

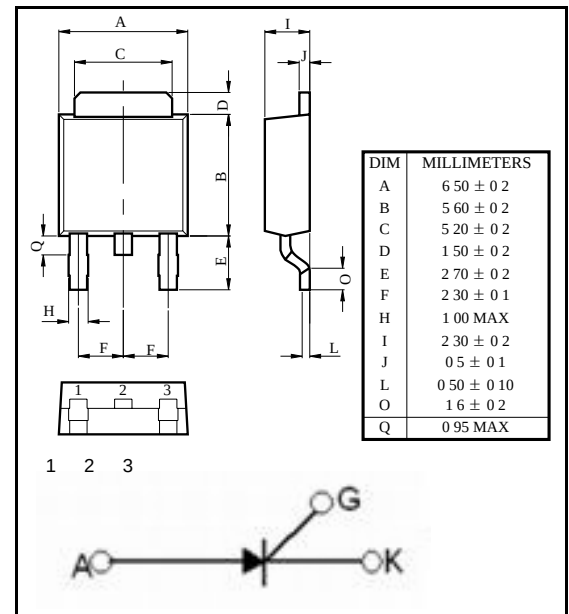
## Silicon Planar PNP Thyristor (12A SCR)

### MAIN FEATURES

| Symbol            | value | unit |
|-------------------|-------|------|
| $I_{T(RMS)}$      | 12    | A    |
| $V_{DRM}/V_{RRM}$ | 650   | V    |
| $I_{TSM}$         | 120   | A    |

### GENERAL DESCRIPTION

- .Glass passivated triacs in a plastic envelope , intended for use in applications requiring high bidirectional transient and blocking voltage capability and high thermal cycling performance.
- .Typical applications include motor control, industrial and domestic lighting , heating and static switching.



### ABSOLUTE MAXIMUM RATINGS (Ta=25°C unless otherwise noted)

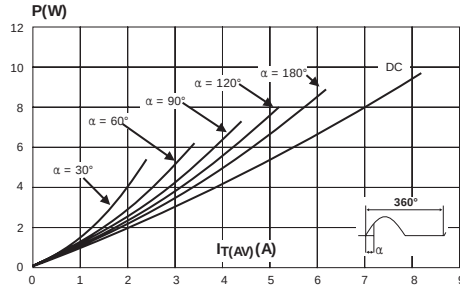
| symbol           | parameter                                                                         |                           |                       | value       | unit |
|------------------|-----------------------------------------------------------------------------------|---------------------------|-----------------------|-------------|------|
| $I_{T(RMS)}$     | RMS on-state current (full sine wave)                                             | D <sup>2</sup> PAK/TO-220 | T <sub>C</sub> =107°C | 12          | A    |
| $I_{TSM}$        | Non repetitive surge peak on-state current (full sine wave, T <sub>j</sub> =25°C) |                           | t=10ms                | 120         | A    |
|                  |                                                                                   |                           | t=8.3ms               | 130         |      |
| $I_{GM}$         | Peak gate current                                                                 |                           |                       | 4           | A    |
| $P_{G(AV)}$      | Average gate power dissipation                                                    |                           | T <sub>j</sub> =125°C | 0.5         | W    |
| T <sub>stg</sub> | Storage junction temperature range                                                |                           |                       | -40 to +150 | °C   |
| T <sub>j</sub>   | Operating junction temperature range                                              |                           |                       | -40 to +125 |      |
| $I_{T(AV)}$      | Average On-State Current                                                          | 180 ° Conduction Angel    | (Note 1)              | 8           | A    |

### ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

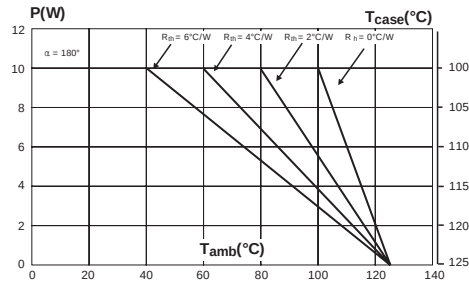
| Parameter                                       | Symbol             | Test conditions                            | Min | Max  | Unit    |
|-------------------------------------------------|--------------------|--------------------------------------------|-----|------|---------|
| Rated repetitive peak off-state/reverse voltage | $V_{DRM}, V_{RRM}$ | $I_D=10\mu A$                              | 650 |      | V       |
| Rated repetitive peak off-state current         | $I_{DRM}, I_{RRM}$ | $V_D=650V$                                 |     | 10   | $\mu A$ |
| On-state voltage                                | $V_{TM}$           | $I_T=23A$                                  | 1.4 | 1.75 | V       |
| Gate trigger current                            | $I_{GT}$           | $V_D=12V$<br>$I_T=0.1A$<br>$R_L=100\Omega$ |     | 15   | mA      |
| Gate trigger voltage                            | $V_{GT}$           | $V_D=12V$<br>$I_T=0.1A$<br>$R_L=100\Omega$ |     | 1.45 | V       |
| Holding current                                 | $I_H$              | $I_T=100mA$ $I_G=20mA$                     |     | 15   | mA      |

## Typical Characteristics

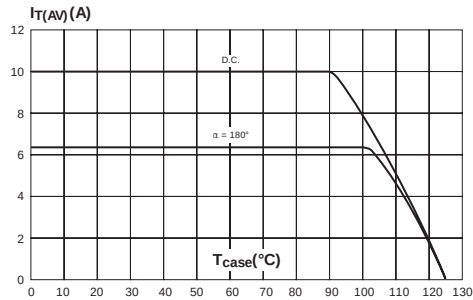
**Figure 1: Maximum average power dissipation versus average on- state current**



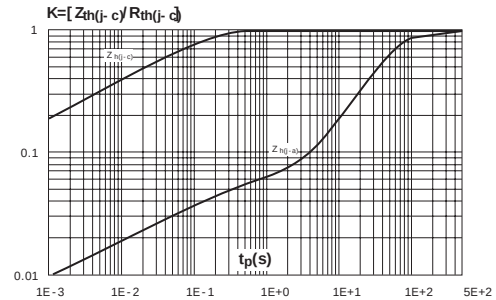
**Figure 2: Correlation between maximum average power dissipation and maximum allowable temperature ( $T_{amb}$  and  $T_{lead}$ )**



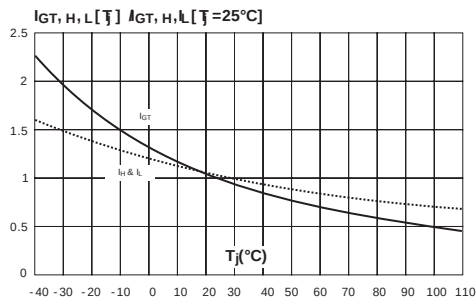
**Figure 3: Average on- state current versus case temperature**



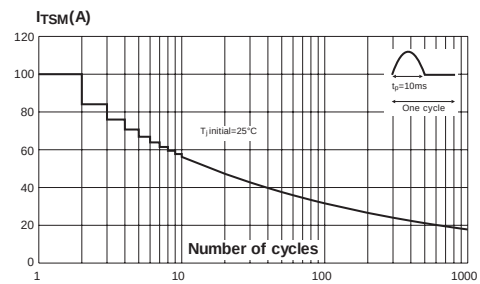
**Figure 4: Relative variation of thermal impedance versus pulse duration**



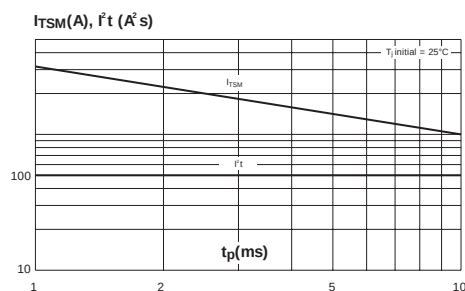
**Figure 5: Relative variation of gate trigger current versus junction temperature**



**Figure 6: Surge peak on- state current versus number of cycles**



**Figure 7: Non- repetitive surge peak on- state current for a sinusoidal pulse with width  $t_p < 10$  ms, and corresponding values of  $I^2t$**



**Figure 8: On- state characteristics (maximum values)**

