



DC COMPONENTS CO., LTD.  
DISCRETE SEMICONDUCTORS

DCR506-3  
THRU  
DCR506-8

TECHNICAL SPECIFICATIONS OF SENSITIVE GATE SILICON CONTROLLED RECTIFIERS  
VOLTAGE RANGE - 100 to 600 Volts  
CURRENT - 6.0 Amperes

Description

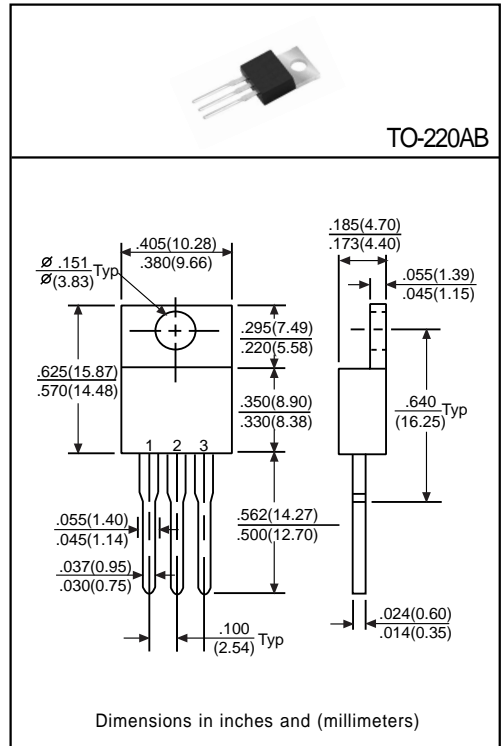
- \* Driven directly with IC and MOS device
- \* Feature proprietary, void-free glass passivated chips
- \* Available in voltage ratings from 100 to 600 volts
- \* Sensitive gate trigger current
- \* Designed for high volume, line-powered control application in relay lamp drivers, small motor controls, gate drivers for large thyristors

Pinning

1 = Cathode, 2 = Anode, 3 = Gate

Absolute Maximum Ratings (T<sub>A</sub>=25°C)

| Characteristic  | Symbol                                       | Rating                                 | Unit                     |   |
|---|--|--|--------------------------|---|
| Peak Repetitive Off-State Voltage and Reverse Voltage               | DCR506-3<br>DCR506-4<br>DCR506-6<br>DCR506-8 | V <sub>DRM</sub> ,<br>V <sub>RRM</sub> | 100<br>200<br>400<br>600 | V |
| On-State RMS Current (T <sub>A</sub> =57°C, 180° Conduction Angles) | I <sub>T(RMS)</sub>                          | 6.0                                    | A                        |   |
| Peak Non-repetitive Surge Current (1/2 Cycle, Sine Wave 60Hz)       | I <sub>TSM</sub>                             | 40                                     | A                        |   |
| Forward Peak Gate Current   | I <sub>GM</sub>                              | 1.0                                    | A                        |   |
| Forward Peak Gate Power Dissipation                                 | P <sub>GM</sub>                              | 0.5                                    | W                        |   |
| Forward Average Gate Power Dissipation                              | P <sub>G(AV)</sub>                           | 0.1                                    | W                        |   |
| Operating Junction Temperature                                      | T <sub>J</sub>                               | -40 to +110                            | °C                       |   |
| Storage Temperature   | T <sub>STG</sub>                             | -40 to +150                            | °C                       |   |



Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified)

| Characteristic  | Symbol                | Min | Typ | Max | Unit | Test Conditions   |
|---|-----------------------|-----|-----|-----|------|---|
| Peak Repetitive Forward or Reverse Off-State Blocking Current | T <sub>J</sub> =25°C  | -   | -   | 10  | μA   | V <sub>AK</sub> =Rated V <sub>DRM</sub> or V <sub>RRM</sub><br>R <sub>GK</sub> =1KΩ |
|   | T <sub>J</sub> =110°C | -   | -   | 250 |      |   |
| Peak Forward On-State Voltage                                 | V <sub>TM</sub>       | -   | -   | 2.0 | V    | I <sub>TM</sub> =6A Peak  |
| Continuous DC Gate Trigger Current                            | I <sub>GT</sub>       | -   | -   | 200 | μA   | V <sub>AK</sub> =7V DC, R <sub>L</sub> =100Ω  |
| Continuous DC Gate Trigger Voltage                            | V <sub>GT</sub>       | -   | -   | 1.0 | V    | V <sub>AK</sub> =7V DC, R <sub>L</sub> =100Ω  |
| DC Holding Current  | I <sub>H</sub>        | -   | -   | 6.0 | mA   | R <sub>GK</sub> =1KΩ  |
| Critical Rate-of-Rise of Off-State Voltage                    | dv/dt                 | -   | 8.0 | -   | V/μS | R <sub>GK</sub> =1KΩ  |
| Gate Controlled Turn-on Time(t <sub>D</sub> +t <sub>R</sub> ) | T <sub>gt</sub>       | -   | 2.2 | -   | μsec | I <sub>GT</sub> =10mA   |
| Thermal Resistance, Junction to Case                          | R <sub>θJC</sub>      | -   | 2.2 | -   | °C/W | -   |