

## Product Summary

| Symbol            | Value  | Unit    |
|-------------------|--------|---------|
| $I_{T(RMS)}$      | 0.8    | A       |
| $V_{DRM} V_{RRM}$ | 600    | V       |
| $I_{GT}$          | 10~200 | $\mu A$ |

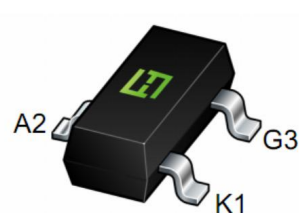
## Feature

With high ability to withstand the shock loading of large current, Provide high dv/dt rate with strong resistance to electromagnetic interference.

## Application

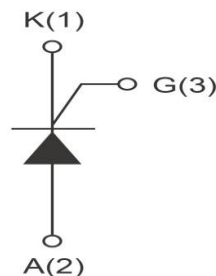
Power charger, T-tools, massager, solid state relay, AC Motor speed regulation and so on.

## Package

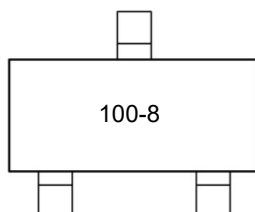


**SOT-23-3L**

## Circuit diagram



## Marking



**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

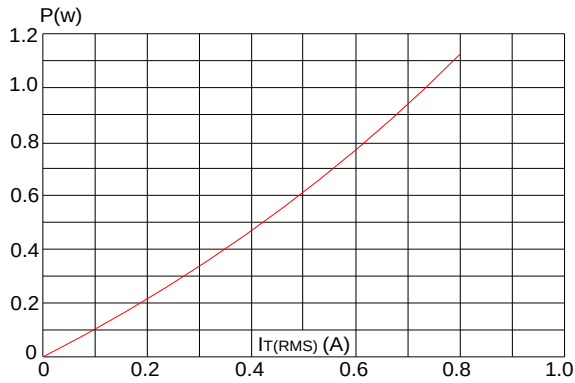
| Parameter                                                             | Symbol       | Value      | Unit             |
|-----------------------------------------------------------------------|--------------|------------|------------------|
| Repetitive peak off-state voltage                                     | $V_{DRM}$    | 600        | V                |
| Repetitive peak reverse voltage                                       | $V_{RRM}$    | 600        | V                |
| RMS on-state current                                                  | $I_{T(RMS)}$ | 0.8        | A                |
| Non repetitive surge peak on-state current<br>(full cycle, F=50Hz)    | $I_{TSM}$    | 8          | A                |
| $I^2t$ value for fusing (tp=10ms)                                     | $I^2t$       | 0.35       | A <sup>2</sup> s |
| Critical rate of rise of on-state current ( $I_G = 2 \times I_{GT}$ ) | $di_T/dt$    | 50         | A/ $\mu$ s       |
| Peak gate current                                                     | $I_{GM}$     | 0.2        | A                |
| Average gate power dissipation                                        | $P_{G(AV)}$  | 0.1        | W                |
| Junction Temperature                                                  | $T_J$        | -40 ~ +125 | °C               |
| Storage Temperature                                                   | $T_{STG}$    | -40 ~ +150 | °C               |

**Electrical characteristics (Ta=25°C, unless otherwise noted)**

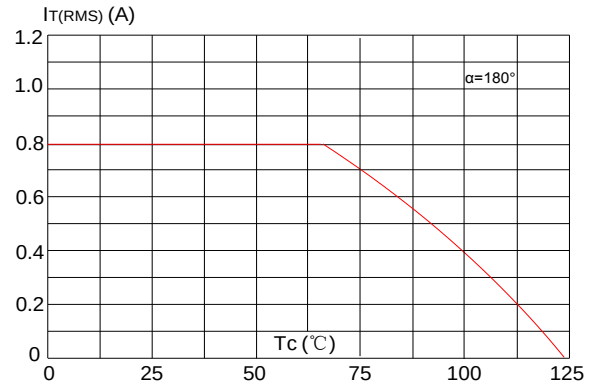
| Parameter                                       | Symbol              | Test Condition                                                         | Value                 |     | Unit |    |
|-------------------------------------------------|---------------------|------------------------------------------------------------------------|-----------------------|-----|------|----|
|                                                 |                     |                                                                        | Min                   | Max |      |    |
| Gate trigger current                            | I <sub>GT</sub>     | V <sub>D</sub> =12V I <sub>T</sub> =10mA T <sub>J</sub> =25°C          | 10                    | 200 | μA   |    |
| Gate trigger voltage                            | V <sub>GT</sub>     |                                                                        | -                     | 0.8 | V    |    |
| Gate non-trigger voltage                        | V <sub>GD</sub>     | V <sub>D</sub> =1/2V <sub>DRM</sub> T <sub>J</sub> =110°C              | 0.2                   | -   | V    |    |
| latching current                                | I <sub>L</sub>      | V <sub>D</sub> =12V I <sub>G</sub> =0.5mA                              | -                     | 4   | mA   |    |
| Holding current                                 | I <sub>H</sub>      | R <sub>GK</sub> =1kΩ T <sub>J</sub> =25°C                              | -                     | 5   | mA   |    |
| Critical-rate of rise<br>of commutation voltage | dV <sub>D</sub> /dt | V <sub>D</sub> =2/3V <sub>DRM</sub> Gate Open<br>T <sub>J</sub> =110°C | 10                    | -   | V/μs |    |
| STATIC CHARACTERISTICS                          |                     |                                                                        |                       |     |      |    |
| Forward "on" voltage                            | V <sub>TM</sub>     | I <sub>TM</sub> =1.2A tp=380μs                                         |                       | -   | 1.7  | V  |
| Repetitive Peak Off-State Current               | I <sub>DRM</sub>    | V <sub>D</sub> =V <sub>DRM</sub> V <sub>R</sub> =V <sub>RRM</sub>      | T <sub>J</sub> =25°C  | -   | 10   | μA |
| Repetitive Peak Reverse Current                 | I <sub>RRM</sub>    |                                                                        | T <sub>J</sub> =110°C | -   | 0.1  | mA |
| THERMAL RESISTANCES                             |                     |                                                                        |                       |     |      |    |
| Thermal resistance                              | Rth(j-c)            | Junction to case                                                       | TYP.                  | 75  | °C/W |    |
|                                                 | Rth(j-a)            | Junction to ambient                                                    | TYP.                  | 150 | °C/W |    |

## Typical Characteristics

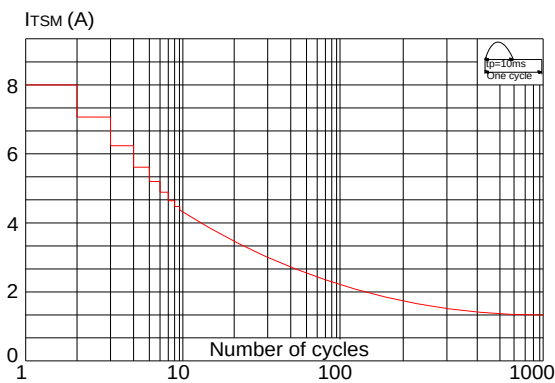
**FIG.1** Maximum power dissipation versus RMS on-state current



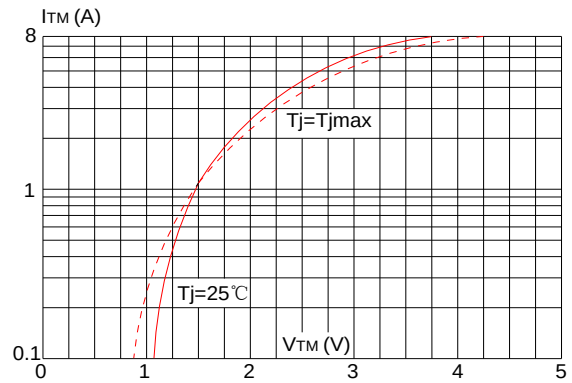
**FIG.2:** RMS on-state current versus case temperature



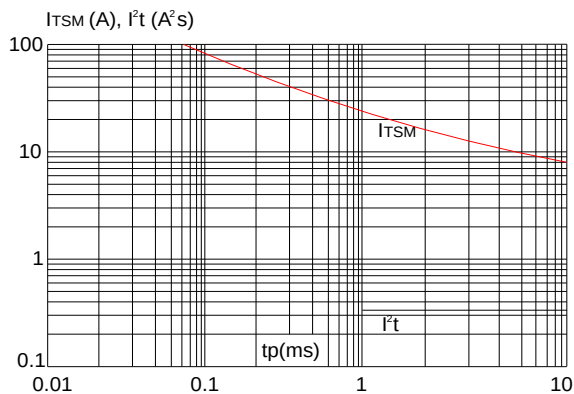
**FIG.3:** Surge peak on-state current versus number of cycles



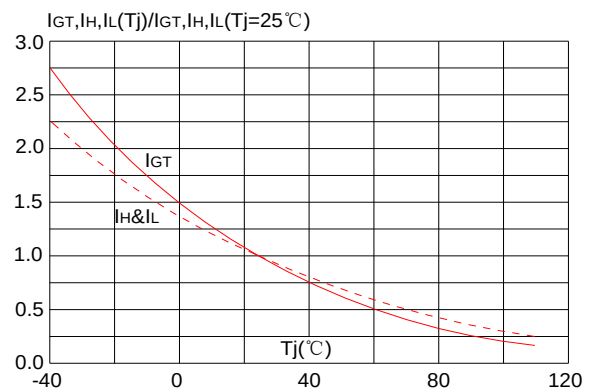
**FIG.4:** On-state characteristics (maximum values)



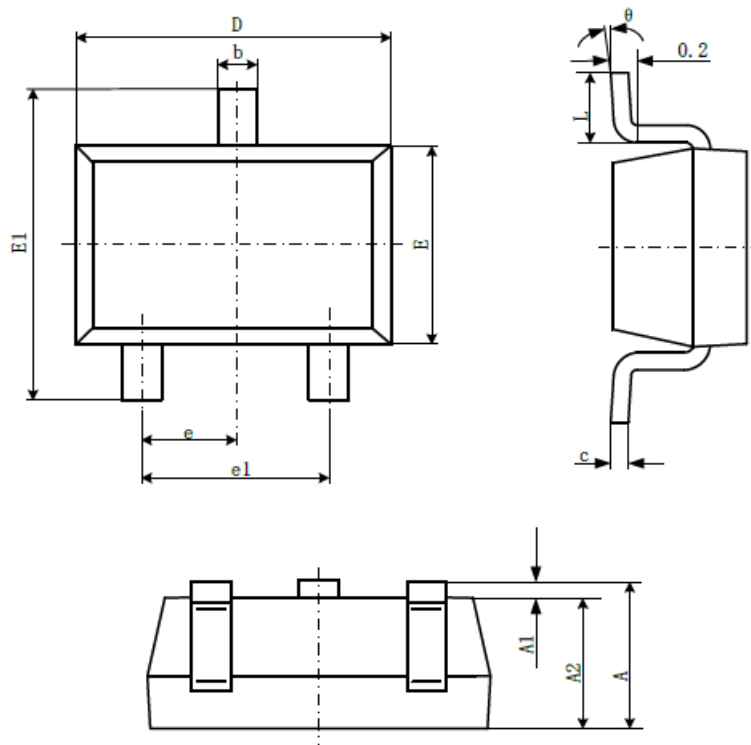
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10ms$ , and corresponding value of  $I^2t$



**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



## SOT-23-3L Package Information



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.050                     | 1.250 | 0.041                | 0.049 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 1.050                     | 1.150 | 0.041                | 0.045 |
| b      | 0.300                     | 0.500 | 0.012                | 0.020 |
| c      | 0.100                     | 0.200 | 0.004                | 0.008 |
| D      | 2.820                     | 3.020 | 0.111                | 0.119 |
| E      | 1.500                     | 1.700 | 0.059                | 0.067 |
| E1     | 2.650                     | 2.950 | 0.104                | 0.116 |
| e      | 0.950(BSC)                |       | 0.037(BSC)           |       |
| e1     | 1.800                     | 2.000 | 0.071                | 0.079 |
| L      | 0.300                     | 0.600 | 0.012                | 0.024 |
| θ      | 0°                        | 8°    | 0°                   | 8°    |