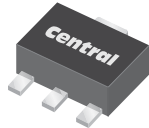


CQ89-2M  
CQ89-2N

SURFACE MOUNT  
2 AMP SILICON TRIAC  
600 THRU 800 VOLTS



SOT-89 CASE



www.centrasemi.com

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CQ89-2M series type is an Epoxy Molded Silicon Triac designed for full wave AC control applications featuring gate triggering in all four (4) quadrants.

**MARKING: FULL PART NUMBER**

| <b>MAXIMUM RATINGS:</b> ( $T_C=25^\circ\text{C}$ unless otherwise noted) |  | <b>SYMBOL</b> | <b>CQ89-2M</b> | <b>CQ89-2N</b> | <b>UNITS</b>         |
|--|--|---------------|----------------|----------------|----------------------|
| Peak Repetitive Off-State Voltage  |  | $V_{DRM}$     | 600            | 800            | V                    |
| RMS On-State Current ( $T_C=50^\circ\text{C}$ )                          |  | $I_{T(RMS)}$  | 2.0            |                | A                    |
| Peak One Cycle Surge, $t=10\text{ms}$                                    |  | $I_{TSM}$     | 20             |                | A                    |
| $I^2t$ Value for Fusing, $t=10\text{ms}$                                 |  | $I^2t$        | 2.0            |                | $\text{A}^2\text{s}$ |
| Peak Gate Power, $t_p=10\mu\text{s}$                                     |  | $P_{GM}$      | 3.0            |                | W                    |
| Average Gate Power Dissipation   |  | $P_{G(AV)}$   | 0.2            |                | W                    |
| Peak Gate Current, $t_p=10\mu\text{s}$                                   |  | $I_{GM}$      | 1.2            |                | A                    |
| Peak Gate Voltage, $t_p=10\mu\text{s}$                                   |  | $V_{GM}$      | 8.0            |                | V                    |
| Operating Junction Temperature   |  | $T_J$         | -40 to +125    |                | $^\circ\text{C}$     |
| Storage Temperature  |  | $T_{stg}$     | -40 to +150    |                | $^\circ\text{C}$     |
| Thermal Resistance   |  | $\theta_{JA}$ | 180            |                | $^\circ\text{C/W}$   |
| Thermal Resistance   |  | $\theta_{JC}$ | 90             |                | $^\circ\text{C/W}$   |

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

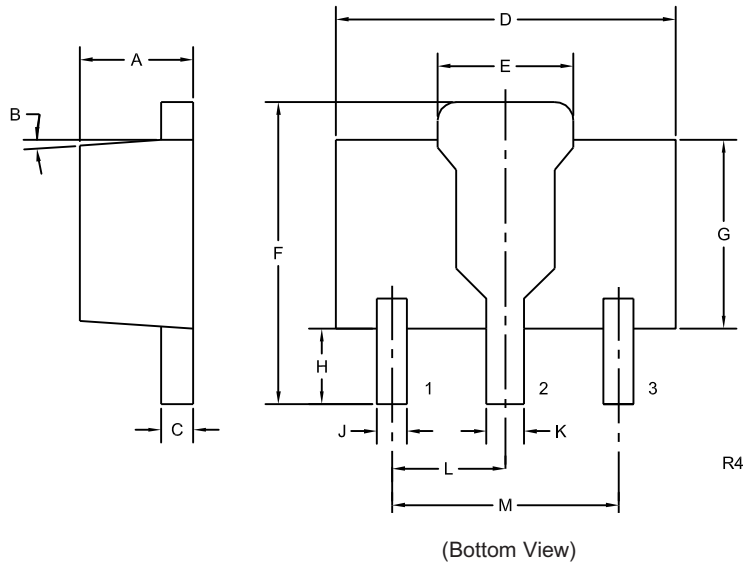
| <b>SYMBOL</b> | <b>TEST CONDITIONS</b>   | <b>MIN</b> | <b>TYP</b> | <b>MAX</b> | <b>UNITS</b>     |
|---------------|--|------------|------------|------------|------------------|
| $I_{DRM}$     | Rated $V_{DRM}$ , $R_{GK}=1\text{K}\Omega$                           |            |            | 5.0        | $\mu\text{A}$    |
| $I_{DRM}$     | Rated $V_{DRM}$ , $R_{GK}=1\text{K}\Omega$ , $T_C=125^\circ\text{C}$ |            |            | 200        | $\mu\text{A}$    |
| $I_{GT}$      | $V_D=12\text{V}$ , QUAD I, II, III                                   |            | 1.35       | 5.00       | mA               |
| $I_{GT}$      | $V_D=12\text{V}$ , QUAD IV   |            | 3.75       | 8.00       | mA               |
| $I_H$         | $R_{GK}=1\text{K}\Omega$   |            | 1.2        | 5.0        | mA               |
| $V_{GT}$      | $V_D=12\text{V}$ , QUAD I, II, III, IV                               |            | 1.1        | 1.8        | V                |
| $V_{TM}$      | $I_{TM}=2.0\text{A}$ , $t_p=380\mu\text{s}$                          |            | 1.50       | 1.75       | V                |
| $V_{TM}$      | $I_{TM}=3.0\text{A}$ , $t_p=380\mu\text{s}$                          |            | 1.7        | 2.0        | V                |
| dv/dt         | $V_D=2/3 V_{DRM}$ , $T_C=125^\circ\text{C}$                          | 2.5        |            |            | V/ $\mu\text{s}$ |

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SOT-89 CASE - MECHANICAL OUTLINE



LEAD CODE:

- 1) Gate
- 2) MT2
- 3) MT1

MARKING:

FULL PART NUMBER

| SYMBOL | INCHES |       | MILLIMETERS |      |
|--------|--------|-------|-------------|------|
|        | MIN    | MAX   | MIN         | MAX  |
| A      | 0.055  | 0.067 | 1.40        | 1.70 |
| B      | 4°     |       | 4°          |      |
| C      | 0.014  | 0.018 | 0.35        | 0.46 |
| D      | 0.173  | 0.185 | 4.40        | 4.70 |
| E      | 0.064  | 0.074 | 1.62        | 1.87 |
| F      | 0.146  | 0.177 | 3.70        | 4.50 |
| G      | 0.090  | 0.106 | 2.29        | 2.70 |
| H      | 0.028  | 0.051 | 0.70        | 1.30 |
| J      | 0.014  | 0.019 | 0.36        | 0.48 |
| K      | 0.017  | 0.023 | 0.44        | 0.58 |
| L      | 0.059  |       | 1.50        |      |
| M      | 0.118  |       | 3.00        |      |

SOT-89 (REV: R4)

R1 (12-February 2010)