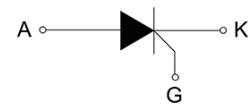


## DESCRIPTION:

The chip SCR provides high  $dV/dt$  rate with strong resistance to electromagnetic interface. It is especially recommended for use on residual current circuit breaker, straight hair, igniter etc.

## MAIN FEATURES

| Symbol            | Value      | Unit    |
|-------------------|------------|---------|
| $I_{T(RMS)}$      | 12         | A       |
| $V_{DRM}/V_{RRM}$ | 800        | V       |
| $I_{GT}$          | $\leq 200$ | $\mu A$ |



## ABSOLUTE MAXIMUM RATINGS

| Parameter                                                                                            | Symbol       | Value   | Unit        |
|------------------------------------------------------------------------------------------------------|--------------|---------|-------------|
| Storage junction temperature range                                                                   | $T_{stg}$    | -40-150 | $^{\circ}C$ |
| Operating junction temperature range                                                                 | $T_j$        | -40-110 | $^{\circ}C$ |
| Repetitive peak off-state voltage ( $T_j=25^{\circ}C$ )                                              | $V_{DRM}$    | 800     | V           |
| Repetitive peak reverse voltage ( $T_j=25^{\circ}C$ )                                                | $V_{RRM}$    | 800     | V           |
| Average on-state current ( $T_c \leq 78^{\circ}C$ )                                                  | $I_{T(AV)}$  | 7.5     | A           |
| RMS on-state current ( $T_c \leq 78^{\circ}C$ )                                                      | $I_{T(RMS)}$ | 12      | A           |
| Non repetitive surge peak on-state current ( $t_p=10ms$ , $T_j=25^{\circ}C$ )                        | $I_{TSM}$    | 120     | A           |
| Non repetitive surge peak on-state current ( $t_p=8.3ms$ , $T_j=25^{\circ}C$ )                       |              | 130     |             |
| $I^2t$ value for fusing ( $t_p=10ms$ , $T_j=25^{\circ}C$ )                                           | $I^2t$       | 72      | $A^2s$      |
| Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ , $f=100Hz$ , $T_j=110^{\circ}C$ ) | $di/dt$      | 100     | $A/\mu s$   |
| Peak gate current ( $t_p=20\mu s$ , $T_j=110^{\circ}C$ )                                             | $I_{GM}$     | 4       | A           |
| Average gate power dissipation ( $T_j=110^{\circ}C$ )                                                | $P_{G(AV)}$  | 1       | W           |

|                                                                                     |          |     |    |
|-------------------------------------------------------------------------------------|----------|-----|----|
| Peak gate power                                                                     | $P_{GM}$ | 10  | W  |
| Peak pulse voltage<br>( $T_j=25^{\circ}\text{C}$ ; non-repetitive, off-state; FIG ) | $V_{pp}$ | 0.5 | kV |

**ELECTRICAL CHARACTERISTICS** ( $T_j=25^{\circ}\text{C}$  unless otherwise specified)

| Symbol    | Test Condition                                                    | Value |      |      | Unit                   |
|-----------|-------------------------------------------------------------------|-------|------|------|------------------------|
|           |                                                                   | MIN.  | TYP. | MAX. |                        |
| $I_{GT}$  | $V_D=12\text{V } R_L=33\Omega$                                    | -     | 60   | 200  | $\mu\text{A}$          |
| $V_{GT}$  |                                                                   | -     | -    | 0.8  | V                      |
| $V_{GD}$  | $V_D=V_{DRM} T_j=110^{\circ}\text{C}$                             | 0.2   | -    | -    | V                      |
| $I_L$     | $I_G=1.2 I_{GT}$                                                  | -     | -    | 6    | mA                     |
| $I_H$     | $I_T=0.05\text{A}$                                                | -     | -    | 5    | mA                     |
| $dV/dt$   | $V_D=540\text{V } T_j=25^{\circ}\text{C } R_{GK}=1\text{k}\Omega$ | 50    | -    | -    | $\text{V}/\mu\text{s}$ |
|           | $V_D=540\text{V } T_j=25^{\circ}\text{C } R_{GK}=220\Omega$       | 200   | -    | -    |                        |
| $t_{on}$  | $I_G=10\text{mA } I_A=20\text{mA } I_R=2\text{mA}$                | -     | 2    | -    | $\mu\text{s}$          |
| $t_{off}$ | $T_j=25^{\circ}\text{C}$                                          | -     | 70   | -    | $\mu\text{s}$          |

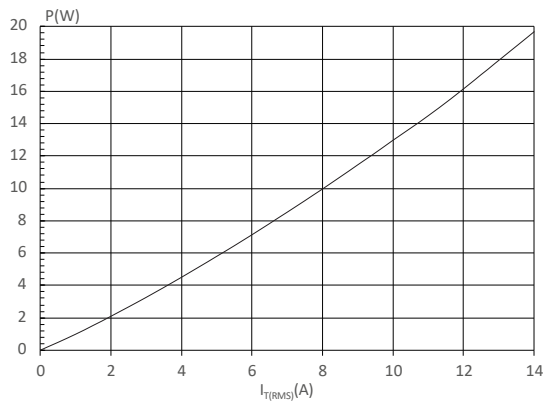
**STATIC CHARACTERISTICS**

| Symbol    | Parameter                            |                           | Value(MAX.) | Unit          |
|-----------|--------------------------------------|---------------------------|-------------|---------------|
| $V_{TM}$  | $I_T=24\text{A } t_p=380\mu\text{s}$ | $T_j=25^{\circ}\text{C}$  | 1.6         | V             |
| $V_{TO}$  | Threshold voltage                    | $T_j=110^{\circ}\text{C}$ | 0.9         | V             |
| $R_D$     | Dynamic Resistance                   | $T_j=110^{\circ}\text{C}$ | 0.02        | $\Omega$      |
| $I_{DRM}$ | $V_D=V_{DRM} V_R=V_{RRM}$            | $T_j=25^{\circ}\text{C}$  | 5           | $\mu\text{A}$ |
| $I_{RRM}$ |                                      | $T_j=110^{\circ}\text{C}$ | 0.5         | mA            |

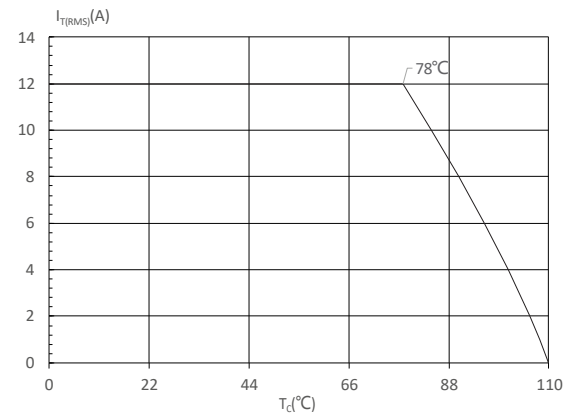
**THERMAL RESISTANCES**

| Symbol        | Parameter                | Value | Unit                        |
|---------------|--------------------------|-------|-----------------------------|
| $R_{th(j-c)}$ | junction to case (DC)    | 2     | $^{\circ}\text{C}/\text{W}$ |
| $R_{th(j-a)}$ | junction to ambient (DC) | 45    | $^{\circ}\text{C}/\text{W}$ |

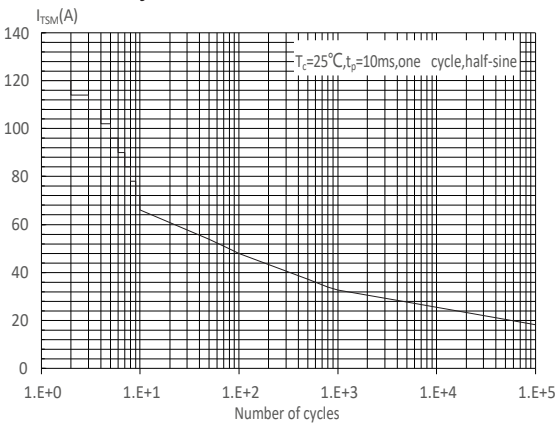
**FIG :** Maximum power dissipation versus RMS on-state current



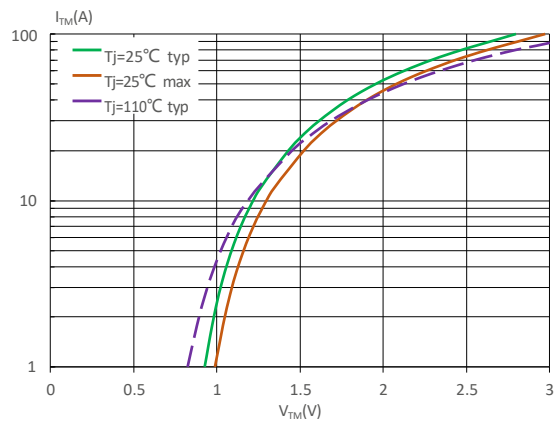
**FIG :** RMS on-state current versus case temperature



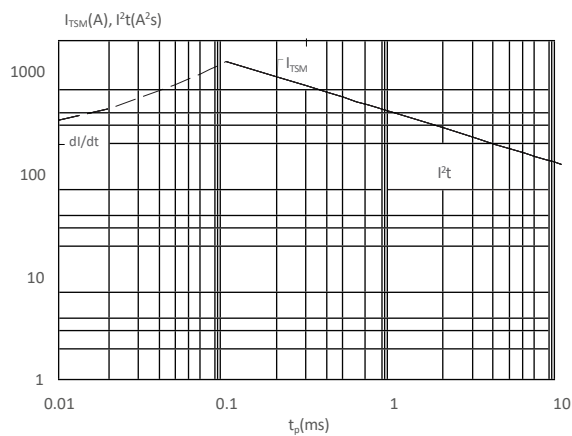
**FIG :** Surge peak on-state current versus number of cycles



**FIG :** On-state characteristics



**FIG :** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 100\text{A}/\mu\text{s}$ )



**FIG :** Relative variations of gate trigger current, holding current and latching current versus junction temperature

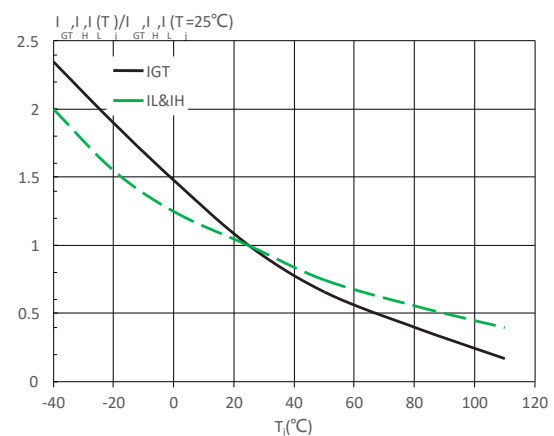
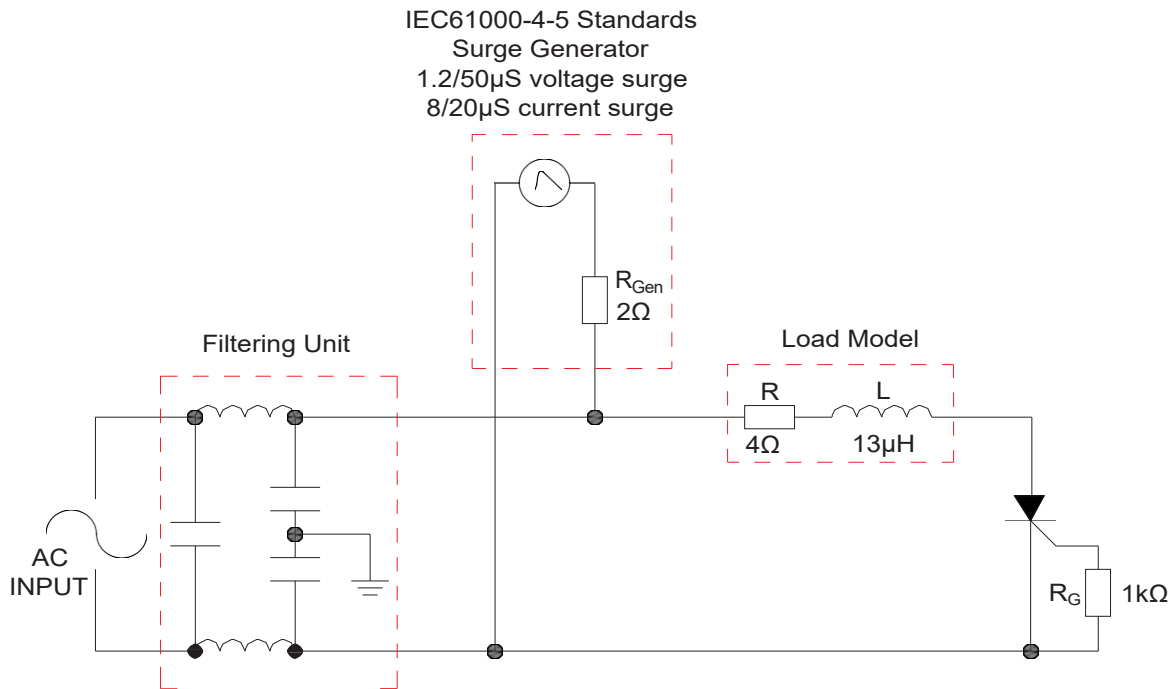


FIG : Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.



## LEAD FORMING AND SOLDERING

Refer to the application note “Assembly Instructions for Thyristors in Through-hole Package” released by JieJie Microelectronics