



DC COMPONENTS CO., LTD.  
DISCRETE SEMICONDUCTORS

DCR03B  
THRU  
DCR03F

TECHNICAL SPECIFICATIONS OF SENSITIVE GATE SILICON CONTROLLED RECTIFIERS  
VOLTAGE RANGE - 200 to 600 Volts CURRENT - 0.3 Ampere

Description

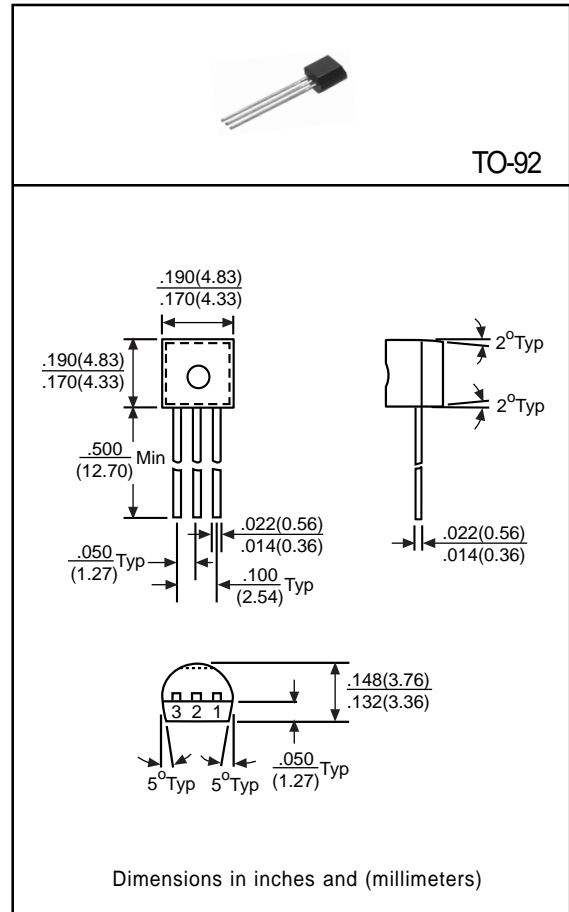
- \* Driven directly with IC and MOS device
- \* Feature proprietary, void-free glass passivated chips
- \* Available in voltage ratings from 200 to 600 volts
- \* Sensitive gate trigger current
- \* Designed for high volume, line-powered control application in relay lamp drivers, small motor controls, gate drivers for large thyristors

Pinning

1 = Gate, 2 = Anode, 3 = Cathode

Absolute Maximum Ratings (TA=25°C)

| Characteristic  | Symbol   | Rating            | Unit |
|---|--|-------------------|------|
| Peak Repetitive Off-State Voltage and Reverse Voltage         | DCR03B<br>DCR03D<br>DCR03F<br>V <sub>DRM</sub> ,<br>V <sub>R<sub>RRM</sub></sub> | 200<br>400<br>600 | V    |
| On-State Average Current (TA=30°C, 180° Conduction Angles)    | I <sub>T(AV)</sub>   | 0.3               | A    |
| On-State RMS Current (TA=30°C, 180° Conduction Angles)        | I <sub>T(RMS)</sub>  | 0.47              | A    |
| Peak Non-repetitive Surge Current (1/2 Cycle, Sine Wave 60Hz) | I <sub>TSM</sub>   | 8                 | A    |
| Forward Peak Gate Current                                     | I <sub>GM</sub>  | 0.1               | A    |
| Forward Peak Gate Power Dissipation                           | P <sub>GM</sub>  | 0.1               | W    |
| Forward Average Gate Power Dissipation                        | P <sub>G(AV)</sub>   | 0.01              | 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 | I <sub>DRM</sub> , I <sub>R<sub>RRM</sub></sub> | -   | -   | 10  | μA   | V <sub>AK</sub> =Rated V <sub>DRM</sub> or V <sub>R<sub>RRM</sub></sub><br>R <sub>GK</sub> =1KΩ |
|   |   | -   | -   | 100 |      |   |
| Peak Forward On-State Voltage                                 | V <sub>TM</sub>                                 | -   | -   | 1.7 | V    | I <sub>TM</sub> =0.3A 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>                                 | -   | -   | 0.8 | V    | V <sub>AK</sub> =7V DC, R <sub>L</sub> =100Ω  |
| DC Holding Current  | I <sub>H</sub>                                  | -   | -   | 5.0 | mA   | R <sub>GK</sub> =1KΩ  |
| Critical Rate-of-Rise of Off-State Voltage                    | dv/dt   | -   | 5.0 | -   | V/μS | R <sub>GK</sub> =1KΩ  |
| Gate Controlled Turn-on Time(t <sub>b</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>                                | -   | 75  | -   | °C/W | -   |