

CQ39BS  
CQ39DS  
CQ39MS  
CQ39NS

TRIAC  
4.0 AMP, 200 THRU 800 VOLTS



TO-39 CASE

# Central<sup>TM</sup>

Semiconductor Corp.

## DESCRIPTION:

The CENTRAL SEMICONDUCTOR CQ39BS series type is a hermetically sealed silicon Triac designed for full wave AC control applications featuring gate triggering in all four (4) quadrants.

**MARKING CODE: FULL PART NUMBER**

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

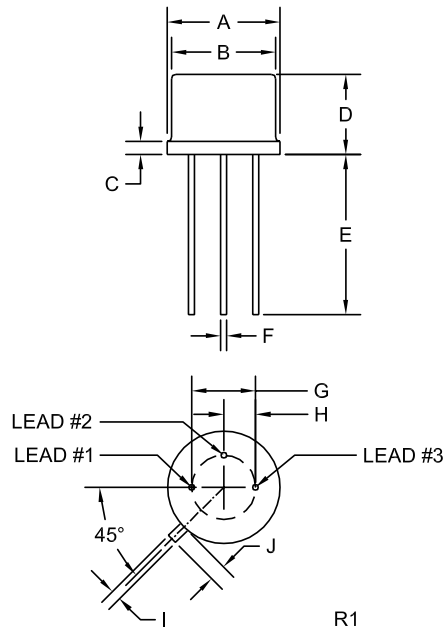
|                                                 | SYMBOL            | CQ39BS | CQ39DS      | CQ39MS | CQ39NS | UNITS                |
|-------------------------------------------------|-------------------|--------|-------------|--------|--------|----------------------|
| Peak Repetitive Off-State Voltage               | $V_{DRM}$         | 200    | 400         | 600    | 800    | V                    |
| RMS On-State Current ( $T_C=80^\circ\text{C}$ ) | $I_T(\text{RMS})$ |        | 4.0         |        |        | A                    |
| Peak One Cycle Surge ( $t=10\text{ms}$ )        | $I_{TSM}$         |        | 35          |        |        | 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                    |
| Storage Temperature                             | $T_{stg}$         |        | -40 to +150 |        |        | $^\circ\text{C}$     |
| Junction Temperature                            | $T_J$             |        | -40 to +125 |        |        | $^\circ\text{C}$     |
| Thermal Resistance                              | $\theta_{JA}$     |        | 160         |        |        | $^\circ\text{C/W}$   |
| Thermal Resistance                              | $\theta_{JC}$     |        | 9.0         |        |        | $^\circ\text{C/W}$   |

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

| SYMBOL    | TEST CONDITIONS                                                      | MIN | TYP | MAX  | UNITS                  |
|-----------|----------------------------------------------------------------------|-----|-----|------|------------------------|
| $I_{DRM}$ | Rated $V_{DRM}$ , $R_{GK}=1\text{K}\Omega$                           |     |     | 10   | $\mu\text{A}$          |
| $I_{DRM}$ | 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                                   |     | 2.5 | 5.0  | mA                     |
| $I_{GT}$  | $V_D=12\text{V}$ , QUAD IV                                           |     | 5.5 | 9.0  | mA                     |
| $I_H$     | $R_{GK}=1\text{K}\Omega$                                             |     | 1.6 | 5.0  | mA                     |
| $V_{GT}$  | $V_D=12\text{V}$ , QUAD I, II, III, IV                               |     |     | 2.0  | V                      |
| $V_{TM}$  | $I_{TM}=6.0\text{A}$ , $t_p=380\mu\text{s}$                          |     |     | 1.75 | V                      |
| $dv/dt$   | $V_D=2/3 V_{DRM}$ , $T_C=125^\circ\text{C}$                          | 11  |     |      | $\text{V}/\mu\text{s}$ |

R1 (18-August 2004)

TO-39 CASE - MECHANICAL OUTLINE



**LEAD CODE:**

- 1) MT1
- 2) GATE
- 3) MT2

**MARKING CODE:**

**FULL PART NUMBER**

| DIMENSIONS |        |       |             |      |
|------------|--------|-------|-------------|------|
| SYMBOL     | INCHES |       | MILLIMETERS |      |
|            | MIN    | MAX   | MIN         | MAX  |
| A (DIA)    | 0.335  | 0.370 | 8.51        | 9.40 |
| B (DIA)    | 0.315  | 0.335 | 8.00        | 8.51 |
| C          | -      | 0.040 | -           | 1.02 |
| D          | 0.240  | 0.260 | 6.10        | 6.60 |
| E          | 0.500  | -     | 12.70       | -    |
| F (DIA)    | 0.016  | 0.021 | 0.41        | 0.53 |
| G (DIA)    | 0.200  |       | 5.08        |      |
| H          | 0.100  |       | 2.54        |      |
| I          | 0.028  | 0.034 | 0.71        | 0.86 |
| J          | 0.029  | 0.045 | 0.74        | 1.14 |

TO-39 (REV: R1)

R1 (18-August 2004)