

**Features**

- Interdigitated amplifying gates
- Fast turn-on and high di/dt
- Low switching losses

**Typical Applications**

- Inductive heating
- Electronic welders
- Self-commutated inverters

**Part No. Y45KKE-KT44cT**

|                    |                |              |
|--------------------|----------------|--------------|
| $I_{T(AV)}$        | <b>1220A</b>   |              |
| $V_{DRM}, V_{RRM}$ | <b>800V</b>    | <b>1000V</b> |
|                    | <b>1200V</b>   | <b>1400V</b> |
|                    | <b>1600V</b>   | <b>1800V</b> |
| $t_q$              | <b>18~50μs</b> |              |

| 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              |       |      | 1220  | A                 |
| $V_{DRM}$<br>$V_{RRM}$ | Repetitive peak off-state voltage<br>Repetitive peak reverse voltage | $t_p=10ms$                                                                                     | 125              | 800   |      | 1800  | V                 |
| $I_{DRM}$<br>$I_{RRM}$ | Repetitive peak current                                              | at $V_{DRM}$<br>at $V_{RRM}$                                                                   | 125              |       |      | 60    | 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   | $A^2s \cdot 10^3$ |
| $V_{TO}$               | Threshold voltage                                                    |                                                                                                | 125              |       |      | 1.32  | V                 |
| $r_T$                  | On-state slope resistance                                            |                                                                                                |                  |       |      | 0.36  | mΩ                |
| $V_{TM}$               | Peak on-state voltage                                                | $I_{TM}=2400A, F=21kN$                                                                         | 25               |       |      | 3.15  | 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 1600A,<br>Gate pulse $t_r \leq 0.5\mu s$ $I_{GM}=1.5A$<br>Single pulse | 125              |       |      | 1200  | A/μs              |
| $Q_{rr}$               | Recovery charge                                                      | $I_{TM}=1000A, t_p=4000\mu s,$<br>$di/dt=-20A/\mu s, V_R=100V$                                 | 125              |       | 650  |       | μC                |
| $t_q$                  | Circuit commutated turn-off time                                     | $I_{TM}=1000A, t_p=4000\mu s, V_R=100V$<br>$dv/dt=30V/\mu s, di/dt=-20A/\mu s$                 | 125              | 18    |      | 50    | μs                |
| $I_{GT}$               | Gate trigger current                                                 | $V_A=12V, I_A=1A$                                                                              | 25               | 40    |      | 300   | mA                |
| $V_{GT}$               | Gate trigger voltage                                                 |                                                                                                |                  | 0.9   |      | 3.0   | V                 |
| $I_H$                  | Holding current                                                      |                                                                                                |                  | 20    |      | 500   | mA                |
| $I_L$                  | Latching current                                                     |                                                                                                |                  |       |      | 500   | 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 21kN                                         |                  |       |      | 0.024 | $^{\circ}C/W$     |
| $R_{th(c-h)}$          | Thermal resistance<br>case to heat sink                              |                                                                                                |                  |       |      | 0.006 |                   |
| $F_m$                  | Mounting force                                                       |                                                                                                |                  | 18    |      | 25    | kN                |
| $T_{vj}$               | Junction temperature                                                 |                                                                                                |                  | -40   |      | 125   | $^{\circ}C$       |
| $T_{stg}$              | Stored temperature                                                   |                                                                                                |                  | -40   |      | 140   | $^{\circ}C$       |
| $W_t$                  | Weight                                                               |                                                                                                |                  |       | 380  |       | g                 |
| Outline                | KT44cT                                                               |                                                                                                |                  |       |      |       |                   |

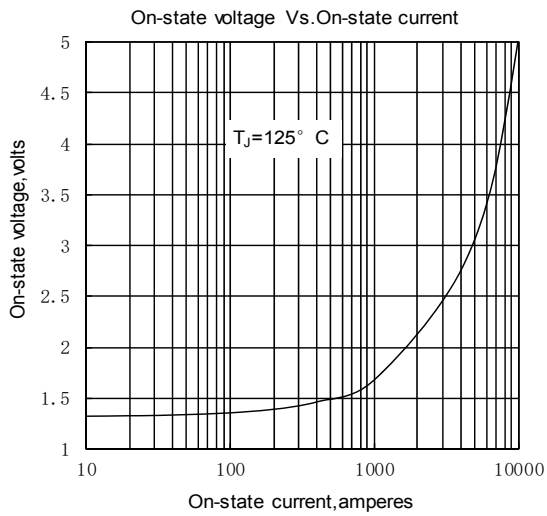


Fig. 1

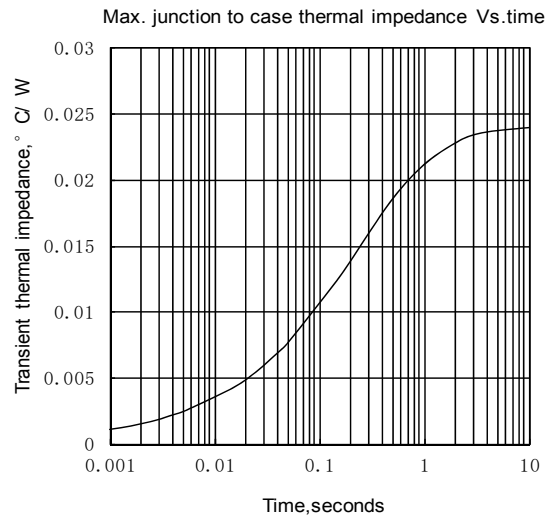


Fig. 2

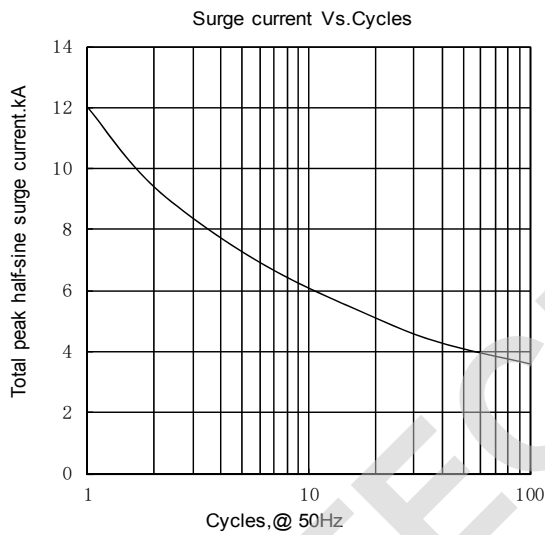


Fig. 3

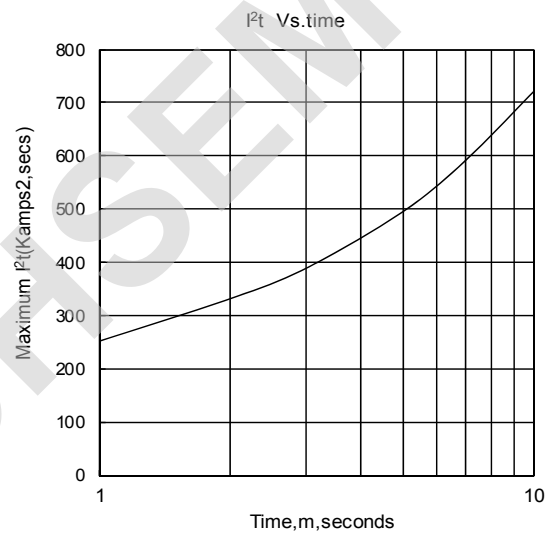


Fig. 4

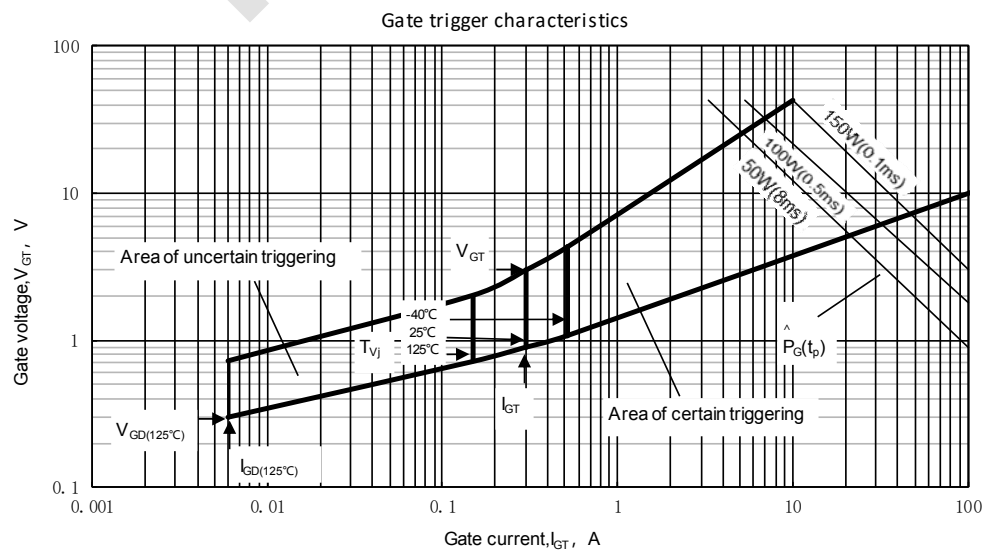
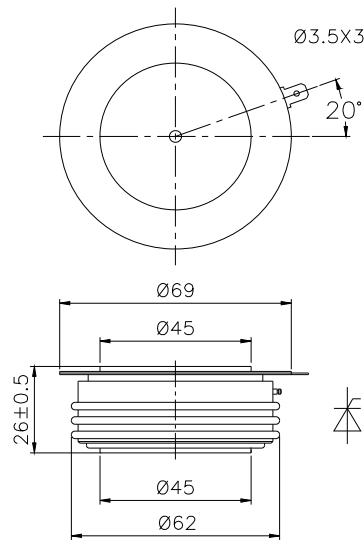


Fig.5

Outline:



TECHSEM reserves the right to change specifications without notice.