

### Features:

- Interdigitated amplifying gates
- Fast turn-on and high di/dt
- Low switching losses
- Short turn-off time
- Hermetic metal cases with ceramic insulators

### Typical Applications

- Inductive heating
- Electronic welders
- Self-commutated inverters
- AC motor speed control
- General power switching applications

$I_{T(AV)}$  700A  
 $V_{DRM}/V_{RRM}$  800~1200V  
 $t_q$  8~20μs  
 $I_{TSM}$  8.9kA



| SYMBOL                 | CHARACTERISTIC                                                       | TEST CONDITIONS                                                                       | $T_j(^{\circ}C)$ | VALUE |      |       | UNIT              |
|------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------|-------|------|-------|-------------------|
|                        |                                                                      |                                                                                       |                  | Min   | Type | Max   |                   |
| $I_{T(AV)}$            | Mean on-state current                                                | 180° half sine wave 50Hz<br>Double side cooled,<br>$T_C=55^{\circ}C$                  | 125              |       |      | 700   | A                 |
| $V_{DRM}$<br>$V_{RRM}$ | Repetitive peak off-state voltage<br>Repetitive peak reverse voltage | $t_p=10ms$                                                                            | 125              | 800   |      | 1200  | V                 |
| $I_{DRM}$<br>$I_{RRM}$ | Repetitive peak off-state current<br>Repetitive peak reverse current | at $V_{DRM}$<br>at $V_{RRM}$                                                          | 125              |       |      | 40    | mA                |
| $I_{TSM}$              | Surge on-state current                                               | 10ms half sine wave<br>$V_R=0.6V_{RRM}$                                               | 125              |       |      | 8.9   | kA                |
| $I^2t$                 | $I^2t$ for fusing coordination                                       |                                                                                       |                  |       |      | 396   | $A^2s \cdot 10^3$ |
| $V_{TO}$               | Threshold voltage                                                    |                                                                                       | 125              |       |      | 1.68  | V                 |
| $r_T$                  | On-state slope resistance                                            |                                                                                       |                  |       |      | 0.67  | mΩ                |
| $V_{TM}$               | Peak on-state voltage                                                | $I_{TM}=1200A$ , $F=15kN$                                                             | 25               |       |      | 3.20  | 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 1400A<br>Gate pulse $t_r \leq 0.5\mu s$ $I_{GM}=1.5A$       | 125              |       |      | 1500  | A/μs              |
| $Q_{rr}$               | Recovery charge                                                      | $I_{TM}=1000A$ , $t_p=2000\mu s$ ,<br>$di/dt=-60A/\mu s$ , $V_R=50V$                  | 125              |       | 33   | 50    | μC                |
| $t_q$                  | Circuit commutated turn-off time                                     | $I_{TM}=700A$ , $t_p=1000\mu s$ , $V_R=50V$<br>$dv/dt=30V/\mu s$ , $di/dt=-20A/\mu s$ | 125              | 8     |      | 20    | μs                |
| $I_{GT}$               | Gate trigger current                                                 | $V_A=12V$ , $I_A=1A$                                                                  | 25               | 30    |      | 250   | mA                |
| $V_{GT}$               | Gate trigger voltage                                                 |                                                                                       |                  | 0.8   |      | 3.0   | V                 |
| $I_H$                  | Holding current                                                      |                                                                                       |                  | 20    |      | 400   | mA                |
| $V_{GD}$               | Non-trigger gate voltage                                             | $V_{DM}=67\%V_{DRM}$                                                                  | 125              | 0.3   |      |       | V                 |
| $R_{th(j-c)}$          | Thermal resistance<br>Junction to case                               | At 180° sine double side cooled<br>Clamping force 15kN                                |                  |       |      | 0.035 | $^{\circ}C/W$     |
| $R_{th(c-h)}$          | Thermal resistance<br>case to heat sink                              |                                                                                       |                  |       |      | 0.008 |                   |
| $F_m$                  | Mounting force                                                       |                                                                                       |                  | 10    |      | 20    | kN                |
| $T_{stg}$              | Stored temperature                                                   |                                                                                       |                  | -40   |      | 140   | $^{\circ}C$       |
| $W_t$                  | Weight                                                               |                                                                                       |                  |       | 250  |       | g                 |
| Outline                | KT33cT                                                               |                                                                                       |                  |       |      |       |                   |

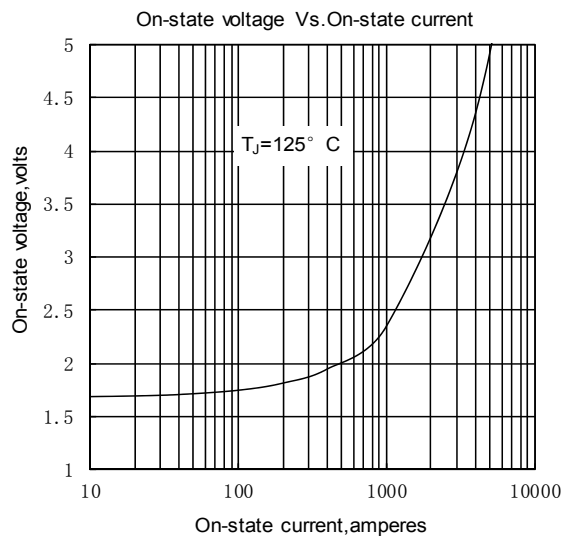


Fig. 1

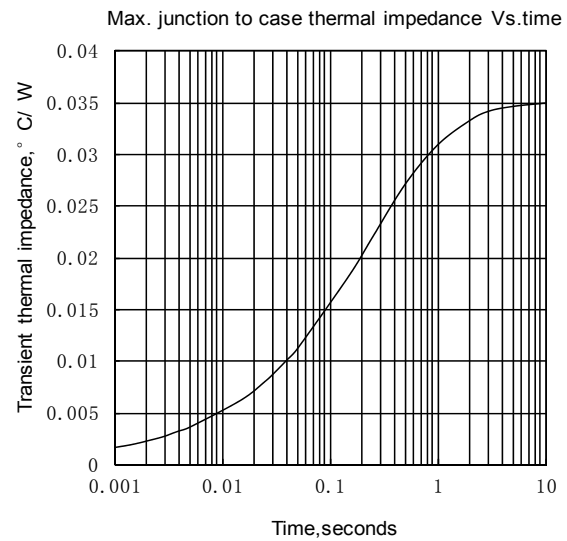


Fig. 2

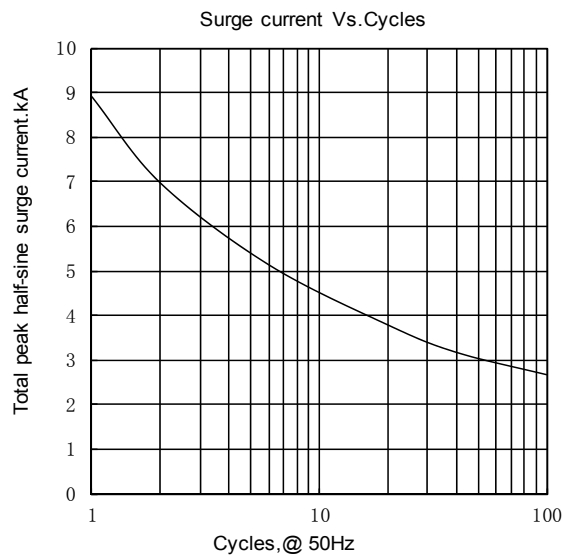


Fig. 3

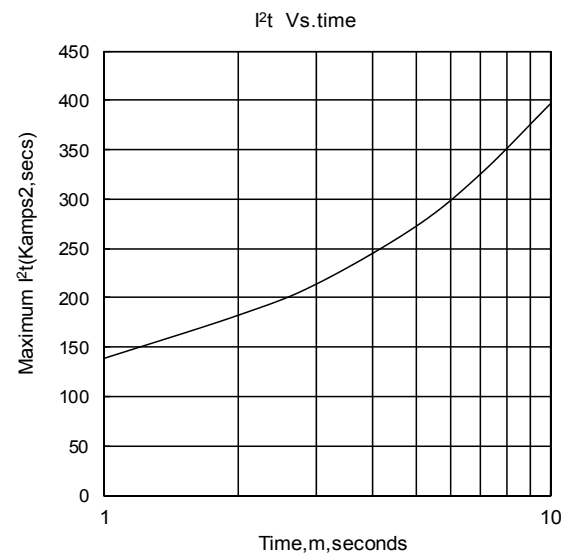


Fig. 4

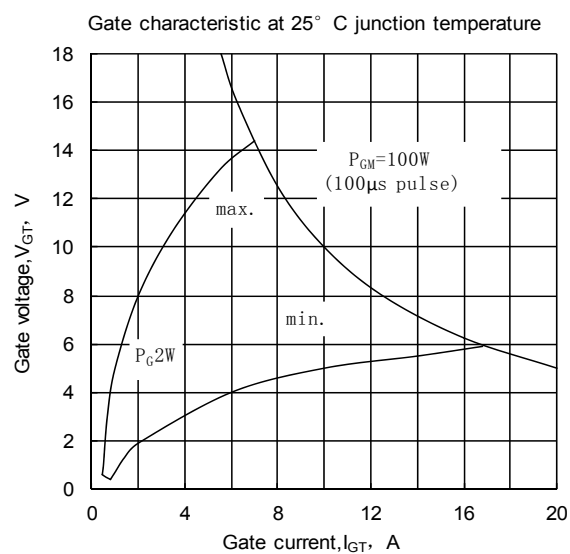


Fig. 5

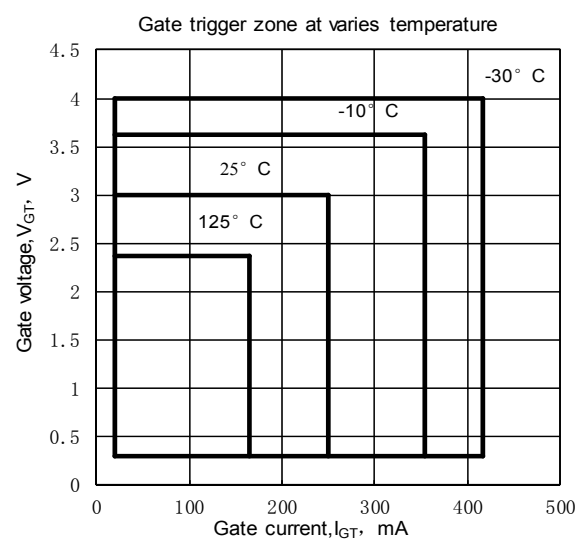


Fig. 6

**Outline:**

