

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

145 Adams Avenue, Hauppauge, NY 11788 USA  
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

CQ220-6BS  
CQ220-6DS  
CQ220-6MS  
CQ220-6NS

6.0 AMP TRIAC  
200 THRU 800 VOLTS

JEDEC TO-220AB CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR CQ220-6BS series type is an Epoxy Molded Silicon Triac designed for full wave AC control applications featuring gate triggering in all four (4) quadrants.

## MAXIMUM RATINGS (T<sub>C</sub> = 25°C unless otherwise noted)

|                                              | SYMBOL              | CQ220<br>-6BS | CQ220<br>-6DS | CQ220<br>-6MS | CQ220<br>-6NS | UNITS            |
|----------------------------------------------|---------------------|---------------|---------------|---------------|---------------|------------------|
| Peak Repetitive Off-State Voltage            | V <sub>DRM</sub>    | 200           | 400           | 600           | 800           | V                |
| RMS On-State Current (T <sub>C</sub> = 90°C) | I <sub>T(RMS)</sub> |               | 6.0           |               |               | A                |
| Peak One Cycle Surge (t = 10ms)              | I <sub>TSM</sub>    |               | 60            |               |               | A                |
| I <sup>2</sup> t Value for Fusing (t = 10ms) | I <sup>2</sup> t    |               | 18            |               |               | A <sup>2</sup> s |
| Peak Gate Power (tp = 10μs)                  | P <sub>GM</sub>     |               | 40            |               |               | W                |
| Average Gate Power Dissipation               | P <sub>G(AV)</sub>  |               | 1.0           |               |               | W                |
| Peak Gate Current (tp = 10μs)                | I <sub>GM</sub>     |               | 4.0           |               |               | A                |
| Peak Gate Voltage (tp = 10μs)                | V <sub>GM</sub>     |               | 16            |               |               | V                |
| Critical Rate of Rise of On-State Current    |                     |               |               |               |               |                  |
| Repetitive (F = 50Hz)                        | di/dt               |               | 10            |               |               | A/μs             |
| Storage Temperature                          | T <sub>stg</sub>    |               | -40 to +150   |               |               | °C               |
| Junction Temperature                         | T <sub>J</sub>      |               | -40 to +110   |               |               | °C               |
| Thermal Resistance                           | θ <sub>J-A</sub>    |               | 60            |               |               | °C/W             |
| Thermal Resistance                           | θ <sub>J-C</sub>    |               | 3.2           |               |               | °C/W             |

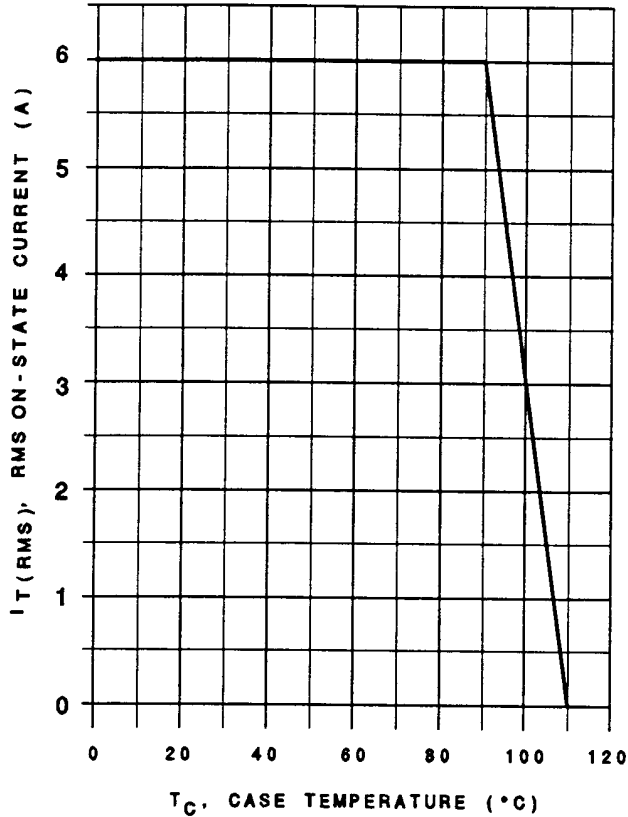
## ELECTRICAL CHARACTERISTICS (T<sub>C</sub> = 25°C unless otherwise noted)

| SYMBOL           | TEST CONDITIONS                                                                     | MIN | TYP | MAX  | UNITS |
|------------------|-------------------------------------------------------------------------------------|-----|-----|------|-------|
| I <sub>DRM</sub> | Rated V <sub>DRM</sub>                                                              |     |     | 0.01 | mA    |
| I <sub>DRM</sub> | Rated V <sub>DRM</sub> , T <sub>C</sub> = 110°C                                     |     |     | 0.75 | mA    |
| I <sub>GT</sub>  | V <sub>D</sub> = 12V, R <sub>L</sub> = 33Ω, QUAD I,II,III                           |     |     | 5.0  | mA    |
| I <sub>GT</sub>  | V <sub>D</sub> = 12V, R <sub>L</sub> = 33Ω, QUAD IV                                 |     |     | 10   | mA    |
| I <sub>H</sub>   | I <sub>T</sub> = 100mA                                                              |     |     | 15   | mA    |
| V <sub>GT</sub>  | V <sub>D</sub> = 12V, R <sub>L</sub> = 33Ω, QUAD I,II,III,IV                        |     |     | 1.50 | V     |
| V <sub>TM</sub>  | I <sub>TM</sub> = 8.5A, tp = 10ms                                                   |     |     | 1.65 | V     |
| dv/dt            | V <sub>D</sub> = 2/3 V <sub>DRM</sub> , R <sub>GK</sub> = ∞, T <sub>C</sub> = 110°C |     | 10  |      | V/μs  |

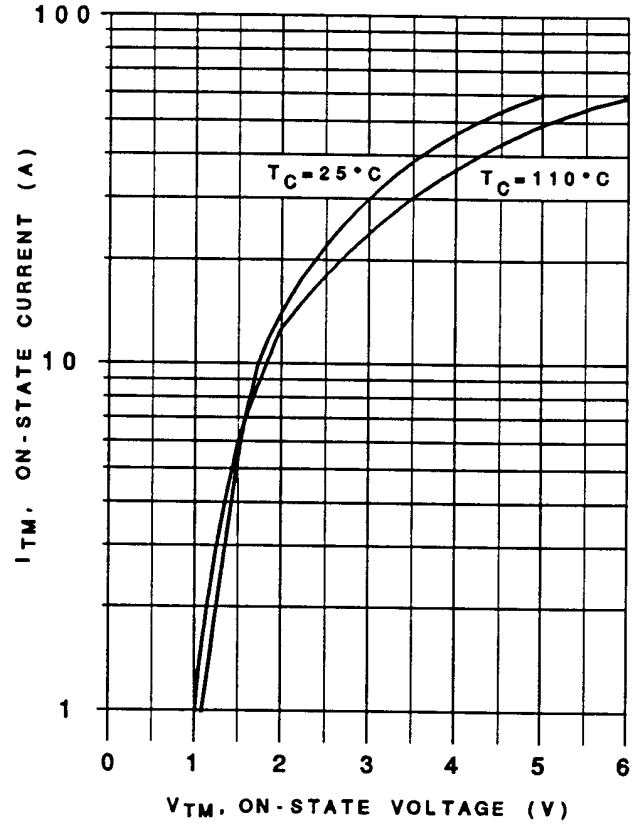
(OVER)

# CQ220-6BS SERIES RATING AND CHARACTERISTIC CURVES

RMS ON-STATE CURRENT vs. CASE TEMPERATURE



MAXIMUM ON-STATE CHARACTERISTICS



## MECHANICAL DIMENSIONS

All Dimensions in inches (mm).

