



## Thyristor Modules

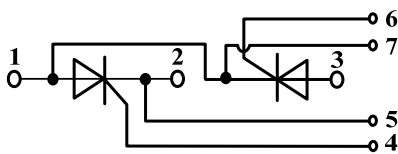
**V<sub>RRM</sub> / V<sub>DRM</sub>** 800 to 1800V

**I<sub>TAV</sub>** 130A

### Applications

- Power Converters
- Lighting Control
- DC Motor Control and Drives
- Heat and temperature control

### Circuit



### Features

- International standard package
- High Surge Capability
- Glass passivated chip
- Simple Mounting
- Heat transfer through aluminum oxide DBC ceramic isolated metal baseplate
- UL recognized applied for file no. E360040

### Module Type

| TYPE       | V <sub>RRM</sub> | V <sub>RSM</sub> |
|------------|------------------|------------------|
| MT130C08T2 | 800V             | 900V             |
| MT130C12T2 | 1200V            | 1300V            |
| MT130C16T2 | 1600V            | 1700V            |
| MT130C18T2 | 1800V            | 1900V            |

### Maximum Ratings

| Symbol           | Conditions                                                                                           | Values          | Units            |
|------------------|------------------------------------------------------------------------------------------------------|-----------------|------------------|
| I <sub>TAV</sub> | Sine 180°; T <sub>c</sub> =85°C                                                                      | 130             | A                |
| I <sub>TSM</sub> | T <sub>VJ</sub> =45°C t=10ms, sine<br>T <sub>VJ</sub> =125°C t=10ms, sine                            | 4700<br>4000    | A                |
| i <sup>2</sup> t | T <sub>VJ</sub> =45°C t=10ms, sine<br>T <sub>VJ</sub> =125°C t=10ms, sine                            | 110000<br>80000 | A <sup>2</sup> s |
| Visol            | a.c.50HZ; r.m.s.; 1min                                                                               | 3000            | V                |
| T <sub>vj</sub>  |                                                                                                      | -40 to 130      | °C               |
| T <sub>stg</sub> |                                                                                                      | -40 to 125      | °C               |
| Mt               | To terminals(M6)                                                                                     | 3 ± 15%         | Nm               |
| Ms               | To heatsink(M6)                                                                                      | 5 ± 15%         | Nm               |
| di/dt            | T <sub>VJ</sub> = T <sub>VJM</sub> , 2/3V <sub>DRM</sub> , I <sub>G</sub> =500mA<br>Tr<0.5us, tp>6us | 200             | A/us             |
| dv/dt            | T <sub>J</sub> = T <sub>VJM</sub> , 2/3V <sub>DRM</sub> , linear voltage rise                        | 1000            | V/us             |
| a                | Maximum allowable acceleration                                                                       | 50              | m/s <sup>2</sup> |
| Weight           | Module(Approximately)                                                                                | 165             | g                |

### Thermal Characteristics

| Symbol               | Conditions                        | Values    | Units |
|----------------------|-----------------------------------|-----------|-------|
| R <sub>th(j-c)</sub> | Cont.; per thyristor / per module | 0.18/0.09 | °C/W  |
| R <sub>th(c-s)</sub> | per thyristor / per module        | 0.1/0.05  | °C/W  |

## Electrical Characteristics

| Symbol            | Conditions                                                 | Values |      |      | Units |
|-------------------|------------------------------------------------------------|--------|------|------|-------|
|                   |                                                            | Min.   | Typ. | Max. |       |
| $V_{TM}$          | $T=25^{\circ}C$ $I_{TM}=500A$                              |        |      | 1.8  | V     |
| $I_{RRM}/I_{DRM}$ | $T_{VJ}=T_{VJM}$ , $V_R=V_{RRM}$ , $V_D=V_{DRM}$           |        |      | 40   | mA    |
| $V_{TO}$          | For power-loss calculations only ( $T_{VJ}=125^{\circ}C$ ) |        |      | 1    | V     |
| $r_T$             | $T_{VJ}=T_{VJM}$                                           |        |      | 1.6  | mΩ    |
| $V_{GT}$          | $T_{VJ}=25^{\circ}C$ , $V_D=6V$                            |        |      | 3    | V     |
| $I_{GT}$          | $T_{VJ}=25^{\circ}C$ , $V_D=6V$                            |        |      | 150  | mA    |
| $V_{GD}$          | $T_{VJ}=125^{\circ}C$ , $V_D=2/3V_{DRM}$                   |        |      | 0.25 | V     |
| $I_{GD}$          | $T_{VJ}=125^{\circ}C$ , $V_D=2/3V_{DRM}$                   |        |      | 10   | mA    |
| $I_L$             | $T_{VJ}=25^{\circ}C$ , $R_G=33\Omega$                      |        | 300  | 1000 | mA    |
| $I_H$             | $T_{VJ}=25^{\circ}C$ , $V_D=6V$                            |        | 150  | 400  | mA    |
| tgδ               | $T_{VJ}=25^{\circ}C$ , $I_G=1A$ , $di_G/dt=1A/us$          | 1      |      |      | us    |
| tq                | $T_{VJ}=T_{VJM}$                                           | 100    |      |      | us    |

## Performance Curves

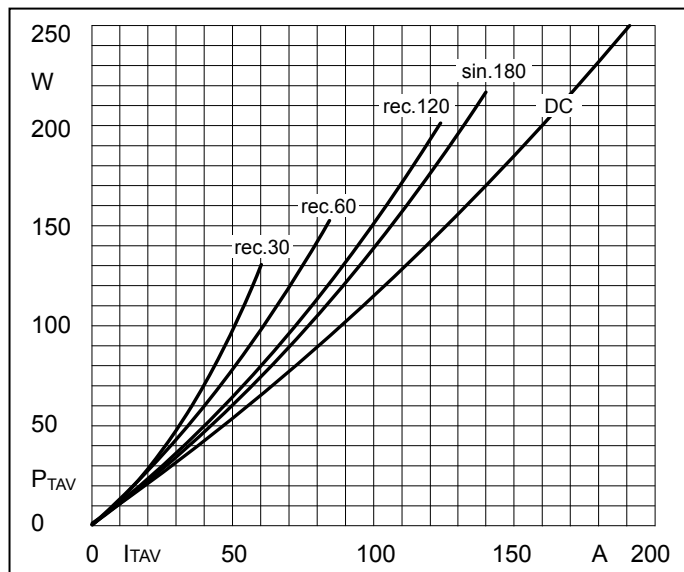


Fig1. Power dissipation

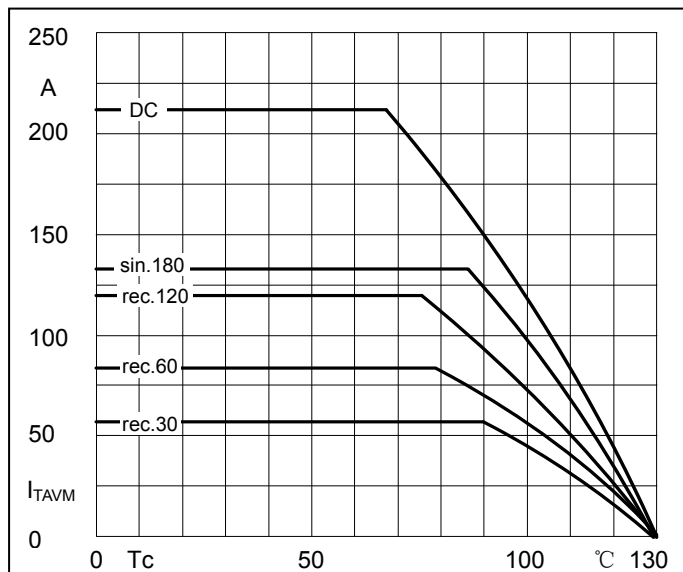


Fig2. Forward Current Derating Curve

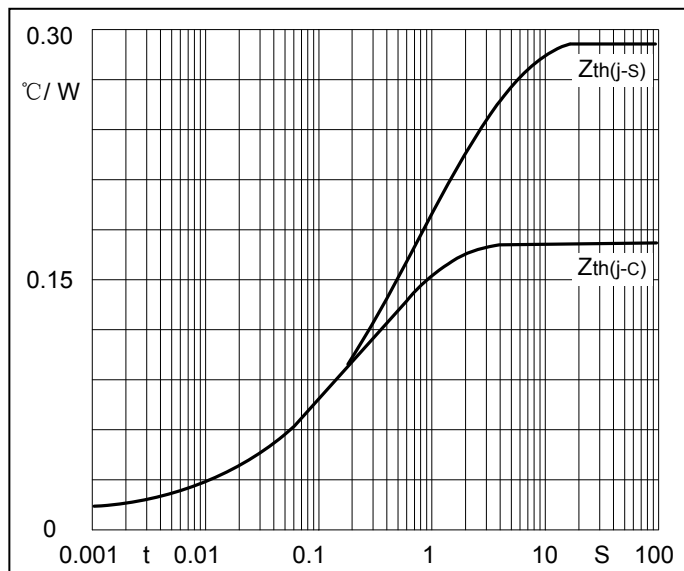


Fig3. Transient thermal impedance

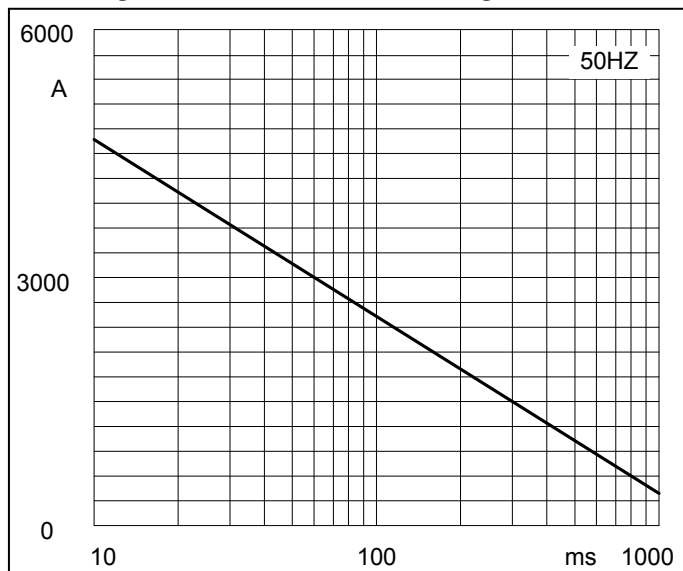


Fig4. Max Non-Repetitive Forward Surge Current

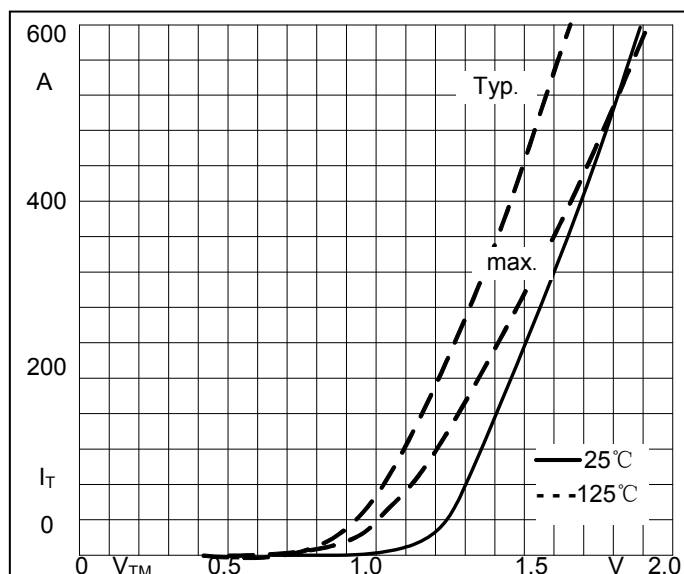
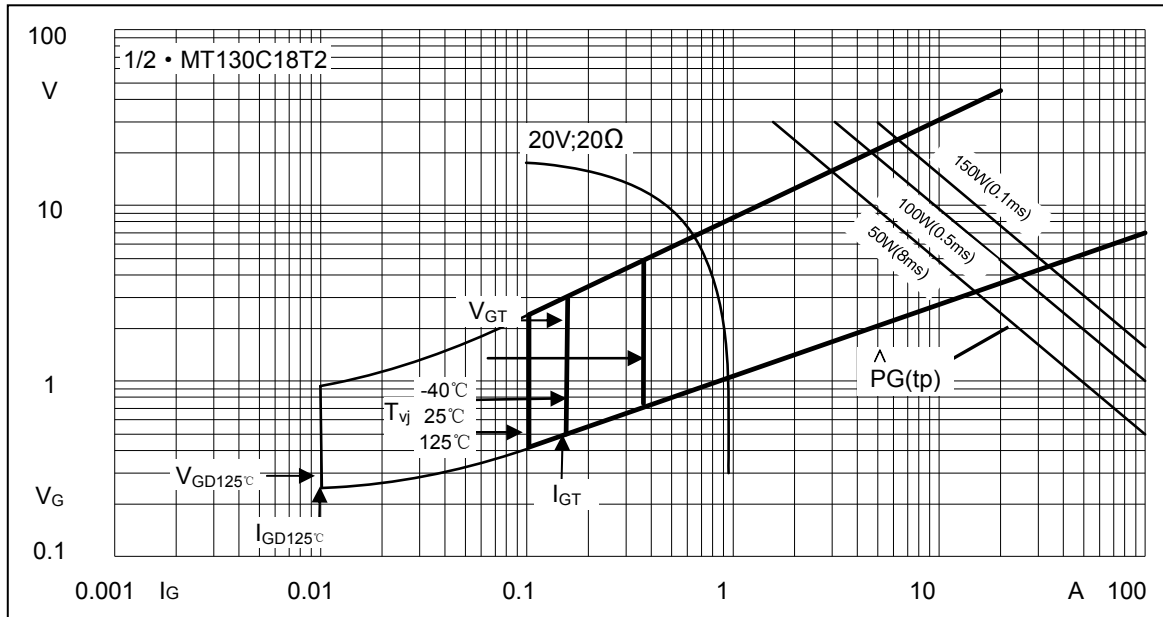


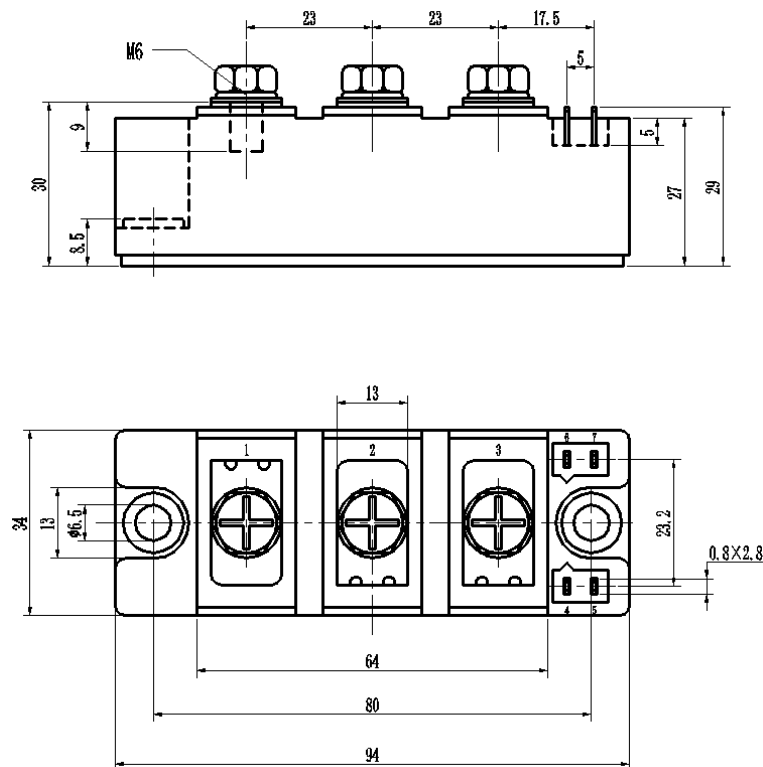
Fig5. Forward Characteristics



**Fig6. Gate trigger Characteristics**

## Package Outline Information

### CASE: T2



**Dimensions in mm**