

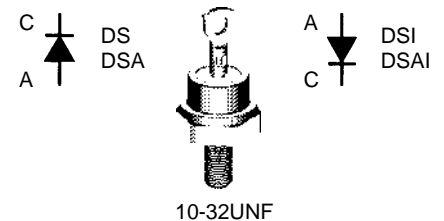
Rectifier Diode Avalanche Diode

$V_{RRM} = 800-1800 \text{ V}$
 $I_{F(RMS)} = 40 \text{ A}$
 $I_{F(AV)M} = 25 \text{ A}$

| V_{RSM} V | $V_{(BR)min}$ ① V | V_{RRM} V | Anode on stud | Cathode on stud |
|----------------|----------------------|----------------|------------------|--------------------|
| 900 | - | 800 | DS 17-08A | DSI 17-08A |
| 1300 | - | 1200 | DS 17-12A | DSI 17-12A |
| 1300 | 1300 | 1200 | DSA 17-12A | DSAI 17-12A |
| 1700 | 1750 | 1600 | DSA 17-16A | DSAI 17-16A |
| 1900 | 1950 | 1800 | DSA 17-18A | DSAI 17-18A |

① Only for Avalanche Diodes

DO-203 AA



A = Anode C = Cathode

| Symbol | Test Conditions | Maximum Ratings | | |
|--------------|---|---|------------|--------------------------------------|
| $I_{F(RMS)}$ | $T_{VJ} = T_{VJM}$ | 40 | A | |
| $I_{F(AV)M}$ | $T_{case} = 125^\circ\text{C}; 180^\circ \text{ sine}$ | 25 | A | |
| P_{RSM} | DSA(I) types, $T_{VJ} = T_{VJM}$, $t_p = 10 \mu\text{s}$ | 7 | kW | |
| I_{FSM} | $T_{VJ} = 45^\circ\text{C}; V_R = 0$ | t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine | 370 400 | A A |
| | $T_{VJ} = T_{VJM}; V_R = 0$ | t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine | 300 320 | A A |
| I^2t | $T_{VJ} = 45^\circ\text{C}; V_R = 0$ | t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine | 680 660 | A ² s A ² s |
| | $T_{VJ} = T_{VJM}; V_R = 0$ | t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine | 450 430 | A ² s A ² s |
| T_{VJ} | | -40...+180 | °C | |
| T_{VJM} | | 180 | °C | |
| T_{stg} | | -40...+180 | °C | |
| M_d | Mounting torque | 2.2-2.8 | Nm | |
| | | 19-25 | lb.in. | |
| Weight | | 6 | g | |

Features

- International standard package, JEDEC DO-203 AA (DO-4)
- Planar glassivated chips

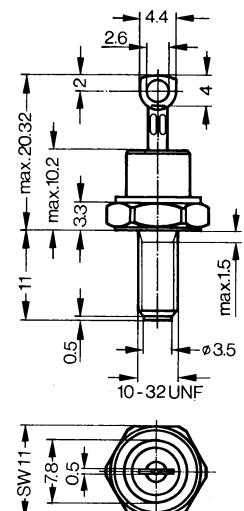
Applications

- 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 | Test Conditions | Characteristic Values | |
|------------|---|-----------------------|----------------------|
| I_R | $T_{VJ} = T_{VJM}; V_R = V_{RRM}$ | ≤ | 4 mA |
| V_F | $I_F = 55 \text{ A}; T_{VJ} = 25^\circ\text{C}$ | ≤ | 1.36 V |
| V_{T0} | For power-loss calculations only | | 0.85 V |
| r_T | $T_{VJ} = T_{VJM}$ | | 8 mΩ |
| R_{thJC} | DC current | | 1.5 K/W |
| R_{thJH} | DC current | | 2.1 K/W |
| d_s | Creepage distance on surface | | 2.05 mm |
| d_A | Strike distance through air | | 2.05 mm |
| a | Max. allowable acceleration | | 100 m/s ² |

Data according to IEC 60747

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

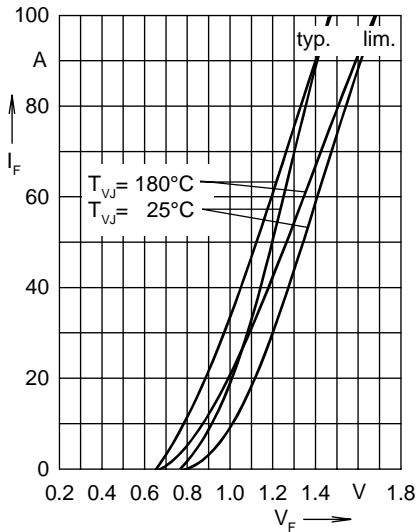


Fig. 1 Forward characteristics

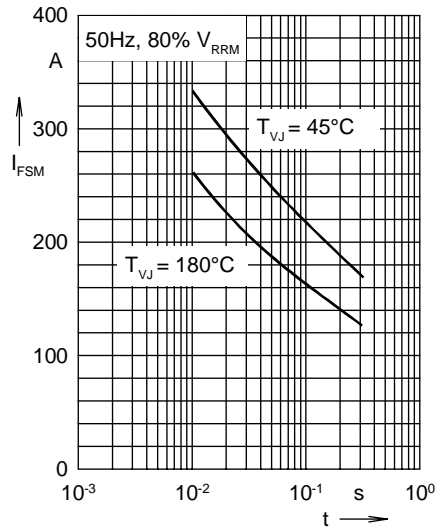


Fig. 2 Surge overload current
 I_{FSM} : crest value, t: duration

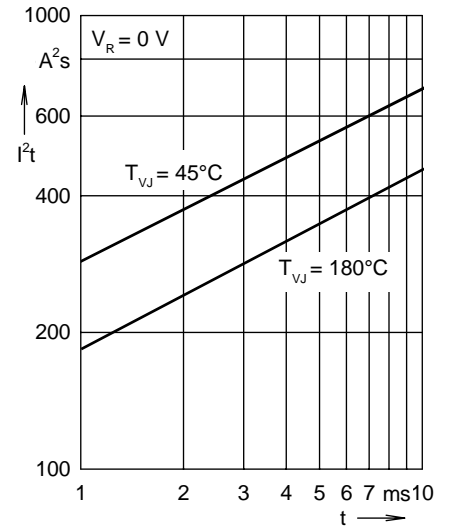


Fig. 3 I^2t versus time (1-10 ms)

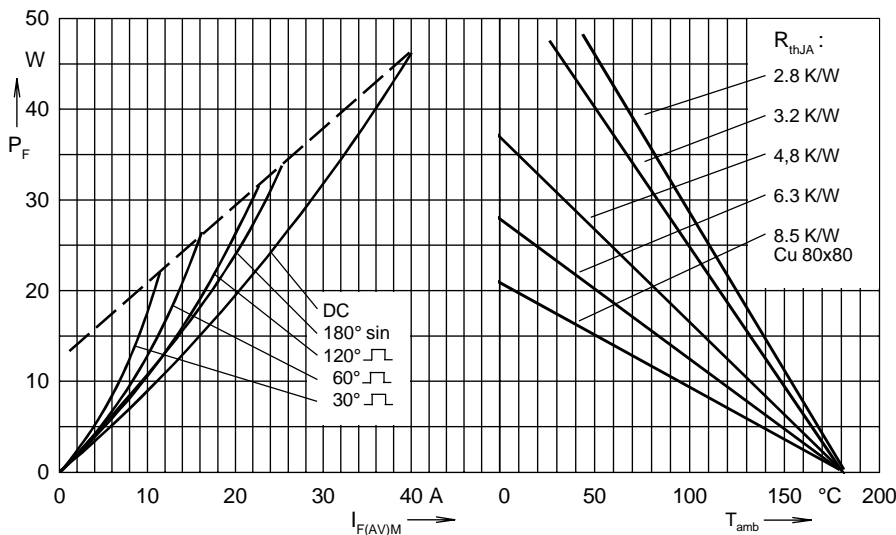


Fig. 4 Power dissipation versus forward current and ambient temperature

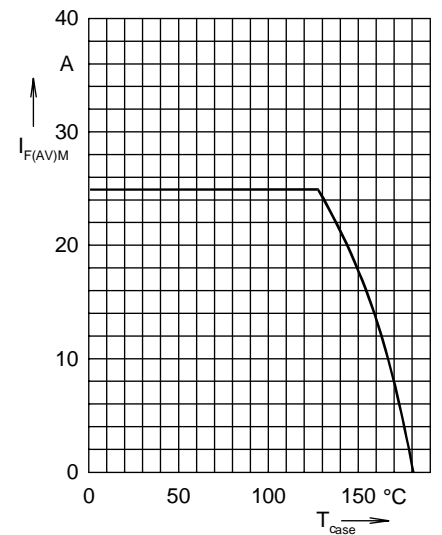


Fig. 5 Max. forward current at case temperature 180° sine

R_{thJH} for various conduction angles d:

| d | R_{thJH} (K/W) |
|------|------------------|
| DC | 2.10 |
| 180° | 2.23 |
| 120° | 2.33 |
| 60° | 2.53 |
| 30° | 2.72 |

Constants for Z_{thJH} calculation:

| i | R_{thi} (K/W) | t_i (s) |
|---|-----------------|-----------|
| 1 | 0.1006 | 0.0021 |
| 2 | 0.5311 | 0.0881 |
| 3 | 0.8683 | 2.968 |
| 4 | 0.600 | 3.20 |

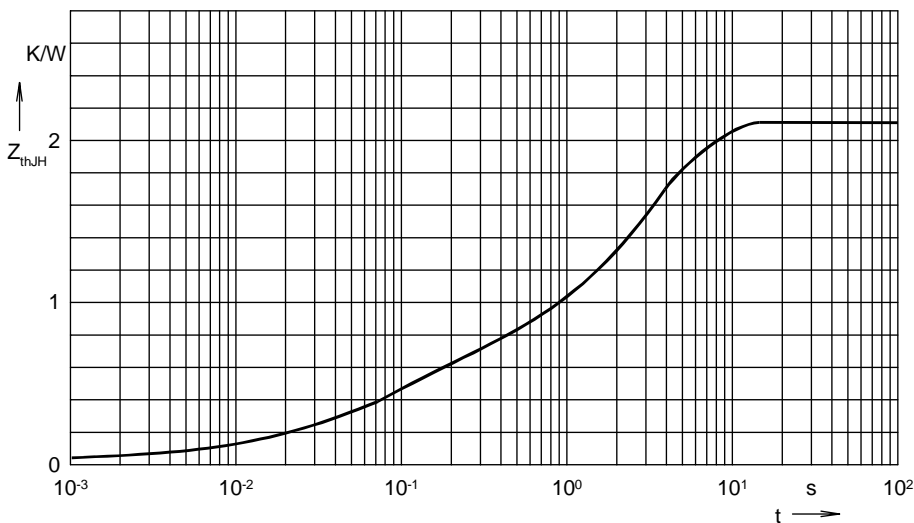


Fig. 6 Transient thermal impedance junction to heatsink