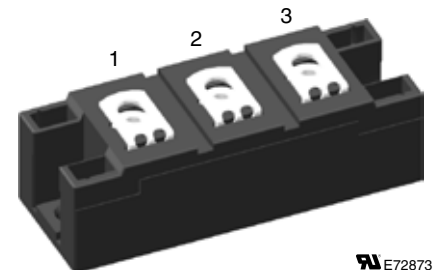
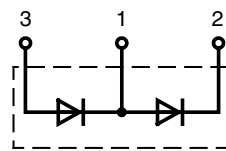


# High Power Diode Modules

$I_{FRSM} = 2x\ 350\ A$   
 $I_{FAVM} = 2x\ 224\ A$   
 $V_{RRM} = 1400-2200\ V$

| $V_{RSM}$<br>V | $V_{RRM}$<br>V | Type         |
|----------------|----------------|--------------|
| 1500           | 1400           | MDD 200-14N1 |
| 1700           | 1600           | MDD 200-16N1 |
| 1900           | 1800           | MDD 200-18N1 |
| 2300           | 2200           | MDD 200-22N1 |



E72873

| Symbol     | Conditions                                | Maximum Ratings |                  |
|------------|---|-----------------|------------------|
| $I_{FRMS}$ | $T_{VJ} = T_{VJM}$                        | 350             | A                |
| $I_{FAVM}$ | $T_C = 100^\circ C; 180^\circ$ sine       | 224             | A                |
| $I_{FSM}$  | $T_{VJ} = 45^\circ C; t = 10\ ms$ (50 Hz) | 10500           | A                |
|            | $V_R = 0; t = 8.3\ ms$ (60 Hz)            | 11200           | A                |
|            | $T_{VJ} = T_{VJM}; t = 10\ ms$ (50 Hz)    | 9100            | A                |
|            | $V_R = 0; t = 8.3\ ms$ (60 Hz)            | 9700            | A                |
| $I^2t$     | $T_{VJ} = 45^\circ C; t = 10\ ms$ (50 Hz) | 551000          | A <sup>2</sup> s |
|            | $V_R = 0; t = 8.3\ ms$ (60 Hz)            | 527000          | A <sup>2</sup> s |
|            | $T_{VJ} = T_{VJM}; t = 10\ ms$ (50 Hz)    | 414000          | A <sup>2</sup> s |
|            | $V_R = 0; t = 8.3\ ms$ (60 Hz)            | 395000          | A <sup>2</sup> s |
| $T_{VJ}$   |   | -40...+150      | °C               |
| $T_{VJM}$  |   | 150             | °C               |
| $T_{stg}$  |   | -40...+125      | °C               |
| $V_{ISOL}$ | 50/60 Hz, RMS $t = 1\ min$                | 3000            | V~               |
|            | $I_{ISOL} \leq 1\ mA; t = 1\ s$           | 3600            | V~               |
| $M_d$      | Mounting torque (M6)                      | 2.25 - 2.75     | Nm               |
|            | Terminal connection torque (M6)           | 4.5 - 5.5       | Nm               |
| Weight     | Typical including screws                  | 120             | g                |

## Features

- International standard package
- Direct copper bonded  $Al_2O_3$  ceramic with copper base plate
- Planar passivated chips
- Isolation voltage 3600 V~

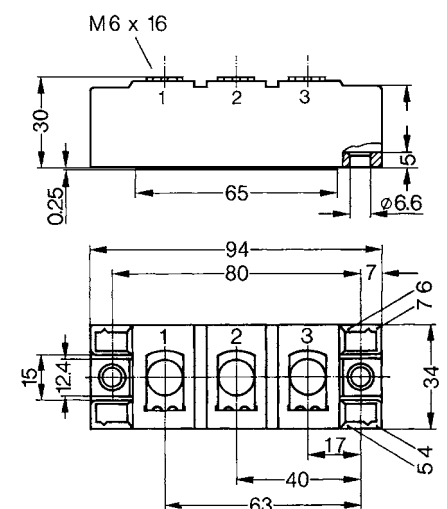
## Applications

- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

## Advantages

- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

## Dimensions in mm (1 mm = 0.0394")



| Symbol     | Conditions   | Characteristics Values |                  |
|------------|--|------------------------|------------------|
| $I_{RRM}$  | $V_R = V_{RRM}; T_{VJ} = T_{VJM}$                          | 20                     | mA               |
| $V_F$      | $I_F = 300\ A; T_{VJ} = 25^\circ C$                        | 1.3                    | V                |
| $V_{T0}$   | For power-loss calculations only                           | 0.8                    | V                |
| $r_t$      | $T_{VJ} = T_{VJM}$   | 0.6                    | mΩ               |
| $R_{thJC}$ | per diode; DC current                                      | 0.130                  | K/W              |
|            | per module   | 0.065                  | K/W              |
| $R_{thJK}$ | per diode; DC current                                      | 0.230                  | K/W              |
|            | per module   | 0.115                  | K/W              |
| $Q_S$      | $T_{VJ} = 125^\circ C; I_F = 300\ A; -di/dt = 50\ A/\mu s$ | 625                    | μC               |
| $I_{RM}$   |  | 275                    | A                |
| $d_s$      | Creeping distance on surface                               | 12.7                   | mm               |
| $d_A$      | Creepage distance in air                                   | 9.6                    | mm               |
| $a$        | Maximum allowable acceleration                             | 50                     | m/s <sup>2</sup> |

Data according to IEC 60747 and refer to a single diode unless otherwise stated.

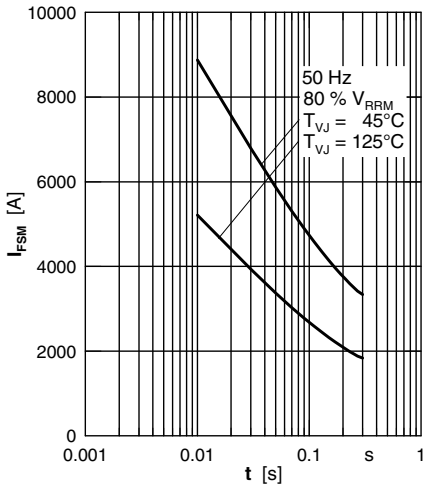


Fig. 1 Surge overload current  $I_{FSM}$ : Crest value, t: duration

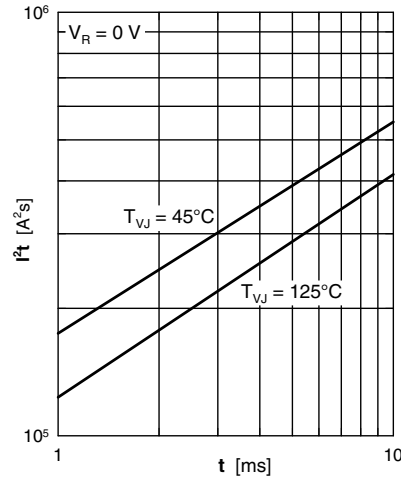


Fig. 2  $I^2t$  versus time (1-10 ms)

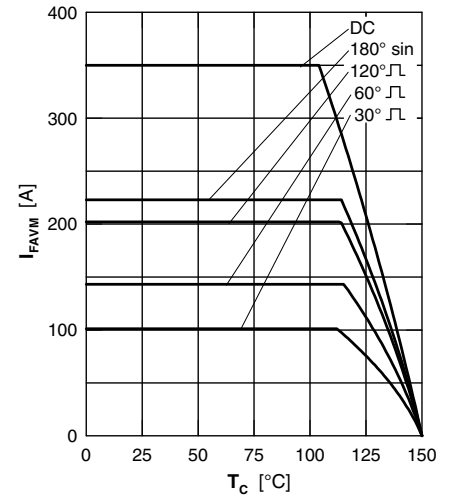


Fig. 3 Maximum forward current at case temperature

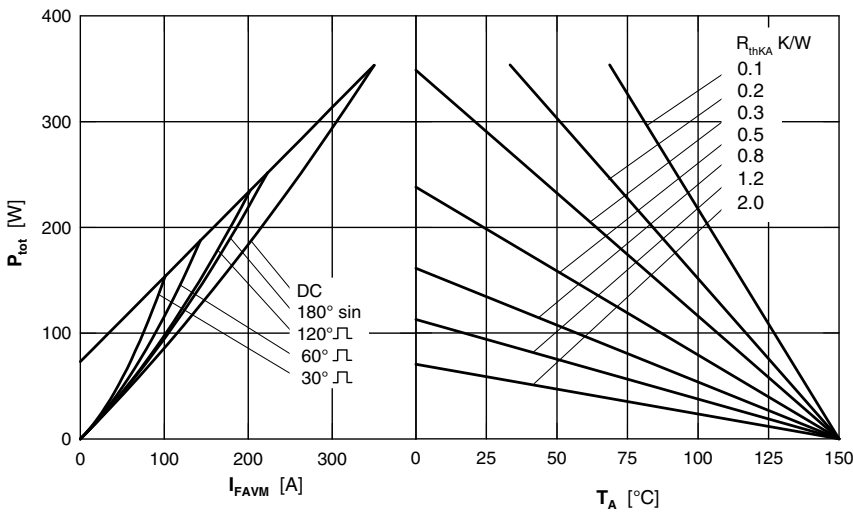


Fig. 4 Power dissipation versus forward current and ambient temperature (per diode)

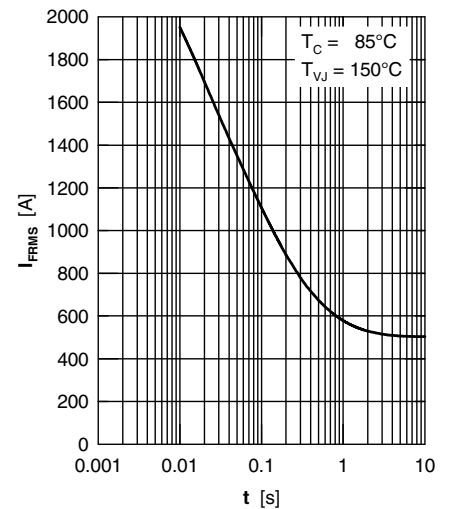


Fig. 5 Rated RMS current versus time (360° conduction)

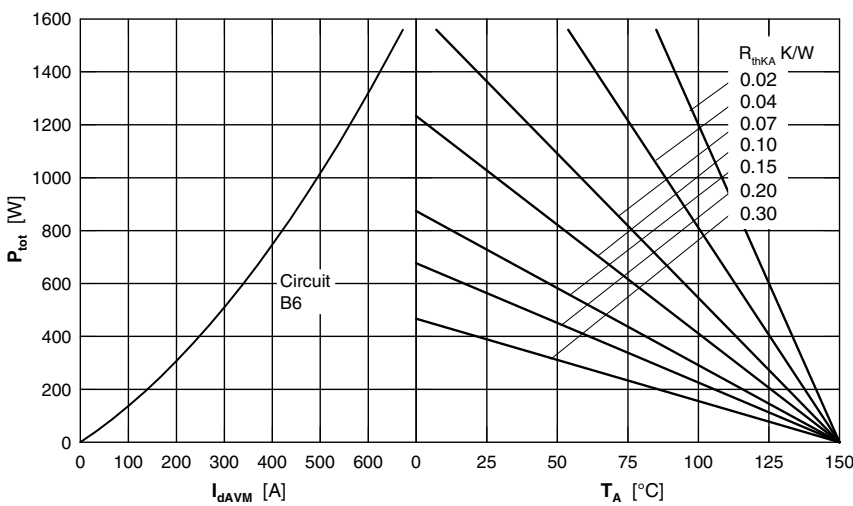


Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

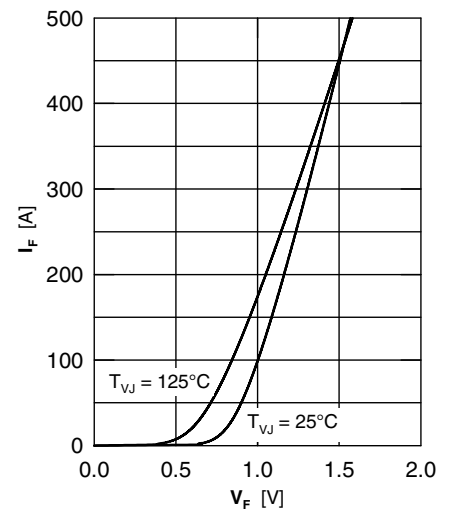


Fig. 7 Forward current versus voltage drop

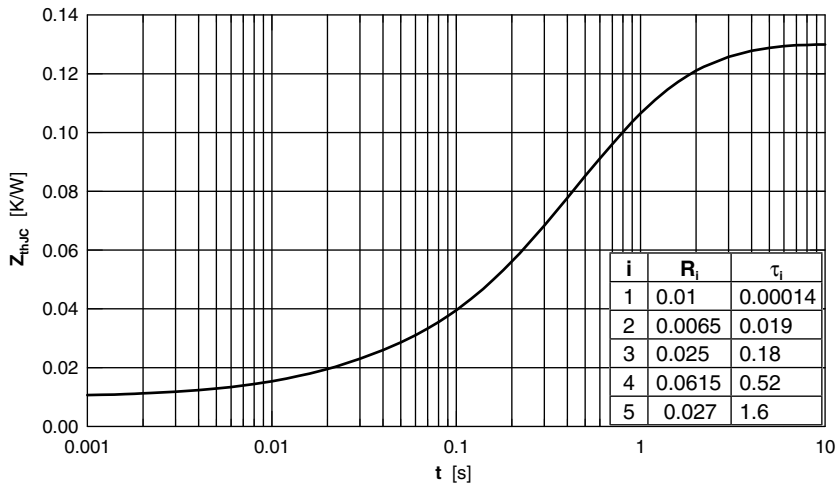


Fig. 8 Transient thermal impedance junction to case