



## Thyristor Module

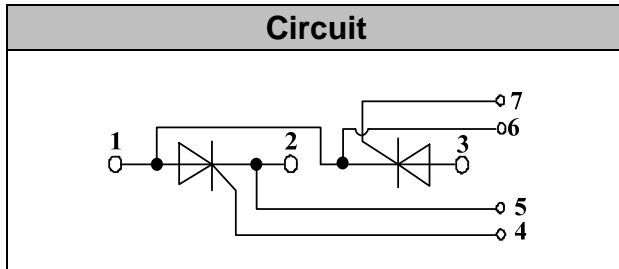
**VRRM / VDRM** 800 to 1800V  
**ITAV** 25A

### Applications

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

### 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      | VRRM  | VRSM  |
|-----------|-------|-------|
| MT25C08T1 | 800V  | 900V  |
| MT25C12T1 | 1200V | 1300V |
| MT25C16T1 | 1600V | 1700V |
| MT25C18T1 | 1800V | 1900V |

### Maximum Ratings

| Symbol    | Conditions  | Values       | Units            |
|-----------|---|--------------|------------------|
| $I_{TAV}$ | Sine 180°; $T_c=85^\circ\text{C}$   | 25           | A                |
| $I_{TSM}$ | $T_{VJ}=45^\circ\text{C}$ t=10ms, sine<br>$T_{VJ}=125^\circ\text{C}$ t=10ms, sine                 | 550<br>480   | A                |
| $i^2t$    | $T_{VJ}=45^\circ\text{C}$ t=10ms, sine<br>$T_{VJ}=125^\circ\text{C}$ t=10ms, sine                 | 1500<br>1150 | A <sup>2</sup> s |
| Visol     | a.c.50HZ;r.m.s.;1min  | 3000         | V                |
| $T_{vj}$  |   | -40 to 125   | °C               |
| $T_{stg}$ |   | -40 to 125   | °C               |
| $M_t$     | To terminals(M5)  | $3 \pm 15\%$ | Nm               |
| $M_s$     | To heatsink(M6)   | $5 \pm 15\%$ | Nm               |
| di/dt     | $T_{VJ}= T_{VJM}$ , $2/3V_{DRM}$ , $I_G =500\text{mA}$<br>$Tr<0.5\mu\text{s}$ , $tp>6\mu\text{s}$ | 150          | A/ $\mu\text{s}$ |
| dv/dt     | $T_J= T_{VJM}$ , $2/3V_{DRM}$ linear voltage rise   | 1000         | V/ $\mu\text{s}$ |
| a         | Maximum allowable acceleration  | 50           | m/s <sup>2</sup> |
| Weight    | Module(Approximately)   | 100          | g                |

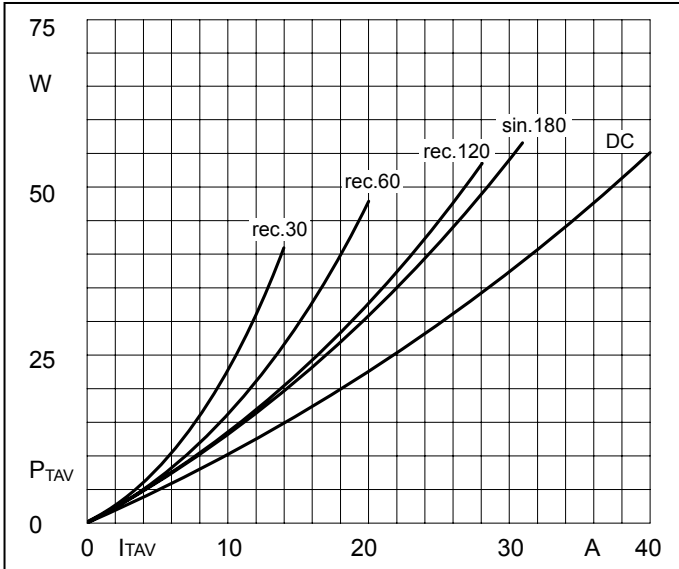
### Thermal Characteristics

| Symbol        | Conditions                       | Values   | Units |
|---------------|----------------------------------|----------|-------|
| $R_{th(j-c)}$ | Cont.;per thyristor / per module | 0.9/0.45 | °C/W  |
| $R_{th(c-s)}$ | per thyristor / per module       | 0.2/0.1  | °C/W  |

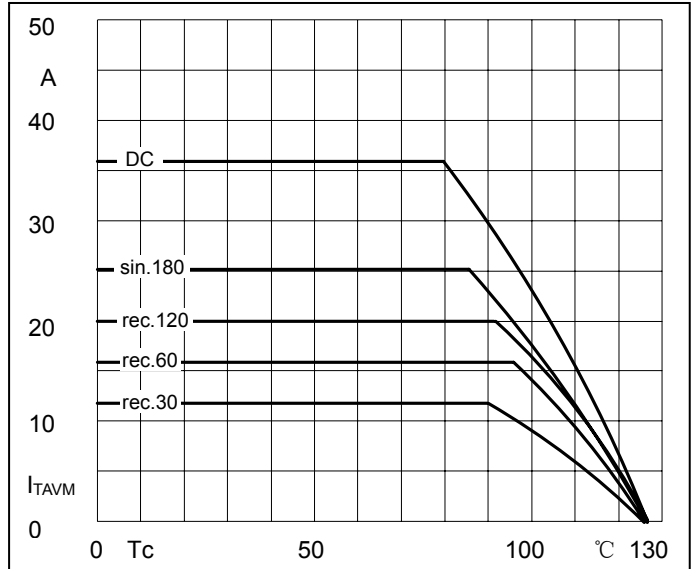
## Electrical Characteristics

| Symbol            | Conditions   | Values |      |      | Units      |
|-------------------|--|--------|------|------|------------|
|                   |  | Min.   | Typ. | Max. |            |
| $V_{TM}$          | $T=25^{\circ}C$ $I_{TM}=75A$                               |        |      | 1.8  | V          |
| $I_{RRM}/I_{DRM}$ | $T_{VJ}=T_{VJM}$ , $V_R=V_{RRM}$ , $V_D=V_{DRM}$           |        |      | 10   | mA         |
| $V_{TO}$          | For power-loss calculations only ( $T_{VJ}=125^{\circ}C$ ) |        |      | 0.9  | V          |
| $r_T$             | $T_{VJ}=T_{VJM}$   |        |      | 12   | m $\Omega$ |
| $V_{GT}$          | $T_{VJ}=25^{\circ}C$ , $V_D=6V$                            |        |      | 2.5  | 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          |
| $I_{GD}$          | $T_{VJ}=125^{\circ}C$ , $V_D=2/3V_{DRM}$                   |        |      | 5    | mA         |
| $I_L$             | $T_{VJ}=25^{\circ}C$ , $R_G=33\ \Omega$                    |        | 250  | 400  | mA         |
| $I_H$             | $T_{VJ}=25^{\circ}C$ , $V_D=6V$                            |        | 100  | 200  | mA         |
| tgd               | $T_{VJ}=25^{\circ}C$ , $I_G=1A$ , $di_G/dt=1A/us$          |        | 1    |      | us         |
| tq                | $T_{VJ}=T_{VJM}$   |        | 80   |      | us         |

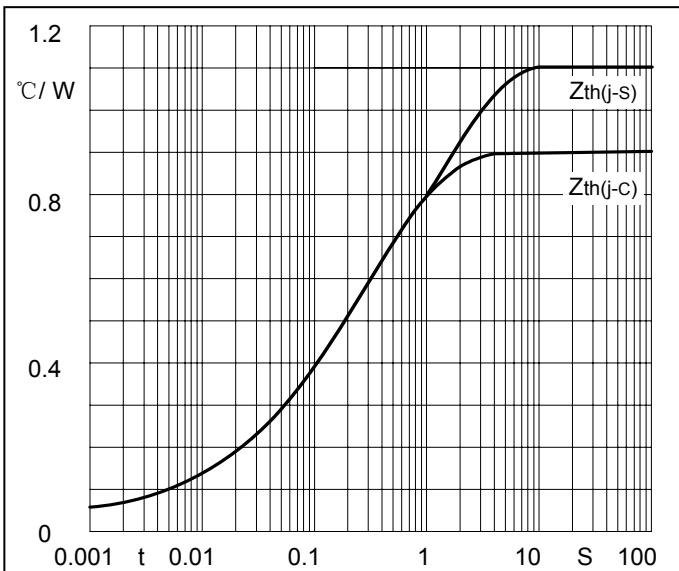
## Performance Curves



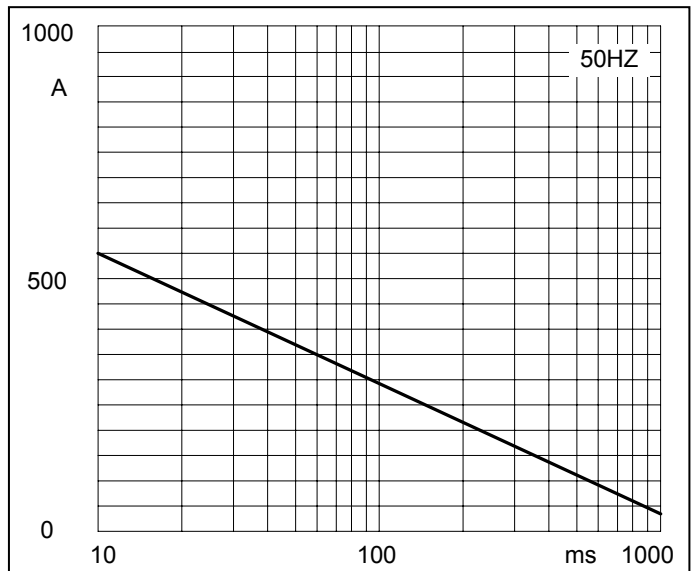
**Fig1. Power dissipation**



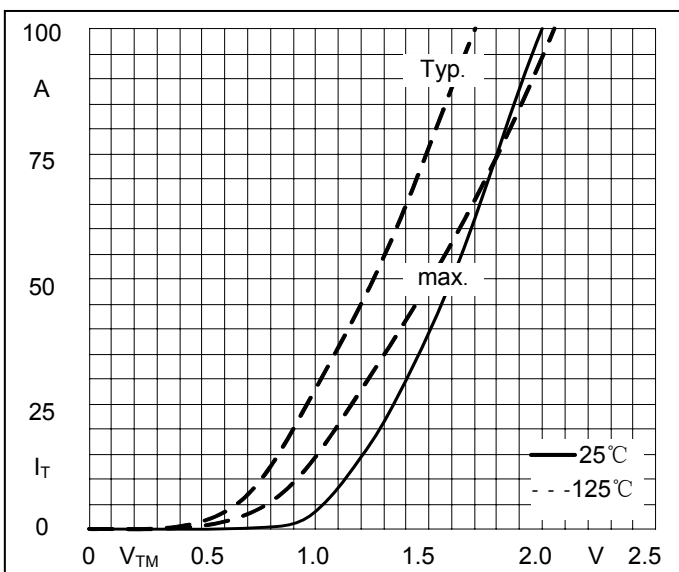
**Fig2. Forward Current Derating Curve**



**Fig3. Transient thermal impedance**



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



**Fig5. Forward Characteristics**

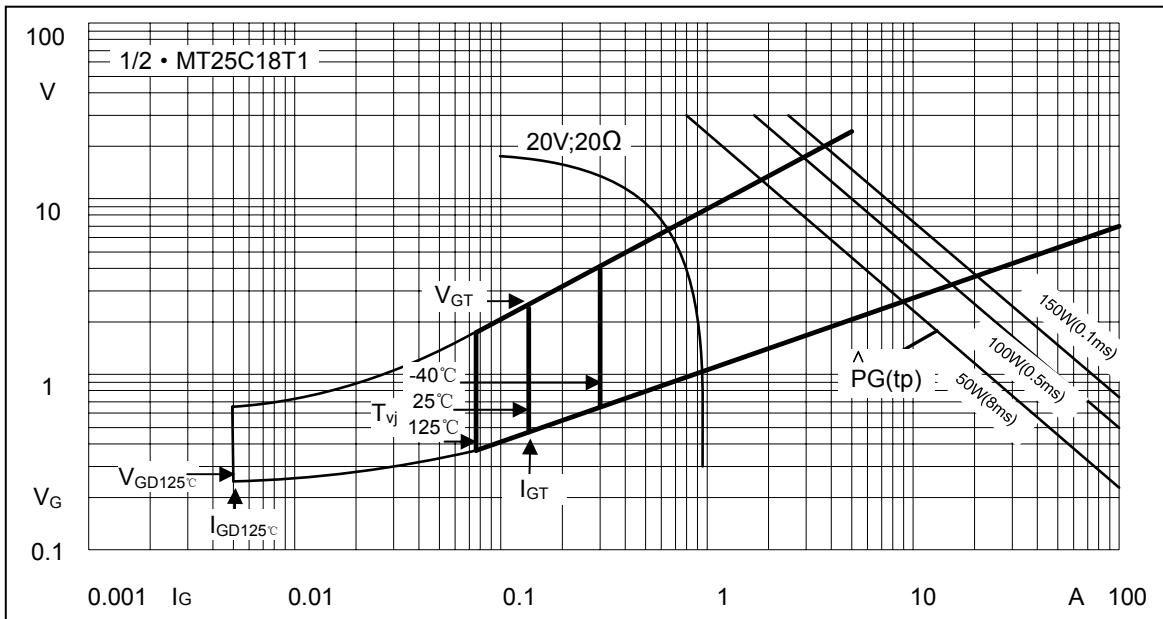
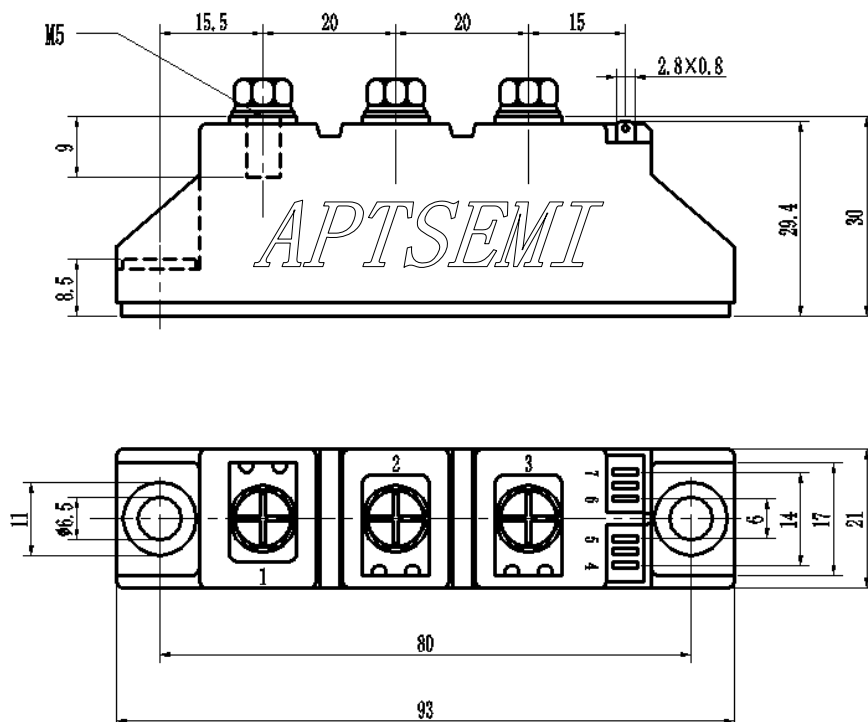


Fig6. Gate trigger Characteristics

## Package Outline Information

CASE: T1



Dimensions in mm