub>CBO</sub>	35	30	V
V <sub>CEO</sub>	30	25	V
V <sub>EBO</sub>		4.5	V
I <sub>C</sub>		50	mA
P <sub>D</sub>		275	mW
T <sub>J</sub> , T <sub>stg</sub>		-65 to +150	°C
θ <sub>JA</sub>		455	°C/W

**ELECTRICAL CHARACTERISTICS:** (T<sub>A</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	CMST5088		CMST5089		UNITS
		MIN	MAX	MIN	MAX	
I <sub>CBO</sub>	V <sub>CB</sub> =20V	-	50	-	-	nA
I <sub>CBO</sub>	V <sub>CB</sub> =15V	-	-	-	50	nA
I <sub>EBO</sub>	V <sub>EB</sub> =3.0V	-	50	-	-	nA
I <sub>EBO</sub>	V <sub>EB</sub> =4.5V	-	-	-	100	nA
BV <sub>CBO</sub>	I <sub>C</sub> =100μA	35	-	30	-	V
BV <sub>CEO</sub>	I <sub>C</sub> =1.0mA	30	-	25	-	V
BV <sub>EBO</sub>	I <sub>E</sub> =100μA	4.5	-	4.5	-	V
V <sub>CE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA	-	0.5	-	0.5	V
V <sub>BE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA	-	0.8	-	0.8	V
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =0.1mA	300	900	400	1200	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =1.0mA	350	-	450	-	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10mA	300	-	400	-	
f <sub>T</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =500μA, f=20MHz	50	-	50	-	MHz
C <sub>ob</sub>	V <sub>CB</sub> =5.0V, I <sub>E</sub> =0, f=1.0MHz	-	4.0	-	4.0	pF
C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz	-	15	-	15	pF
h <sub>fe</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =1.0mA, f=1.0kHz	350	1400	450	1800	
NF	V <sub>CE</sub> =5.0V, I <sub>C</sub> =100μA, R <sub>S</sub> =10kΩ f=10Hz to 15.7kHz	-	3.0	-	2.0	dB

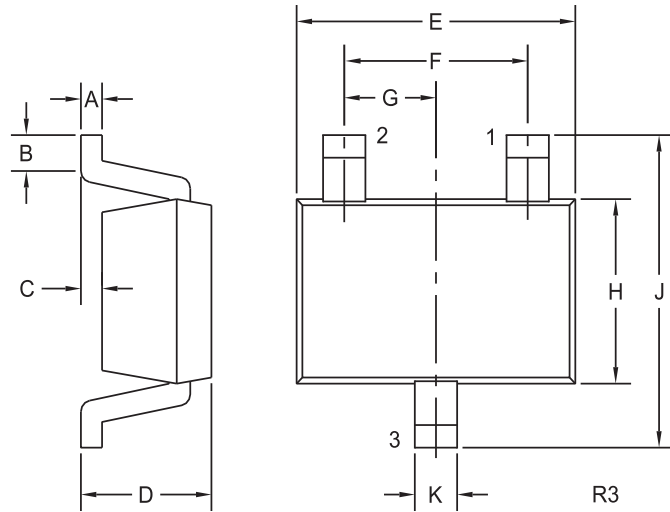
R4 (9-February 2010)

CMST5088  
 CMST5089

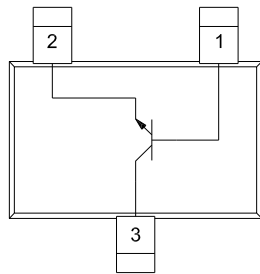
SURFACE MOUNT  
 NPN SILICON TRANSISTOR



SOT-323 CASE - MECHANICAL OUTLINE



PIN CONFIGURATION



LEAD CODE:

- 1) Base
- 2) Emitter
- 3) Collector

MARKING CODES:

CMST5088: 1QC  
 CMST5089: 1RC

SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.002	0.008	0.05	0.20
B	0.004	-	0.10	-
C	-	0.004	-	0.10
D	0.031	0.043	0.80	1.10
E	0.071	0.087	1.80	2.20
F	0.051		1.30	
G	0.026		0.65	
H	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: R3)

R4 (9-February 2010)

## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

- Free quick ship samples (2<sup>nd</sup> day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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### REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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### CONTACT US

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