

### Features

- Center amplifying gate
- Metal case with ceramic insulator
- Low on-state and switching losses

### Typical Applications

- AC controllers
- DC and AC motor control
- Controlled rectifiers

$I_{T(AV)}$  1070A  
 $V_{DRM}/V_{RRM}$  1100~1800V  
 $I_{TSM}$  12 kA  
 $I^2t$  720 10<sup>3</sup>A<sup>2</sup>S



| SYMBOL                 | CHARACTERISTIC                                                       | TEST CONDITIONS                                                                                         | T <sub>J</sub> (°C) | VALUE |      |        | UNIT                             |
|------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|---------------------|-------|------|--------|----------------------------------|
|                        |                                                                      |                                                                                                         |                     | Min   | Type | Max    |                                  |
| $I_{T(AV)}$            | Mean on-state current                                                | 180° half sine wave 50Hz<br>Double side cooled,<br>$T_C=55^{\circ}\text{C}$<br>$T_C=70^{\circ}\text{C}$ | 125                 |       |      | 1260   | A                                |
|                        |                                                                      |                                                                                                         |                     |       |      | 1070   |                                  |
| $V_{DRM}$<br>$V_{RRM}$ | Repetitive peak off-state voltage<br>Repetitive peak reverse voltage | $V_{DRM}\&V_{RRM}$ tp=10ms<br>$V_{DSM}\&V_{RSM}=V_{DRM}\&V_{RRM}+100\text{V}$                           | 125                 | 1100  |      | 1800   | V                                |
| $I_{DRM}$<br>$I_{RRM}$ | Repetitive peak current                                              | $V_{DM}=V_{DRM}$<br>$V_{RM}=V_{RRM}$                                                                    | 125                 |       |      | 50     | mA                               |
| $I_{TSM}$              | Surge on-state current                                               | 10ms half sine wave                                                                                     | 125                 |       |      | 12     | kA                               |
| $I^2t$                 | $I^2T$ for fusing coordination                                       | $V_R=0.6V_{RRM}$                                                                                        |                     |       |      | 720    | A <sup>2</sup> S*10 <sup>3</sup> |
| $V_{TO}$               | Threshold voltage                                                    |                                                                                                         | 125                 |       |      | 0.91   | V                                |
| $r_T$                  | On-state slop resistance                                             |                                                                                                         |                     |       |      | 0.35   | mΩ                               |
| $V_{TM}$               | Peak on-state voltage                                                | $I_{TM}=2400\text{A}$ , F= 18kN                                                                         | 125                 |       |      | 1.75   | V                                |
| dv/dt                  | Critical rate of rise of off-state voltage                           | $V_{DM}=0.67V_{DRM}$                                                                                    | 125                 |       |      | 1000   | V/μs                             |
| di/dt                  | Critical rate of rise of on-state current                            | $V_{DM}=67\%V_{DRM}$ to 1500A,<br>Gate pulse $t_r \leq 0.5\mu\text{s}$ $I_{GM}=1.5\text{A}$             | 125                 |       |      | 100    | A/μs                             |
| $Q_{rr}$               | Recovery charge                                                      | $I_{TM}=2000\text{A}$ , tp=1000μs, di/dt=-20A/μs,<br>$V_R=50\text{V}$                                   | 125                 |       | 1200 |        | μC                               |
| $I_{GT}$               | Gate trigger current                                                 | $V_A=12\text{V}$ , $I_A=1\text{A}$                                                                      | 25                  | 40    |      | 300    | mA                               |
| $V_{GT}$               | Gate trigger voltage                                                 |                                                                                                         |                     | 0.8   |      | 3.0    | V                                |
| $I_H$                  | Holding current                                                      |                                                                                                         |                     | 20    |      | 250    | mA                               |
| $V_{GD}$               | Non-trigger gate voltage                                             | $V_{DM}=0.67V_{DRM}$                                                                                    | 125                 | 0.3   |      |        | V                                |
| $R_{th(j-c)}$          | Thermal resistance<br>Junction to case                               | At 180° sine double side cooled<br>Clamping force 18kN                                                  |                     |       |      | 0.028  | °C /W                            |
| $R_{th(c-h)}$          | Thermal resistance<br>case to heatsink                               |                                                                                                         |                     |       |      | 0.0075 |                                  |
| $F_m$                  | Mounting force                                                       |                                                                                                         |                     | 15    |      | 20     | kN                               |
| $T_{stg}$              | Stored temperature                                                   |                                                                                                         |                     | -40   |      | 140    | °C                               |
| $W_i$                  | Weight                                                               |                                                                                                         |                     |       | 320  |        | g                                |
| Outline                | KT39cT40                                                             |                                                                                                         |                     |       |      |        |                                  |

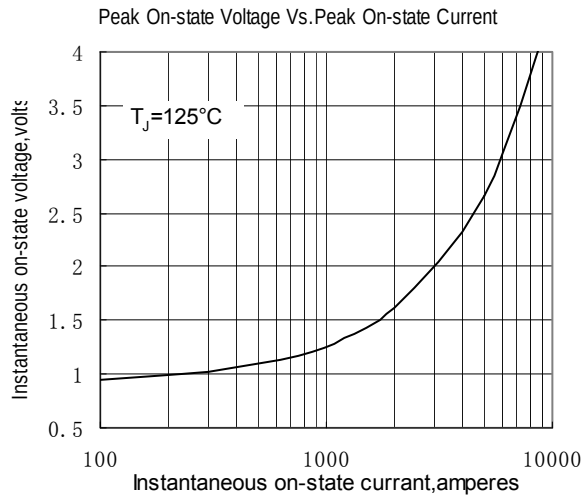


Fig.1

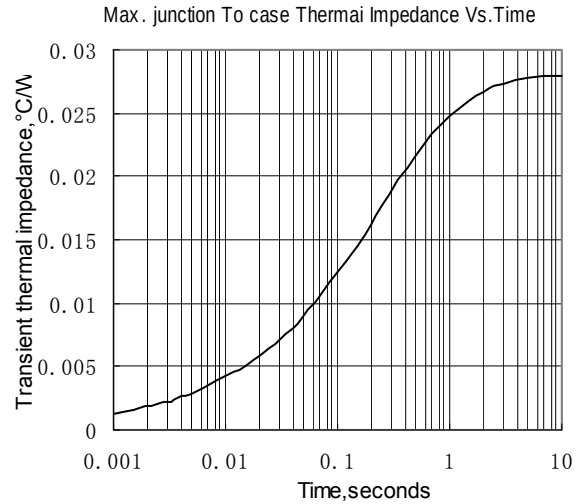


Fig.2

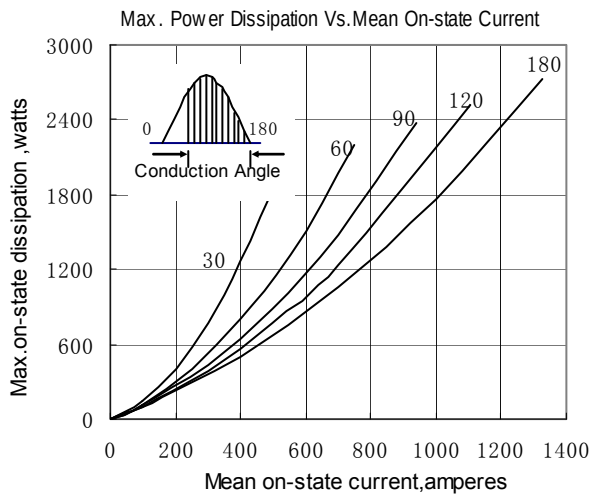


Fig.3

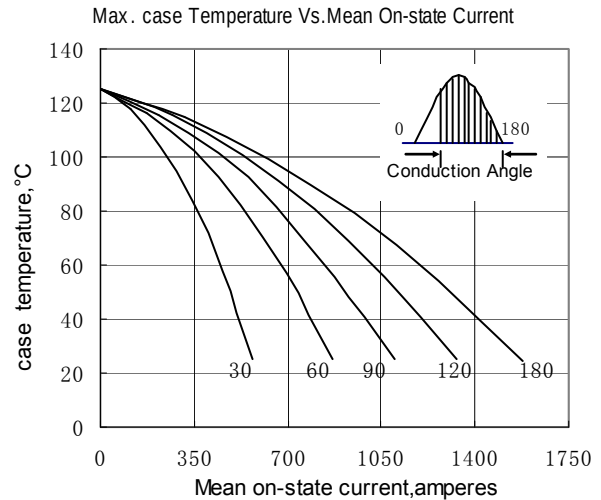


Fig.4

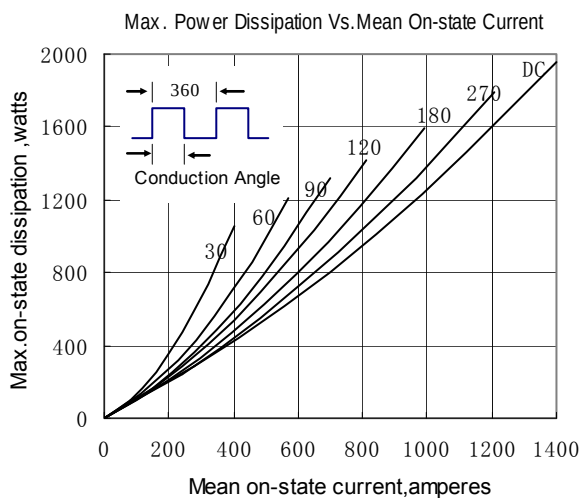


Fig.5

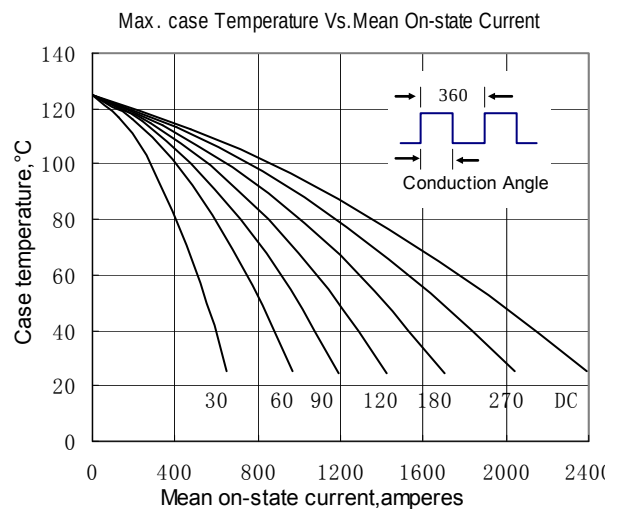


Fig.6

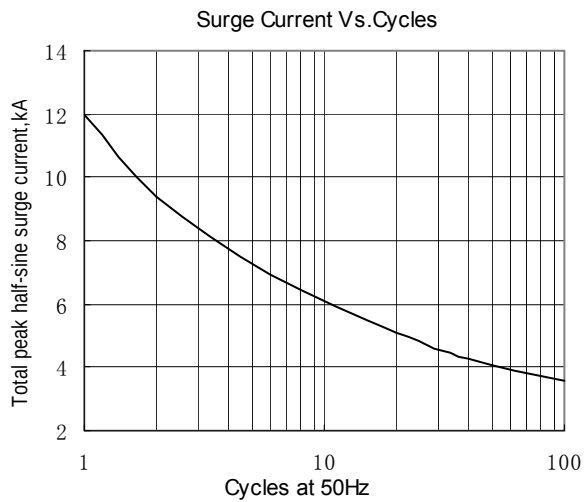


Fig.7

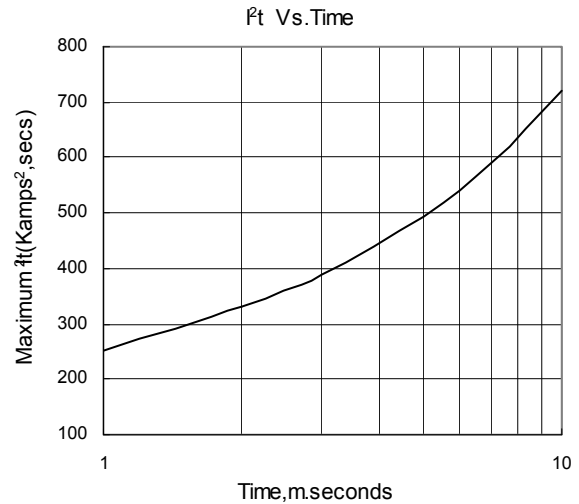


Fig.8

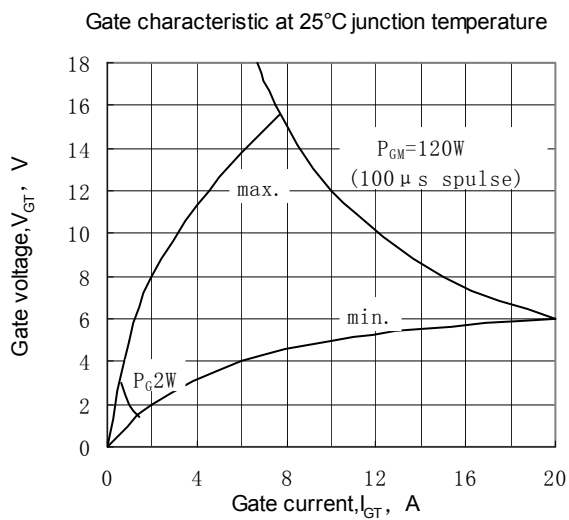


Fig.9

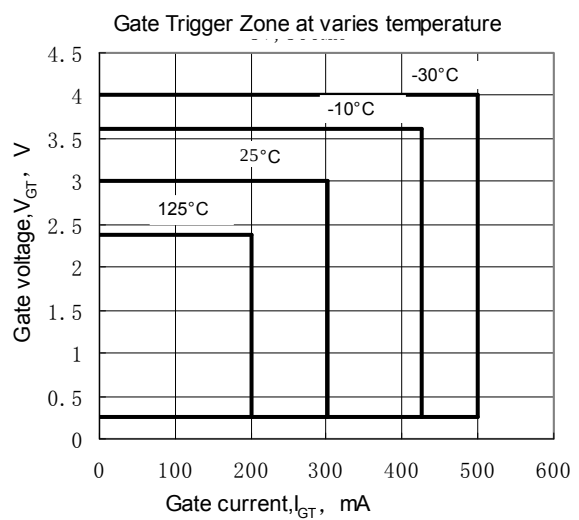


Fig.10

Outline:

