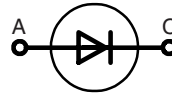


# Rectifier Diode

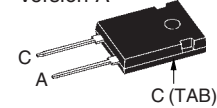
| $V_{RSM}$<br>V | $V_{RRM}$<br>V | Type                   |
|----------------|----------------|------------------------|
| 900            | 800            | DSI 45-08A             |
| 1300           | 1200           | DSI 45-12A             |
| 1700           | 1600           | DSI 45-16A DSI 45-16AR |



$$V_{RRM} = 800-1600 \text{ V}$$

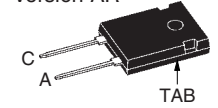
$$I_{F(AV)M} = 48 \text{ A}$$

TO-247 AD  
Version A



A = Anode, C = Cathode

ISOPLUS 247™  
Version AR



| Symbol          | Conditions                                                    | Maximum Ratings       |
|-----------------|---------------------------------------------------------------|-----------------------|
| $I_{F(AV)M}$    | $T_C = 105^\circ\text{C}; 180^\circ \text{ sine}$             | 48 A                  |
| $I_{FSM}$       | $T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms (50 Hz), sine}$  | 475 A                 |
|                 | $V_R = 0 \text{ V}; t = 8.3 \text{ ms (60 Hz), sine}$         | 520 A                 |
|                 | $T_{VJ} = 150^\circ\text{C}; t = 10 \text{ ms (50 Hz), sine}$ | 380 A                 |
|                 | $V_R = 0 \text{ V}; t = 8.3 \text{ ms (60 Hz), sine}$         | 420 A                 |
| $I^2t$          | $T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms (50 Hz), sine}$  | 1120 A <sup>2</sup> s |
|                 | $V_R = 0 \text{ V}; t = 8.3 \text{ ms (60 Hz), sine}$         | 1120 A <sup>2</sup> s |
|                 | $T_{VJ} = 150^\circ\text{C}; t = 10 \text{ ms (50 Hz), sine}$ | 720 A <sup>2</sup> s  |
|                 | $V_R = 0 \text{ V}; t = 8.3 \text{ ms (60 Hz), sine}$         | 720 A <sup>2</sup> s  |
| $T_{VJ}$        |                                                               | -40...+150 °C         |
| $T_{VJM}$       |                                                               | 150 °C                |
| $T_{stg}$       |                                                               | -40...+150 °C         |
| $M_d^*$         | mounting torque                                               | 0.8...1.2 Nm          |
| $V_{ISOL}^{**}$ | 50/60 Hz, RMS, $t = 1 \text{ minute, leads-to-tab}$           | 2500 V~               |

Weight typical 6 g

\* Version A only; \*\* Version AR only

| Symbol     | Conditions                                      | Characteristic Values |
|------------|-------------------------------------------------|-----------------------|
| $I_R$      | $T_{VJ} = T_{VJM}; V_R = V_{RRM}$               | $\leq 3 \text{ mA}$   |
| $V_F$      | $I_F = 40 \text{ A}; T_{VJ} = 25^\circ\text{C}$ | $\leq 1.18 \text{ V}$ |
| $V_{T0}$   | For power-loss calculations only                | 0.8 V                 |
| $r_T$      | $T_{VJ} = T_{VJM}$                              | 8 mΩ                  |
| $R_{thJC}$ | DC current                                      | 0.55 K/W              |
| $R_{thCH}$ | typical                                         | 0.2 K/W               |

Data according to IEC 60747

## Features

- International standard package
- Planar glassivated chips
- Version AR isolated and UL registered E153432
- Epoxy meets UL 94V-0

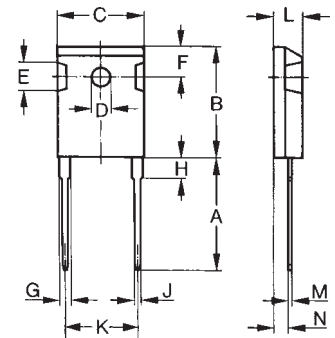
## Applications

- 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")



| Dim. | Millimeter<br>Min. Max. | Inches<br>Min. Max. |
|------|-------------------------|---------------------|
| A    | 19.81 20.32             | 0.780 0.800         |
| B    | 20.80 21.46             | 0.819 0.845         |
| C    | 15.75 16.26             | 0.610 0.640         |
| D*   | 3.55 3.65               | 0.140 0.144         |
| E    | 4.32 5.49               | 0.170 0.216         |
| F    | 5.4 6.2                 | 0.212 0.244         |
| G    | 1.65 2.13               | 0.065 0.084         |
| H    | - 4.5                   | - 0.177             |
| J    | 1.0 1.4                 | 0.040 0.055         |
| K    | 10.8 11.0               | 0.426 0.433         |
| L    | 4.7 5.3                 | 0.185 0.209         |
| M    | 0.4 0.8                 | 0.016 0.031         |
| N    | 2.2 2.59                | 0.087 0.102         |

\* ISOPLUS 247™ without hole

IXYS reserves the right to change limits, test conditions and dimensions.

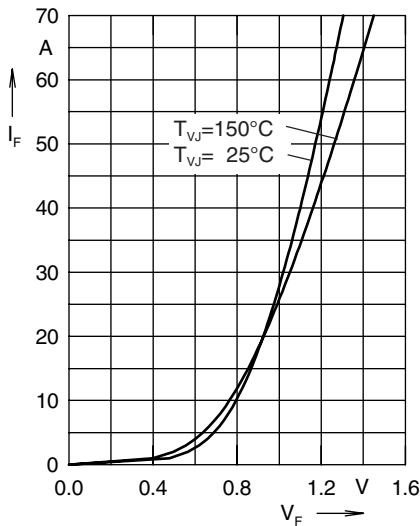


Fig. 1 Forward current versus voltage drop per diode

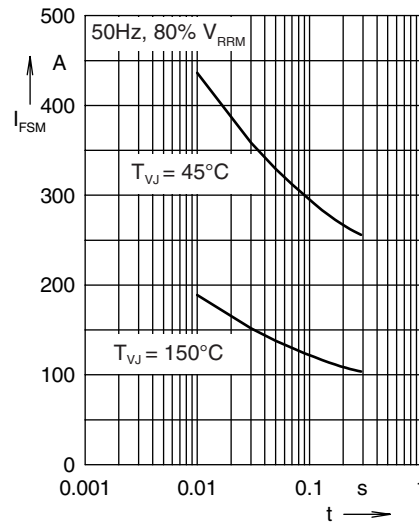


Fig. 2 Surge overload current

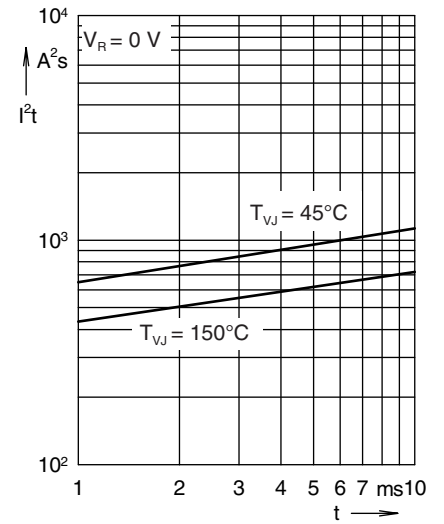


Fig. 3  $I^2t$  versus time per diode

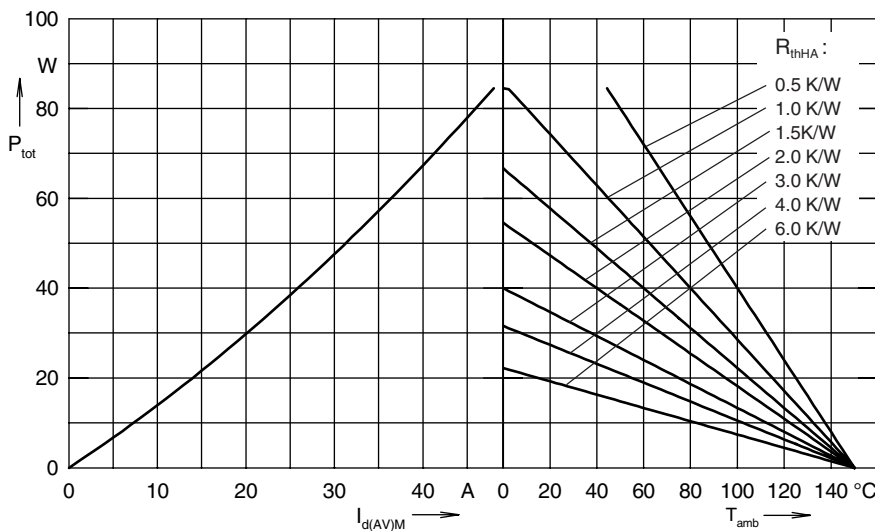


Fig. 4 Power dissipation versus direct output current and ambient temperature, sine 180°

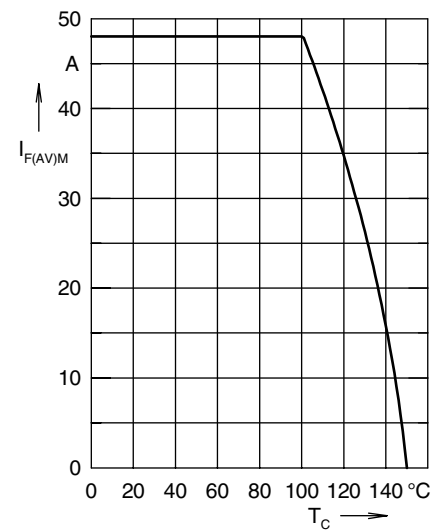


Fig. 5 Max. forward current versus case temperature

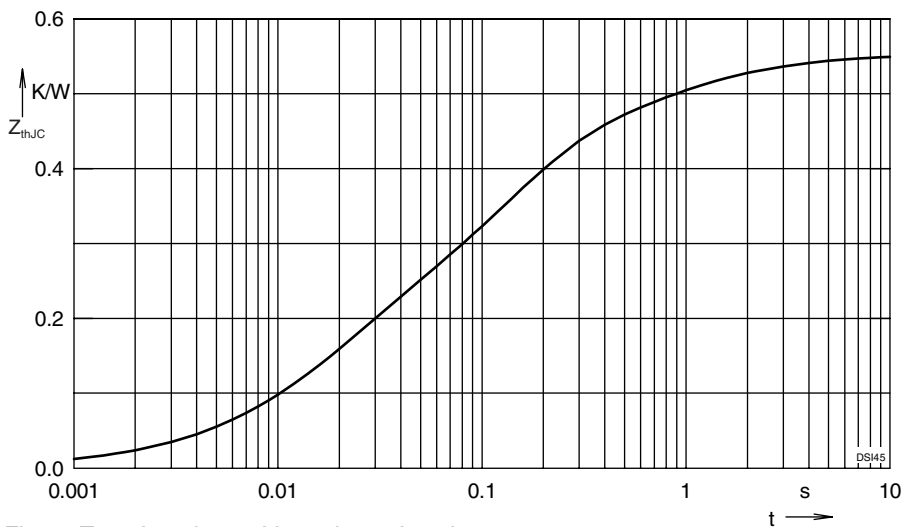


Fig. 6 Transient thermal impedance junction to case

Constants for  $Z_{thJC}$  calculation:

| i | $R_{thi}$ (K/W) | $t_i$ (s) |
|---|-----------------|-----------|
| 1 | 0.1633          | 0.016     |
| 2 | 0.2517          | 0.118     |
| 3 | 0.0933          | 0.588     |
| 4 | 0.04167         | 2.6       |