

## Features

- Electrical isolation between chip and base plate, 2500V AC insulator
- Excellent temperature characteristics and power cycling capability
- Compact size and lightweight

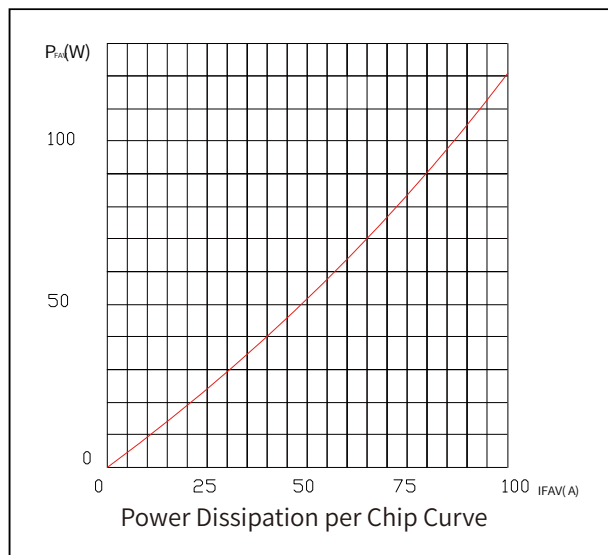
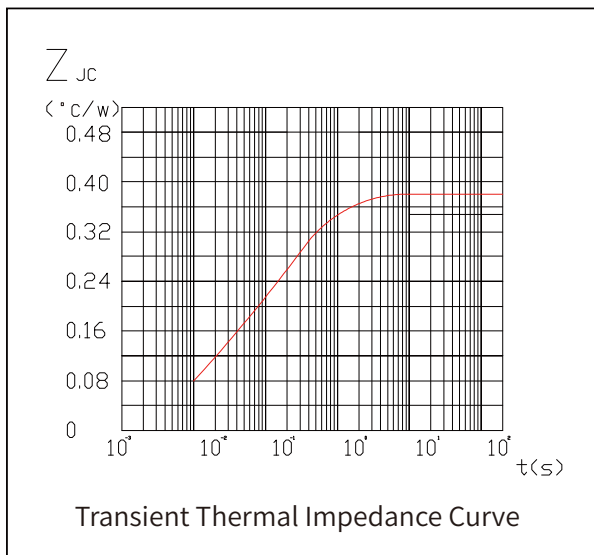
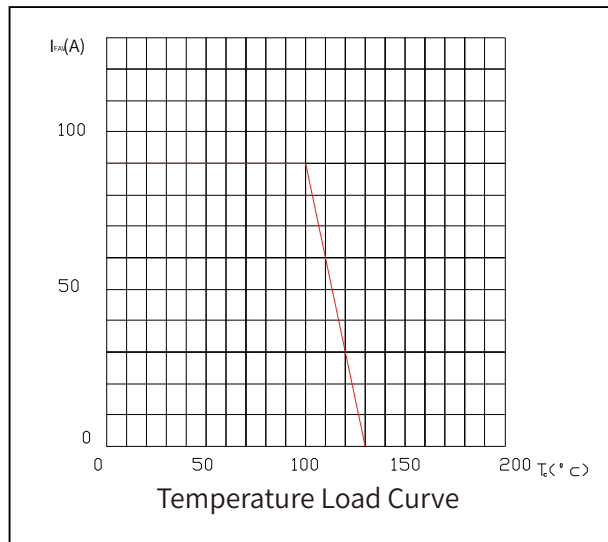
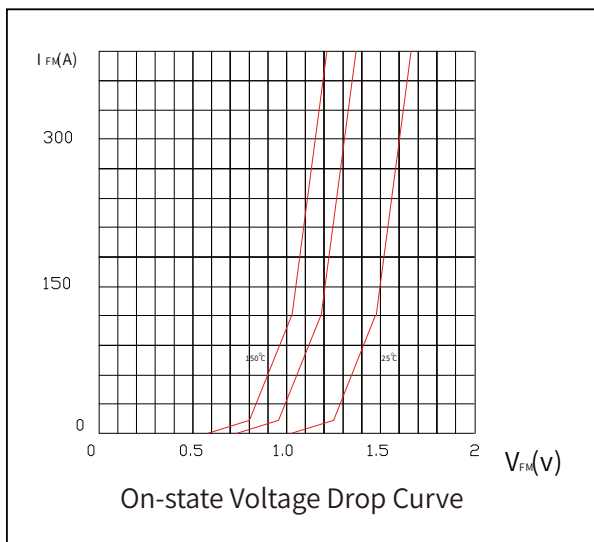
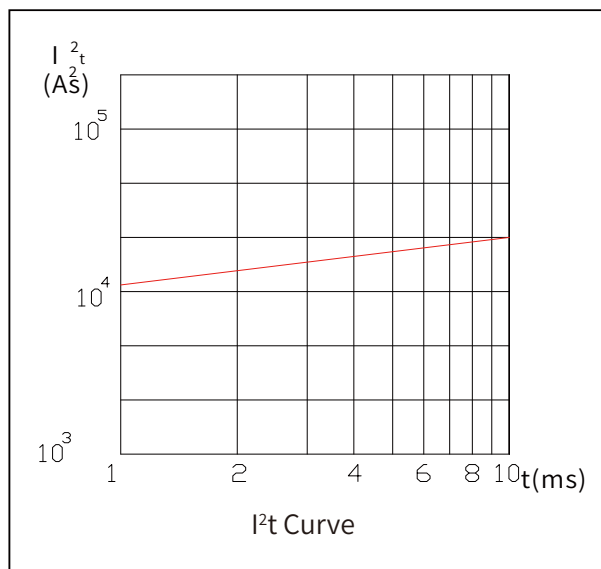
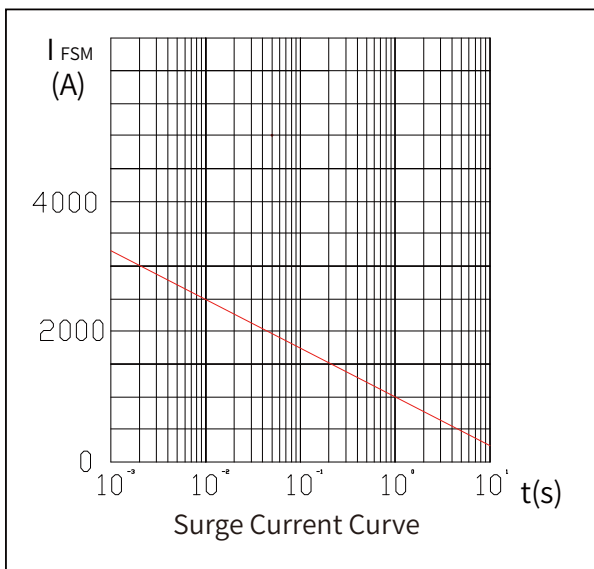
## Applications

- AC/DC motor control
- Various rectifier power supplies
- Frequency converters



| $V_{RSM}(V)$ | $V_{RRM}(V)$ | Model     |
|--------------|--------------|-----------|
| 1300         | 1200         | MTC90 -12 |
| 1700         | 1600         | MTC90 -16 |
| 1900         | 1800         | MTC90 -18 |
| 2100         | 2000         | MTC90 -20 |
| 2500         | 2400         | MTC90 -24 |

| Symbol        | Parameter                                  | Test Conditions                                                             | $T_j(^{\circ}C)$ | Rating |      |       | Units             |
|---------------|--------------------------------------------|-----------------------------------------------------------------------------|------------------|--------|------|-------|-------------------|
|               |                                            |                                                                             |                  | Min.   | Typ. | Max.  |                   |
| $I_{T(AV)}$   | Mean on-state current                      | 180° sine half-wave, 50Hz, single-sided heat dissipation, $T_c=70^{\circ}C$ | 125              |        |      | 90    | A                 |
| $I_{FSM}$     | Non-repetitive on-state surge current      | 10ms, sine half-wave, $V_R=0.6V_{RRM}$                                      | 125              |        |      | 2.5   | KA                |
| $I^2t$        |                                            |                                                                             |                  |        |      | 31.25 | $A^2s \cdot 10^3$ |
| $I_{DRM}$     | Repetitive peak off-state current          | At $V_{DRM}$                                                                | 125              |        |      | 10    | mA                |
| $I_{RRM}$     | Repetitive peak reverse current            | At $V_{RRM}$                                                                | 125              |        |      | 10    | mA                |
| $V_{TO}$      | On-state threshold voltage                 |                                                                             | 125              |        |      | 0.88  | V                 |
| $V_{TM}$      | Peak on-state voltage                      | $I_{TM}=270A$                                                               | 25               |        | 1.35 | 1.6   | V                 |
| $R_T$         | Slope resistance                           |                                                                             | 125              |        |      | 1.8   | mΩ                |
| dv/dt         | Critical rate of rise of off-state voltage | $V_{DM}=0.67V_{DRM}$                                                        | 125              |        |      | 1000  | V/μs              |
| di/dt         | Critical rate of rise of off-state current | $V_{DM}=0.67V_{DRM}$ ,<br>Gate pulse $t_r \leq 0.5\mu s$ , $I_{GM}=1.5A$    | 125              |        |      | 200   | A/μs              |
| $I_{GT}$      | Gate trigger current                       | $V_A=12V$ , $I_A=1A$                                                        | 25               | 20     |      | 100   | mA                |
| $V_{GT}$      | Gate trigger voltage                       |                                                                             | 25               |        |      | 1.8   | V                 |
| $I_H$         | Holding current                            |                                                                             | 25               | 20     |      | 150   | mA                |
| $V_{ISO}$     | Insulation voltage                         | AC, 50Hz, R.M.S, 1min                                                       |                  | 2500   |      |       | V                 |
| $R_{th(j-c)}$ | Thermal resistance junction-case           | 180° sine half-wave, single die                                             |                  |        |      | 0.38  | $^{\circ}C/W$     |
| $R_{th(c-h)}$ | Thermal resistance case-heatsink           | 180° sine half-wave, single module                                          |                  |        |      | 0.10  | $^{\circ}C/W$     |
| Mt            | Terminal mounting torque                   |                                                                             |                  | 3      |      | 4     | N · m             |
| Ms            | Baseplate mounting torque                  |                                                                             |                  | 4      |      | 6     | N · m             |
| $T_{stg}$     | Storage temperature                        |                                                                             |                  | -40    |      | 125   | $^{\circ}C$       |



**Outline package dimensions**

03

