

CQ220-25B  
 CQ220-25D  
 CQ220-25M  
 CQ220-25N

25 AMP TRIAC  
 200 THRU 800 VOLTS



TO-220 CASE

# Central<sup>TM</sup>

Semiconductor Corp.

## DESCRIPTION:

The CENTRAL SEMICONDUCTOR CQ220-25B series type is an Epoxy Molded 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)

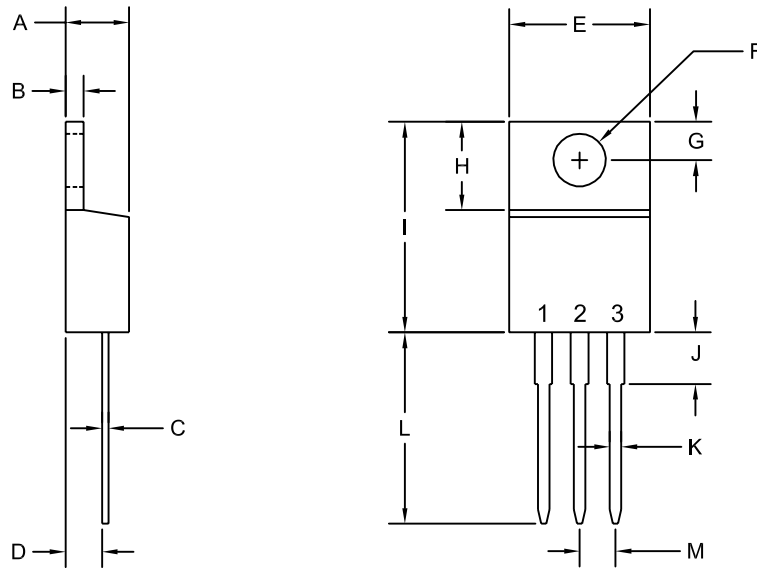
|   | SYMBOL            | CQ220<br>-25B | CQ220<br>-25D | CQ220<br>-25M | CQ220<br>-25N | UNITS                     |
|---|-------------------|---------------|---------------|---------------|---------------|---------------------------|
| Peak Repetitive Off-State Voltage               | $V_{DRM}$         | 200           | 400           | 600           | 800           | V                         |
| RMS On-State Current ( $T_C=90^\circ\text{C}$ ) | $I_T(\text{RMS})$ |               |               | 25            |               | A                         |
| Peak One Cycle Surge ( $t=8.3\text{ms}$ )       | $I_{TSM}$         |               |               | 150           |               | A                         |
| $I^2t$ Value for Fusing ( $t=8.3\text{ms}$ )    | $I^2t$            |               |               | 94            |               | $\text{A}^2\text{s}$      |
| Peak Gate Power ( $t_p=10\mu\text{s}$ )         | $P_{GM}$          |               |               | 40            |               | W                         |
| Average Gate Power Dissipation                  | $P_G(\text{AV})$  |               |               | 1.0           |               | W                         |
| Peak Gate Current ( $t_p=10\mu\text{s}$ )       | $I_{GM}$          |               |               | 10            |               | A                         |
| Peak Gate Voltage ( $t_p=10\mu\text{s}$ )       | $V_{GM}$          |               |               | 16            |               | V                         |
| Critical Rate of Rise of On-State Current       |                   |               |               |               |               |                           |
| Repetitive ( $f=60\text{Hz}$ )                  | $di/dt$           |               |               | 10            |               | $\text{A}/\mu\text{s}$    |
| Storage Temperature                             | $T_{stg}$         |               | -40 to +150   |               |               | $^\circ\text{C}$          |
| Junction Temperature                            | $T_J$             |               | -40 to +125   |               |               | $^\circ\text{C}$          |
| Thermal Resistance                              | $\theta_{JA}$     |               |               | 60            |               | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance                              | $\theta_{JC}$     |               |               | 1.7           |               | $^\circ\text{C}/\text{W}$ |

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

| SYMBOL    | TEST CONDITIONS   | MIN | TYP  | MAX  | UNITS                  |
|-----------|---|-----|------|------|------------------------|
| $I_{DRM}$ | Rated $V_{DRM}$   |     |      | 10   | $\mu\text{A}$          |
| $I_{DRM}$ | Rated $V_{DRM}$ , $T_C=125^\circ\text{C}$                     |     |      | 2.0  | mA                     |
| $I_{GT}$  | $V_D=12\text{V}$ , $R_L=10\Omega$ , QUAD I, II, III           |     | 11.1 | 30   | mA                     |
| $I_{GT}$  | $V_D=12\text{V}$ , $R_L=10\Omega$ , QUAD IV                   |     | 28.2 | 60   | mA                     |
| $I_H$     | $I_T=100\text{mA}$  |     | 18.4 | 50   | mA                     |
| $V_{GT}$  | $V_D=12\text{V}$ , $R_L=10\Omega$ , QUAD I, II, III           |     | 1.03 | 1.50 | V                      |
| $V_{GT}$  | $V_D=12\text{V}$ , $R_L=10\Omega$ , QUAD IV                   |     | 1.74 | 2.50 | V                      |
| $V_{TM}$  | $I_{TM}=35\text{A}$ , $t_p=380\mu\text{s}$                    |     |      | 1.80 | V                      |
| $dv/dt$   | $V_D=2/3 V_{DRM}$ , $R_{GK}=\infty$ , $T_C=125^\circ\text{C}$ | 6.0 |      |      | $\text{V}/\mu\text{s}$ |

R2 (24-September 2004)

**TO-220 CASE - MECHANICAL OUTLINE**



R2

**LEAD CODE:**

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

NOTE: TAB IS COMMON  
TO PIN 2 (MT2)

**MARKING CODE:**

**FULL PART NUMBER**

| SYMBOL  | DIMENSIONS |       |             |       |
|---------|------------|-------|-------------|-------|
|         | INCHES     |       | MILLIMETERS |       |
|         | MIN        | MAX   | MIN         | MAX   |
| A       | 0.170      | 0.190 | 4.31        | 4.82  |
| B       | 0.045      | 0.055 | 1.15        | 1.39  |
| C       | 0.013      | 0.026 | 0.33        | 0.65  |
| D       | 0.083      | 0.107 | 2.10        | 2.72  |
| E       | 0.394      | 0.417 | 10.01       | 10.60 |
| F (DIA) | 0.140      | 0.157 | 3.55        | 4.00  |
| G       | 0.100      | 0.118 | 2.54        | 3.00  |
| H       | 0.230      | 0.270 | 5.85        | 6.85  |
| I       | 0.560      | 0.625 | 14.23       | 15.87 |
| J       | -          | 0.250 | -           | 6.35  |
| K       | 0.025      | 0.038 | 0.64        | 0.96  |
| L       | 0.500      | 0.579 | 12.70       | 14.70 |
| M       | 0.090      | 0.110 | 2.29        | 2.79  |

TO-220 (REV: R2)