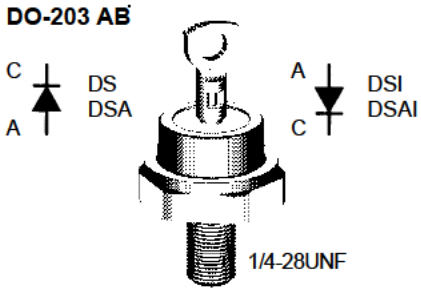
# Rectifier Diode
# Avalanche Diode

$V_{RRM}$ = 800-1800 V
$I_{F(RMS)}$ = 80 A
$I_{F(AV)M}$ = 49 A

| $V_{RSM}$ V | $V_{(BR)min}$ ① V | $V_{RRM}$ V | Anode on stud | Cathode on stud |
|---|---|---|---|---|
| 900 | - | 800 | DS 35-08A | DSI 35-08A |
| 1300 | - | 1200 | DS 35-12A | DSI 35-12A |
| 1300 | 1300 | 1200 | DSA 35-12A | DSAI 35-12A |
| 1700 | 1750 | 1600 | DSA 35-16A | DSAI 35-16A |
| 1900 | 1950 | 1800 | DSA 35-18A | DSAI 35-18A |

① Only for Avalanche Diodes

DO-203 AB




A = Anode C = Cathode

| Symbol | Test Conditions | | Maximum Ratings | |
|---|---|---|---|---|
| $I_{F(RMS)}$ | $T_{VJ}$ = $T_{VJM}$ | | 80 | A |
| $I_{F(AVM)}$ | $T_{case}$ = 100°C; 180° sine | | 49 | A |
| $P_{RSM}$ | DSA(I) types, $T_{VJ}$ = $T_{VJM}$, $t_p$ = 10 µs | | 11 | kW |
| $I_{FSM}$ | $T_{VJ}$ = 45°C; | t = 10 ms (50 Hz), sine | 650 | A |
| | $V_R$ = 0 | t = 8.3 ms (60 Hz), sine | 690 | A |
| | $T_{VJ}$ = $T_{VJM}$ | t = 10 ms (50 Hz), sine | 600 | A |
| | $V_R$ = 0 | t = 8.3 ms (60 Hz), sine | 640 | A |
| $I^2t$ | $T_{VJ}$ = 45°C | t = 10 ms (50 Hz), sine | 2100 | $A^2s$ |
| | $V_R$ = 0 | t = 8.3 ms (60 Hz), sine | 2000 | $A^2s$ |
| | $T_{VJ}$ = $T_{VJM}$ | t = 10 ms (50 Hz), sine | 1800 | $A^2s$ |
| | $V_R$ = 0 | t = 8.3 ms (60 Hz), sine | 1700 | $A^2s$ |
| $T_{VJ}$ | | | -40...+180 | °C |
| $T_{VJM}$ | | | 180 | °C |
| $T_{stg}$ | | | -40...+180 | °C |
| $M_d$ | Mounting torque | | 4.5-5.5 | Nm |
| | | | 40-49 | lb.in. |
| Weight | | | 15 | g |

| Symbol | Test Conditions | | Characteristic Values | |
|---|---|---|---|---|
| $I_R$ | $T_{VJ}$ = $T_{VJM}$; $V_R$ = $V_{RRM}$ | ≤ | 4 | mA |
| $V_F$ | $I_F$ = 150 A; $T_{VJ}$ = 25°C | ≤ | 1.55 | V |
| $V_{T0}$ | For power-loss calculations only | | 0.85 | V |
| $r_T$ | $T_{VJ}$ = $T_{VJM}$ | | 4.5 | mΩ |
| $R_{thJC}$ | DC current | | 1.05 | K/W |
| $R_{thJH}$ | DC current | | 1.25 | K/W |
| $d_S$ | Creepage distance on surface | | 4.05 | mm |
| $d_A$ | Strike distance through air | | 3.9 | mm |
| a | Max. allowable acceleration | | 100 | $m/s^2$ |

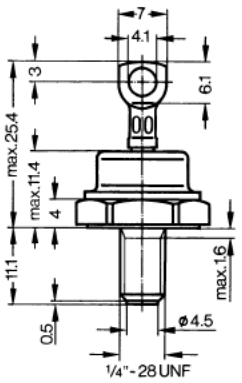
Data according to IEC 60747
IXYS reserves the right to change limits, test conditions and dimensions

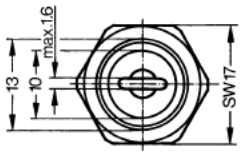
**Features**
- International standard package, JEDEC DO-203 AB (DO-5)
- Planar glassivated chips

**Applications**
- High power rectifiers
- Field supply for DC motors
- Power supplies

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

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



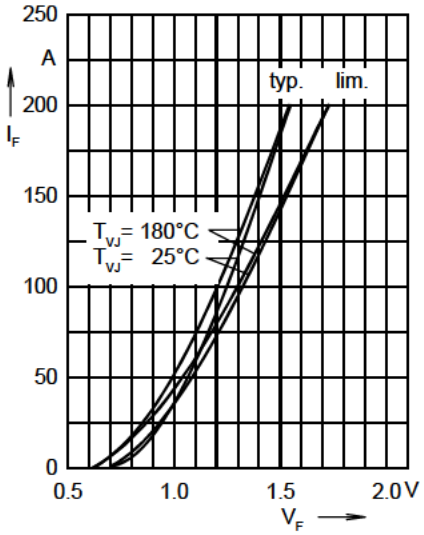



Fig. 1 Forward characteristics

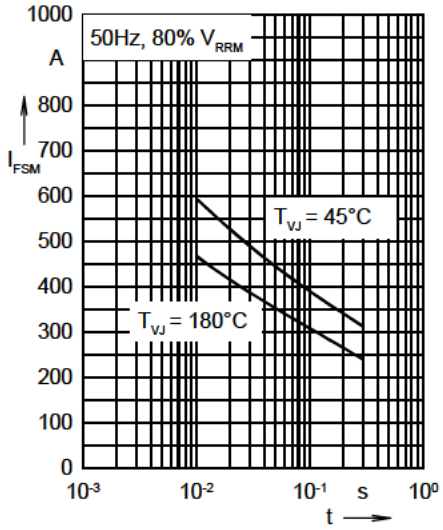



Fig. 2 Surge overload current
$I_{FSM}$: crest value, t: duration

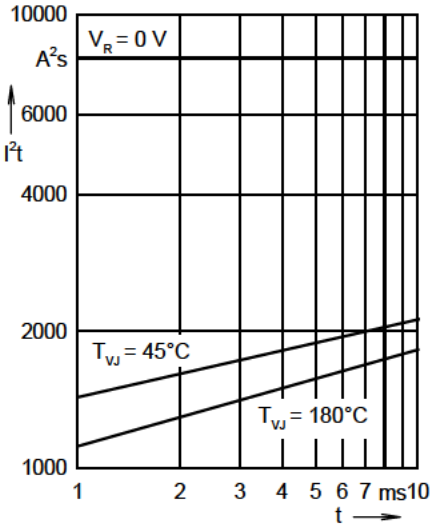



Fig. 3 $I^2t$ versus time (1-10 ms)

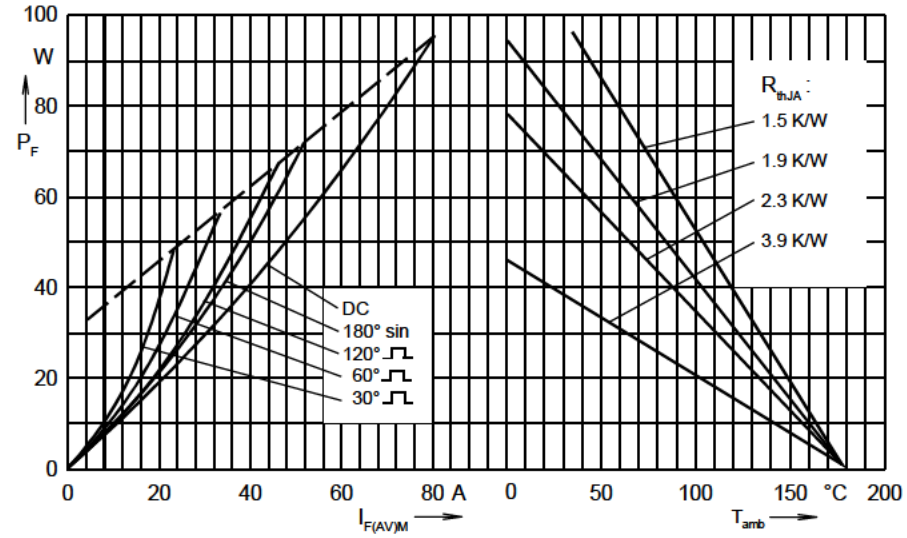



Fig. 4 Power dissipation versus forward current and ambient temperature

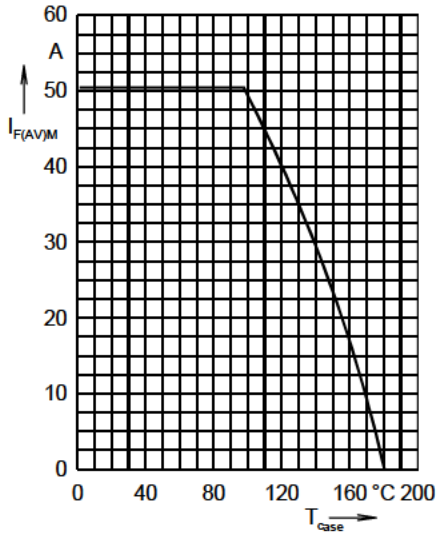



Fig. 5 Max. forward current at case temperature 180° sine

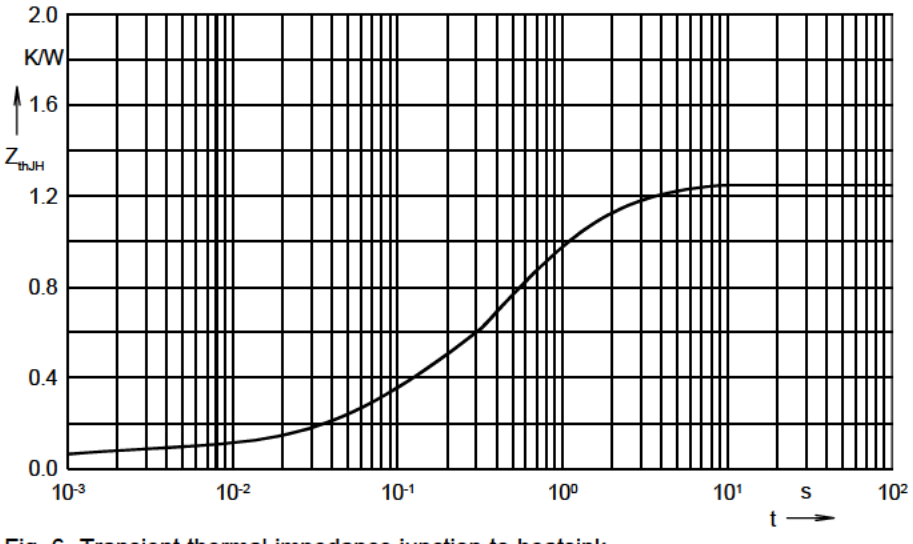



Fig. 6 Transient thermal impedance junction to heatsink

$R_{thJH}$ for various conduction angles d:

| d | $R_{thJH}$ (K/W) |
|---|---|
| DC | 1.25 |
| 180° | 1.37 |
| 120° | 1.47 |
| 60° | 1.74 |
| 30° | 2.08 |

Constants for $Z_{thJH}$ calculation:

| i | $R_{thi}$ (K/W) | $t_i$ (s) |
|---|---|---|
| 1 | 0.10 | 0.0012 |
| 2 | 0.25 | 0.1181 |
| 3 | 0.70 | 0.6540 |
| 4 | 0.20 | 2.0 |