



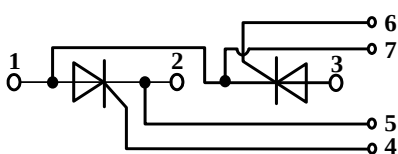
## Thyristor Modules

**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. E230084

### 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                          | 3600<br>3200   | 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                          | 64800<br>51200 | A <sup>2</sup> s |
| V <sub>isol</sub> | a.c.50HZ;r.m.s.;1min                                                                               | 3000           | V                |
| T <sub>vj</sub>   |                                                                                                    | -40 to 125     | °C               |
| T <sub>stg</sub>  |                                                                                                    | -40 to 125     | °C               |
| M <sub>t</sub>    | To terminals(M6)                                                                                   | 3±15%          | Nm               |
| M <sub>s</sub>    | 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  | m $\Omega$ |
| $V_{GT}$          | $T_{VJ}=25^{\circ}C$ , $V_D=6V$                            |        |      | 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         |
| tg $\delta$       | $T_{VJ}=25^{\circ}C$ , $I_G=1A$ , $di_G/dt=1A/us$          |        | 1    |      | us         |
| tq                | $T_{VJ}=T_{VJM}$                                           |        | 100  |      | us         |

## Performance Curves

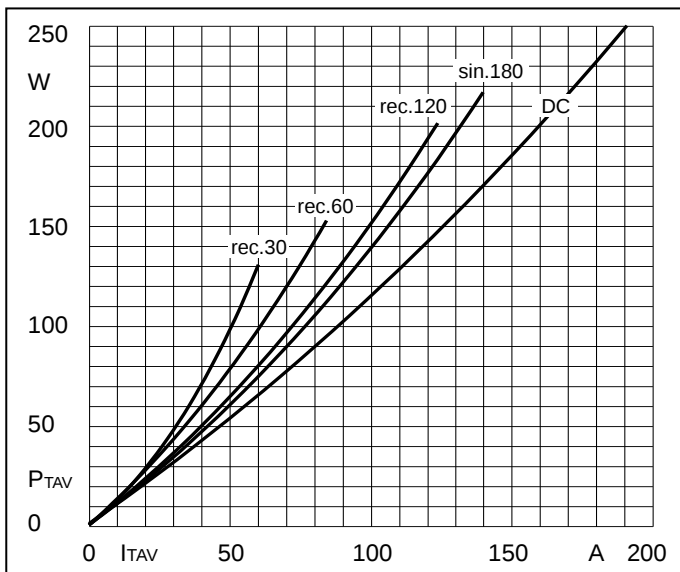


Fig1. Power dissipation

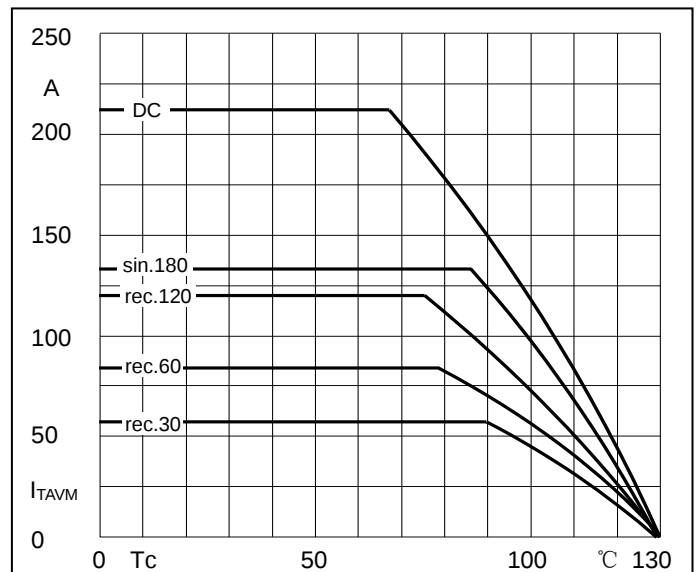
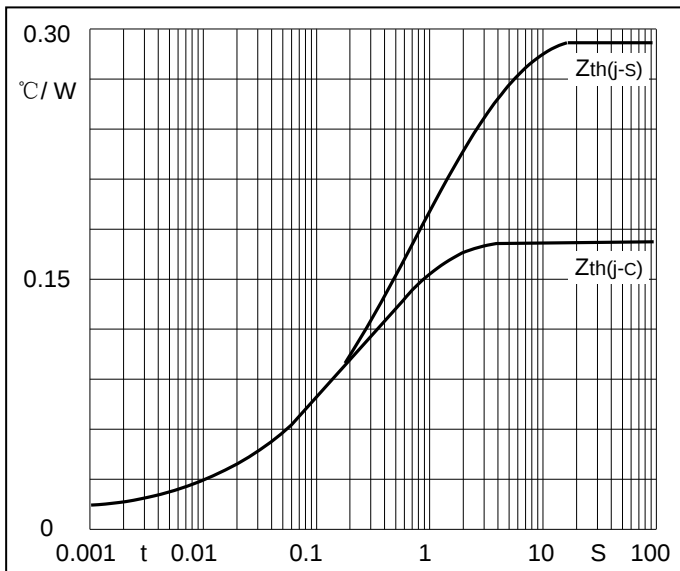
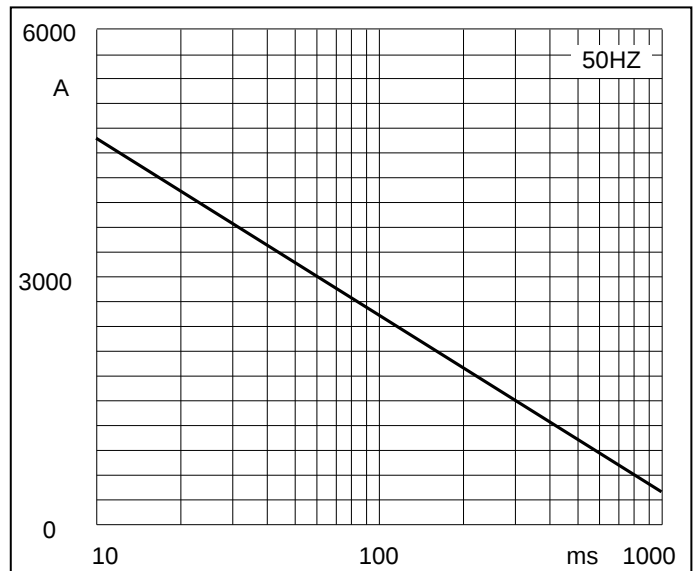


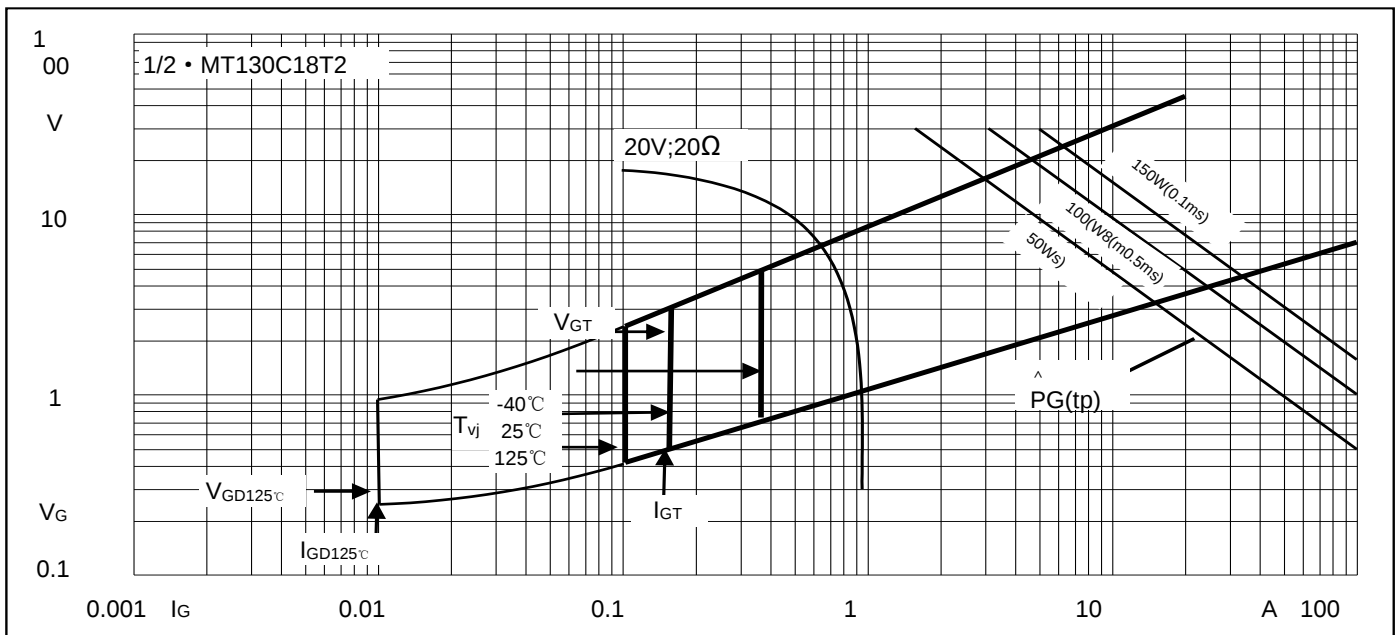
Fig2. Forward Current Derating Curve



**Fig3. Transient thermal impedance**



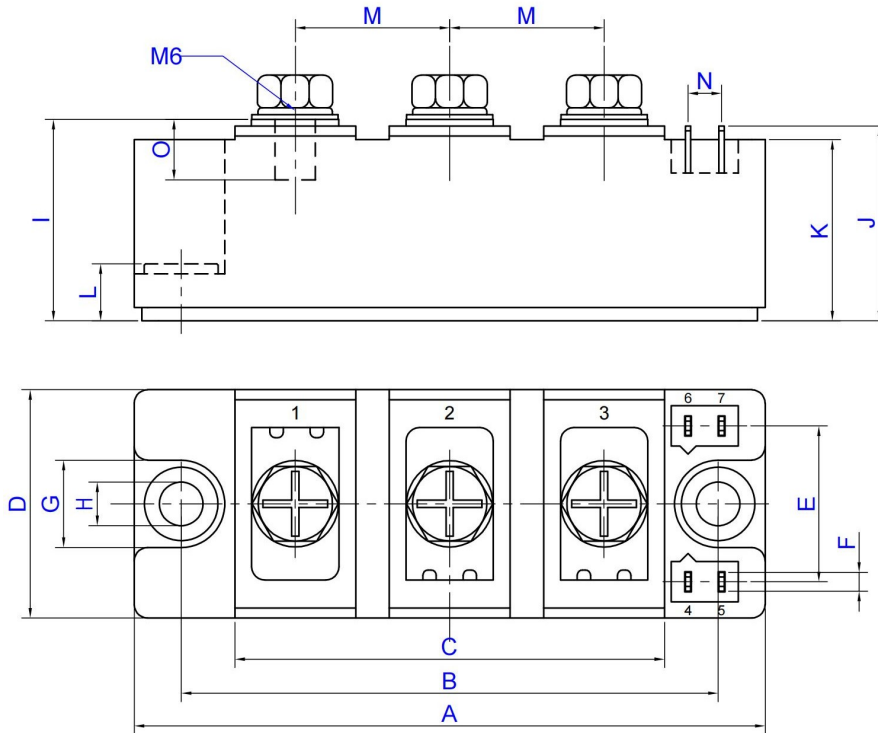
**Fig4. Max Non-Repetitive Forward Surge Current**



**Fig5. Gate trigger Characteristics**

## Package Outline Information

### CASE: T2



| DIM | Min (mm) | Max (mm) | Note |
|-----|----------|----------|------|
| A   | 93.5     | 94.5     |      |
| B   | 79.5     | 80.5     |      |
| C   | 63.5     | 64.5     |      |
| D   | 33.5     | 34.5     |      |
| E   | 22.7     | 23.7     |      |
| F   | 2.3      | 3.3      |      |
| G   | 12.5     | 13.5     |      |
| H   | 6.2      | 6.8      | Ø    |
| I   | 29.5     | 30.5     |      |
| J   | 29       | 30       |      |
| K   | 26.5     | 27.5     |      |
| L   | 8.2      | 8.8      |      |
| M   | 22.5     | 23.5     |      |
| N   | 4.5      | 5.5      |      |
| O   | 13.5     | 15.5     |      |

## Packing Standard

| Item         | Length: A (mm) | Width: B (mm) | Height: C (mm) | Quantity (PCS) |
|--------------|----------------|---------------|----------------|----------------|
| Inner Box    | 276            | 258           | 48             | 8              |
| Outer Carton | 545            | 295           | 240            | 80             |



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