

CQ223-2M  
CQ223-2N

**SURFACE MOUNT  
2 AMP SILICON TRIAC  
600 THRU 800 VOLTS**



**SOT-223 CASE**



[www.centrasemi.com](http://www.centrasemi.com)

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CQ223-2M 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>CQ223-2M</b> | <b>CQ223-2N</b> | <b>UNITS</b>         |
|--|----------------------|-----------------|-----------------|----------------------|
| Peak Repetitive Off-State Voltage  | $V_{\text{DRM}}$     | 600             | 800             | V                    |
| RMS On-State Current ( $T_C=80^\circ\text{C}$ )                          | $I_{\text{T(RMS)}}$  |                 | 2.0             | A                    |
| Peak One Cycle Surge, $t=10\text{ms}$                                    | $I_{\text{TSM}}$     |                 | 10              | A                    |
| $I^2t$ Value for Fusing, $t=10\text{ms}$                                 | $I^2t$               |                 | 0.5             | $\text{A}^2\text{s}$ |
| Peak Gate Power, $t_p=10\mu\text{s}$                                     | $P_{\text{GM}}$      |                 | 3.0             | W                    |
| Average Gate Power Dissipation   | $P_{\text{G(AV)}}$   |                 | 0.2             | W                    |
| Peak Gate Current, $t_p=10\mu\text{s}$                                   | $I_{\text{GM}}$      |                 | 1.2             | A                    |
| Operating Junction Temperature   | $T_{\text{J}}$       | -40 to +125     |                 | $^\circ\text{C}$     |
| Storage Temperature  | $T_{\text{stg}}$     | -40 to +150     |                 | $^\circ\text{C}$     |
| Thermal Resistance   | $\Theta_{\text{JA}}$ |                 | 62.5            | $^\circ\text{C/W}$   |

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

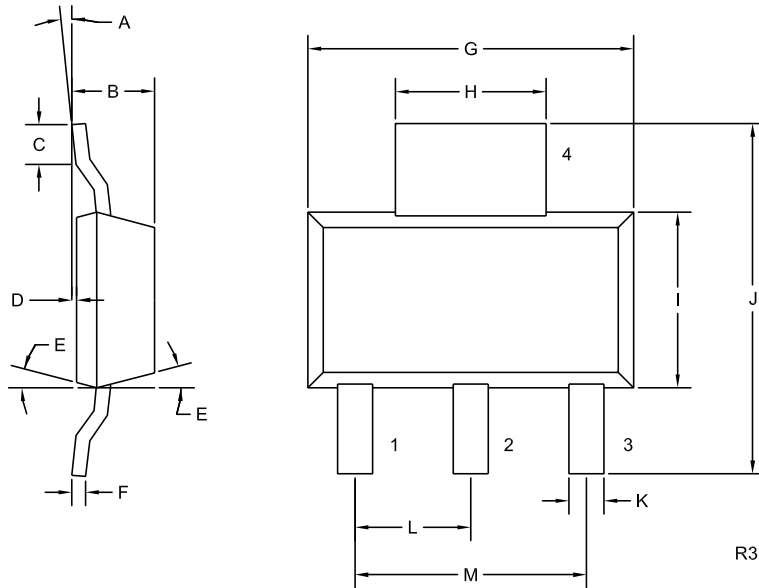
R1 (24-June 2010)

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**SOT-223 CASE - MECHANICAL OUTLINE**



**LEAD CODE:**

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

**MARKING:**

**FULL PART NUMBER**

| DIMENSIONS |        |       |             |      |
|------------|--------|-------|-------------|------|
| SYMBOL     | INCHES |       | MILLIMETERS |      |
|            | MIN    | MAX   | MIN         | MAX  |
| A          | 0°     | 10°   | 0°          | 10°  |
| B          | 0.059  | 0.071 | 1.50        | 1.80 |
| C          | 0.018  | --    | 0.45        | --   |
| D          | 0.000  | 0.004 | 0.00        | 0.10 |
| E          | 15°    |       | 15°         |      |
| F          | 0.009  | 0.014 | 0.23        | 0.35 |
| G          | 0.248  | 0.264 | 6.30        | 6.70 |
| H          | 0.114  | 0.122 | 2.90        | 3.10 |
| I          | 0.130  | 0.146 | 3.30        | 3.70 |
| J          | 0.264  | 0.287 | 6.70        | 7.30 |
| K          | 0.024  | 0.033 | 0.60        | 0.85 |
| L          | 0.091  |       | 2.30        |      |
| M          | 0.181  |       | 4.60        |      |

SOT-223 (REV: R3)

R1 (24-June 2010)