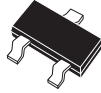


CMPT5088  
CMPT5089

SURFACE MOUNT  
NPN SILICON TRANSISTORS



SOT-23 CASE

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

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMPT5088, CMPT5089 types are NPN 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 Codes are C1Q, C1R respectively.

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

|                           | <u>SYMBOL</u>  | <u>CMPT5088</u> | <u>CMPT5089</u> | <u>UNITS</u>       |
|---------------------------|----------------|-----------------|-----------------|--------------------|
| Collector-Base Voltage    | $V_{CB0}$      | 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         | $P_D$          | 350             |                 | mW                 |
| Operating and Storage     |                |                 |                 |                    |
| Junction Temperature      | $T_J, T_{stg}$ | -65 to +150     |                 | $^\circ\text{C}$   |
| Thermal Resistance        | $\theta_{JA}$  | 357             |                 | $^\circ\text{C/W}$ |

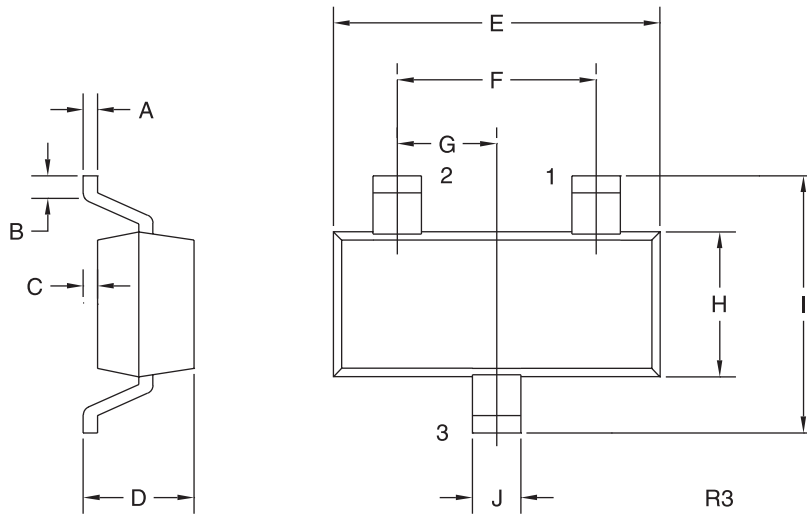
**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

| <u>SYMBOL</u> | <u>TEST CONDITIONS</u>   | <u>CMPT5088</u> |            | <u>CMPT5089</u> |            | <u>UNITS</u> |
|---------------|--|-----------------|------------|-----------------|------------|--------------|
|               |  | <u>MIN</u>      | <u>MAX</u> | <u>MIN</u>      | <u>MAX</u> |              |
| $I_{CBO}$     | $V_{CB}=20\text{V}$  |                 | 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            | $V_{CE}=5.0\text{V}, I_C=100\mu\text{A}, R_S=10\text{k}\Omega$<br>$f=10\text{Hz to } 15.7\text{kHz}$ |                 | 3.0        |                 | 2.0        | dB           |

R4 ( 2 -October 2001)

**SURFACE MOUNT  
NPN SILICON TRANSISTORS**

**SOT-23 CASE - MECHANICAL OUTLINE**



LEAD CODE:

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

**MARKING CODE:**  
CMPT5088 - C1Q  
CMPT5089 - C1R

| SYMBOL | DIMENSIONS |       |             |      |
|--------|------------|-------|-------------|------|
|        | INCHES     |       | MILLIMETERS |      |
|        | MIN        | MAX   | MIN         | MAX  |
| A      | 0.003      | 0.007 | 0.08        | 0.18 |
| B      | 0.006      | -     | 0.15        | -    |
| C      | -          | 0.005 | -           | 0.13 |
| D      | 0.035      | 0.043 | 0.89        | 1.09 |
| E      | 0.110      | 0.120 | 2.80        | 3.05 |
| F      | 0.075      |       | 1.90        |      |
| G      | 0.037      |       | 0.95        |      |
| H      | 0.047      | 0.055 | 1.19        | 1.40 |
| I      | 0.083      | 0.098 | 2.10        | 2.49 |
| J      | 0.014      | 0.020 | 0.35        | 0.50 |

SOT-23 (REV: R3)