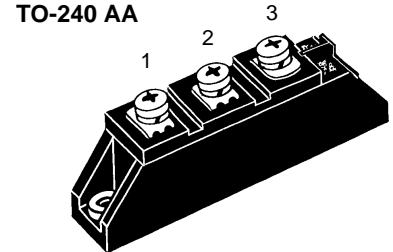
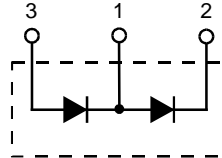


Diode Modules

$I_{FRMS} = 2 \times 100 \text{ A}$
 $I_{FAVM} = 2 \times 64 \text{ A}$
 $V_{RRM} = 800-1800 \text{ V}$

| V_{RSM} V | V_{RRM} V | Type |
|----------------|----------------|---------------|
| 900 | 800 | MDD 44-08N1 B |
| 1300 | 1200 | MDD 44-12N1 B |
| 1500 | 1400 | MDD 44-14N1 B |
| 1700 | 1600 | MDD 44-16N1 B |
| 1900 | 1800 | MDD 44-18N1 B |



| Symbol | Test Conditions | Maximum Ratings | |
|---------------|---|--------------------------|-----------------------|
| I_{FRMS} | $T_{VJ} = T_{VJM}$ | 100 A | |
| I_{FAVM} | $T_C = 92^\circ\text{C}; 180^\circ \text{ sine}$ | 64 A | |
| | $T_C = 100^\circ\text{C}; 180^\circ \text{ sine}$ | 59 A | |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C}; V_R = 0$ | t = 10 ms (50 Hz), sine | 1150 A |
| | | t = 8.3 ms (60 Hz), sine | 1300 A |
| | $T_{VJ} = T_{VJM}; V_R = 0$ | t = 10 ms (50 Hz), sine | 1000 A |
| | | t = 8.3 ms (60 Hz), sine | 1200 A |
| $\int i^2 dt$ | $T_{VJ} = 45^\circ\text{C}; V_R = 0$ | t = 10 ms (50 Hz), sine | 6600 A ² s |
| | | t = 8.3 ms (60 Hz), sine | 7000 A ² s |
| | $T_{VJ} = T_{VJM}; V_R = 0$ | t = 10 ms (50 Hz), sine | 5000 A ² s |
| | | t = 8.3 ms (60 Hz), sine | 5950 A ² 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~ |
| | $I_{ISOL} \leq 1 \text{ mA}$ | t = 1 s | 3600 V~ |
| M_d | Mounting torque (M5) | 2.5-4/22-35 Nm/lb.in. | |
| | Terminal connection torque (M5) | 2.5-4/22-35 Nm/lb.in. | |
| Weight | Typical including screws | 90 g | |

Features

- International standard package JEDEC TO-240 AA
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

Applications

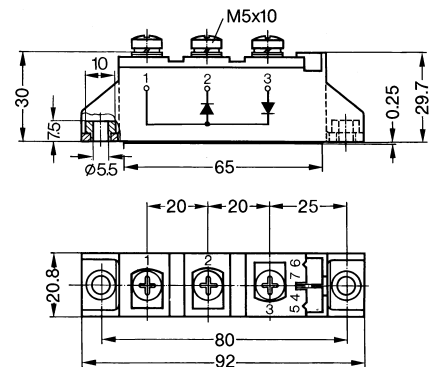
- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages

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

| Symbol | Test Conditions | Characteristic Values | |
|------------|---|--------------------------------|-----------|
| I_R | $T_{VJ} = T_{VJM}; V_R = V_{RRM}$ | 10 mA | |
| V_F | $I_F = 200 \text{ A}; T_{VJ} = 25^\circ\text{C}$ | 1.60 V | |
| V_{T0} | For power-loss calculations only | 0.8 V | |
| r_T | $T_{VJ} = T_{VJM}$ | 4.3 mΩ | |
| Q_S | $T_{VJ} = 125^\circ\text{C}; I_F = 50 \text{ A}, -di/dt = 0.64 \text{ A}/\mu\text{s}$ | 90 μC | |
| I_{RM} | | 11 A | |
| R_{thJC} | per diode; DC current per module | } other values see Fig. 6/7 | 0.59 K/W |
| | | | 0.295 K/W |
| R_{thJK} | per diode; DC current per module | } | 0.79 K/W |
| | | | 0.395 K/W |
| d_s | Creepage distance on surface | 12.7 mm | |
| d_A | Strike distance through air | 9.6 mm | |
| a | Maximum allowable acceleration | 50 m/s ² | |

Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747 and refer to a single diode unless otherwise stated. IXYS reserves the right to change limits, test conditions and dimensions

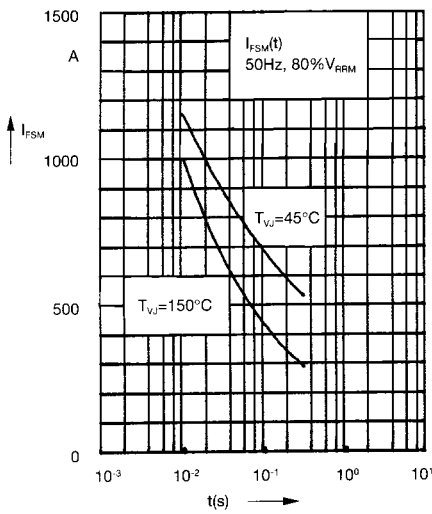


Fig. 1 Surge overload current
 I_{FSM} : Crest value, t : duration

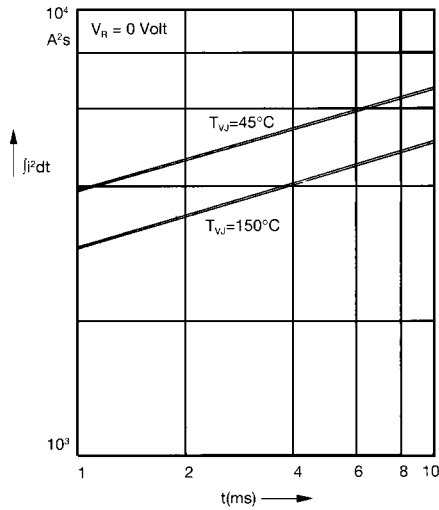


Fig. 2 j^2dt versus time (1-10 ms)

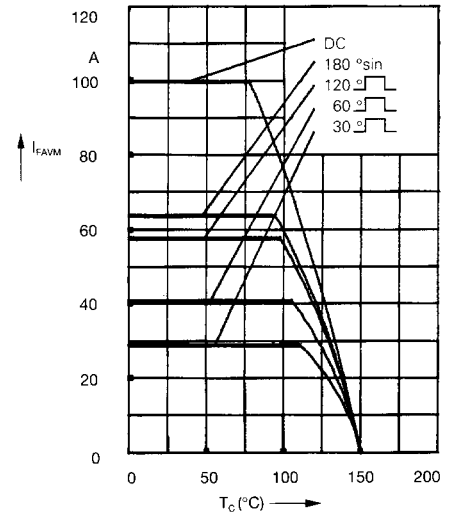


Fig. 2a Maximum forward current at case temperature

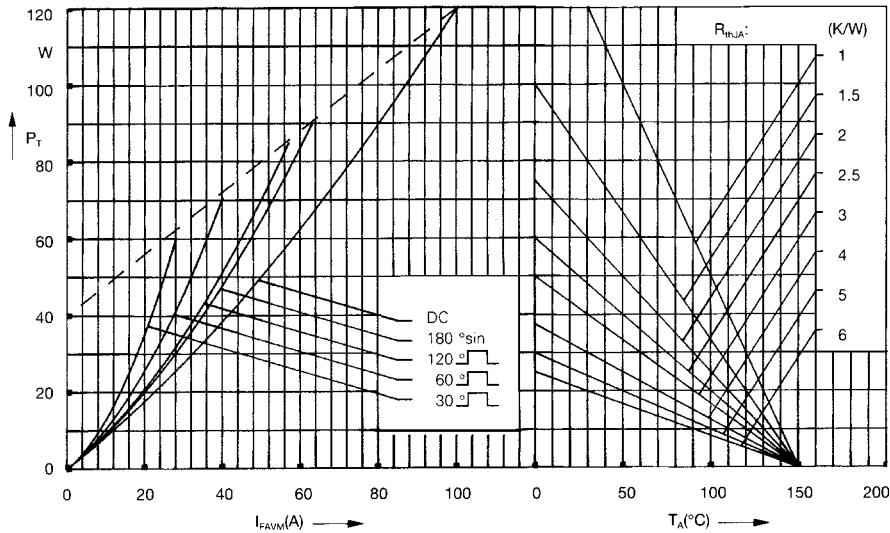


Fig. 3 Power dissipation versus forward current and ambient temperature (per diode)

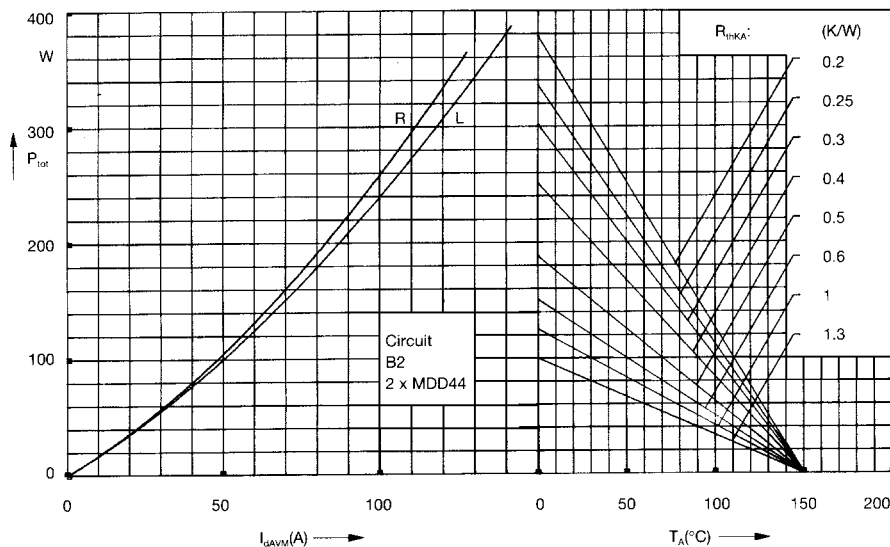


Fig. 4 Single phase rectifier bridge:
 Power dissipation versus direct output current and ambient temperature
 R = resistive load
 L = inductive load

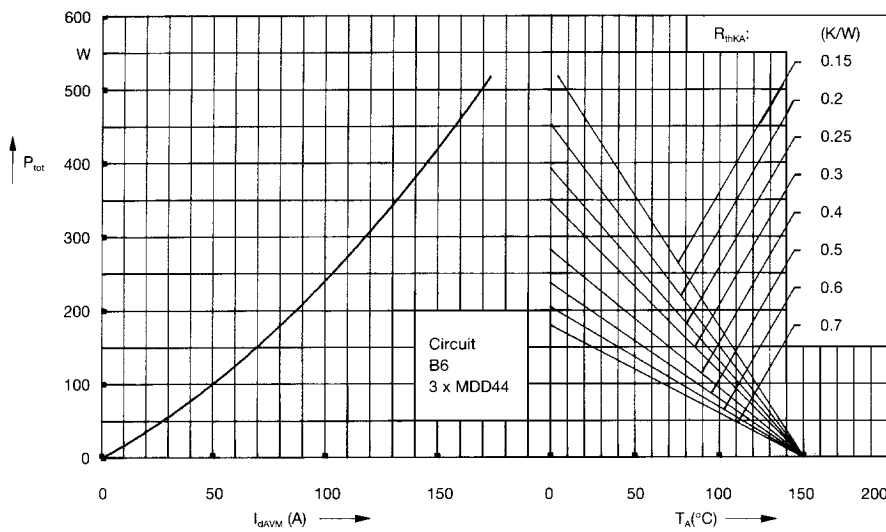


Fig. 5 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

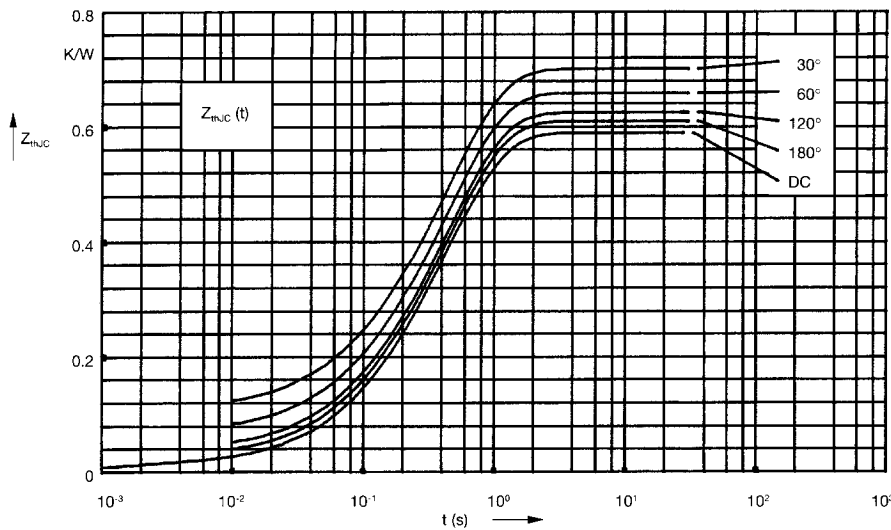


Fig. 6 Transient thermal impedance junction to case (per diode)

R_{thJC} for various conduction angles d:

| d | R_{thJC} (K/W) |
|------|------------------|
| DC | 0.59 |
| 180° | 0.61 |
| 120° | 0.63 |
| 60° | 0.66 |
| 30° | 0.70 |

Constants for Z_{thJC} calculation:

| i | R_{thi} (K/W) | t_i (s) |
|---|-----------------|-----------|
| 1 | 0.012 | 0.0012 |
| 2 | 0.045 | 0.095 |
| 3 | 0.533 | 0.455 |

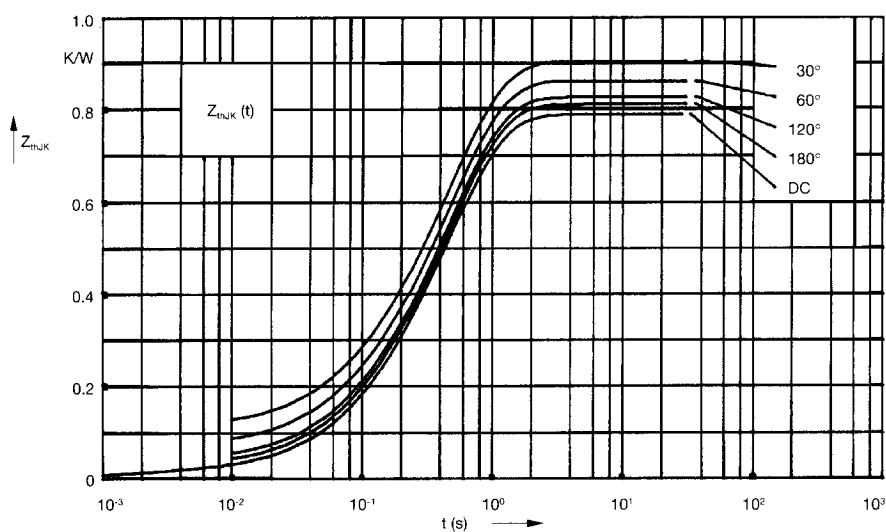


Fig. 7 Transient thermal impedance junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

| d | R_{thJK} (K/W) |
|------|------------------|
| DC | 0.79 |
| 180° | 0.81 |
| 120° | 0.83 |
| 60° | 0.86 |
| 30° | 0.90 |

Constants for Z_{thJK} calculation:

| i | R_{thi} (K/W) | t_i (s) |
|---|-----------------|-----------|
| 1 | 0.012 | 0.0012 |
| 2 | 0.045 | 0.095 |
| 3 | 0.533 | 0.455 |
| 4 | 0.2 | 0.495 |