

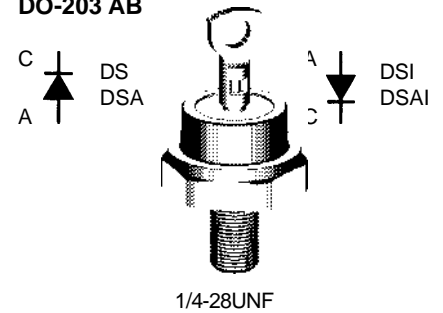
# Rectifier Diode Avalanche Diode

$V_{RRM} = 800-1800 \text{ V}$   
 $I_{F(RMS)} = 160 \text{ A}$   
 $I_{F(AV)M} = 110 \text{ A}$

$V_{RSM}$ V	$V_{(BR)min}$ ① V	$V_{RRM}$ V	Anode on stud	Cathode on stud
900	-	800	DS75-08B	DSI75-08B
1300	-	1200	DS75-12B	DSI75-12B
1300	1300	1200	DSA75-12B	DSAI75-12B
1700	1760	1600	DSA75-16B	DSAI75-16B
1900	1950	1800	DSA75-18B	DSAI75-18B

① Only for Avalanche Diodes

DO-203 AB



A = Anode    C = Cathode

Symbol	Test Conditions	Maximum Ratings	
$I_{F(RMS)}$	$T_{VJ} = T_{VJM}$	160	A
$I_{F(AV)M}$	$T_{case} = 100^{\circ}\text{C}; 180^{\circ}$ sine	110	A
$P_{RSM}$	DSA(I) types, $T_{VJ} = T_{VJM}, t_p = 10 \mu\text{s}$	20	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	1400 A 1500 A
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	1250 A 1310 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	9800 A <sup>2</sup> s 9450 A <sup>2</sup> s
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	7820 A <sup>2</sup> s 7210 A <sup>2</sup> s
$T_{VJ}$		-40...+180	$^{\circ}\text{C}$
$T_{VJM}$		180	$^{\circ}\text{C}$
$T_{stg}$		-40...+180	$^{\circ}\text{C}$
$M_d$	Mounting torque	2.4-4.5	Nm
		21-40	lb.in.
Weight		21	g

### Features

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

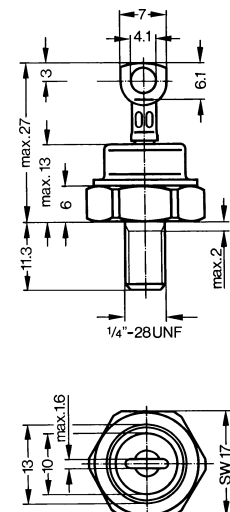
### Applications

- 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")



Symbol	Test Conditions	Characteristic Values	
$I_R$	$T_{VJ} = T_{VJM}; V_R = V_{RRM}$	$\leq$	6 mA
$V_F$	$I_F = 150 \text{ A}; T_{VJ} = 25^{\circ}\text{C}$	$\leq$	1.17 V
$V_{T0}$	For power-loss calculations only		0.75 V
$r_T$	$T_{VJ} = T_{VJM}$		2 m $\Omega$
$R_{thJC}$	DC current		0.5 K/W
$R_{thJH}$	DC current		0.9 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 <sup>2</sup>

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

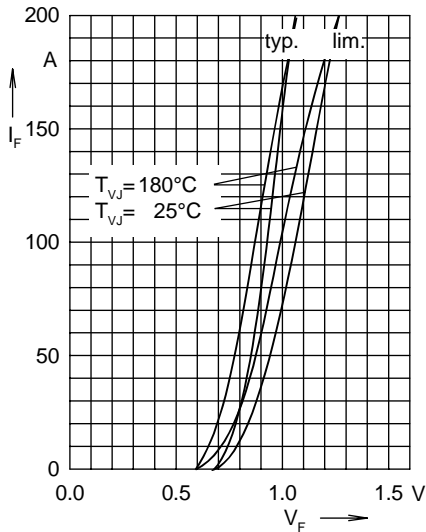


Fig. 1 Forward characteristics

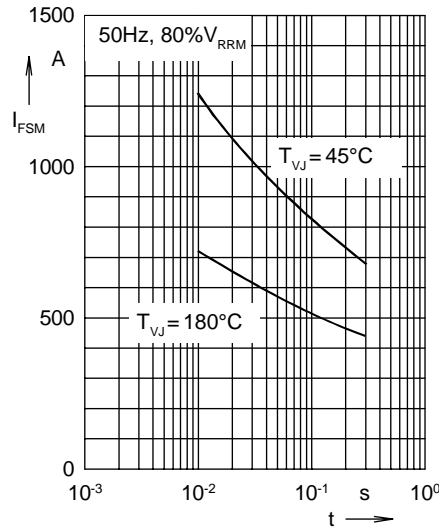


Fig. 2 Surge overload current  
 $I_{FSM}$ : crest value, t: duration

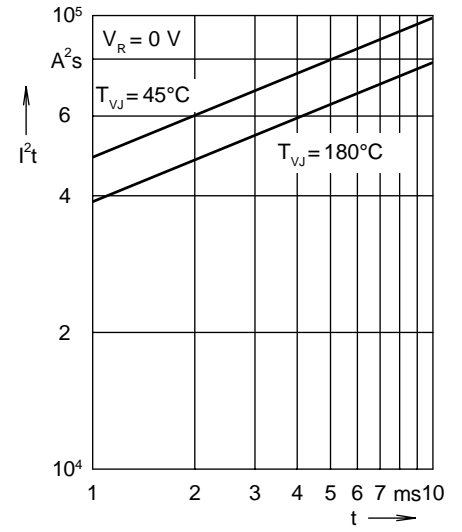


Fig. 3  $I^2t$  versus time (1-10 ms)

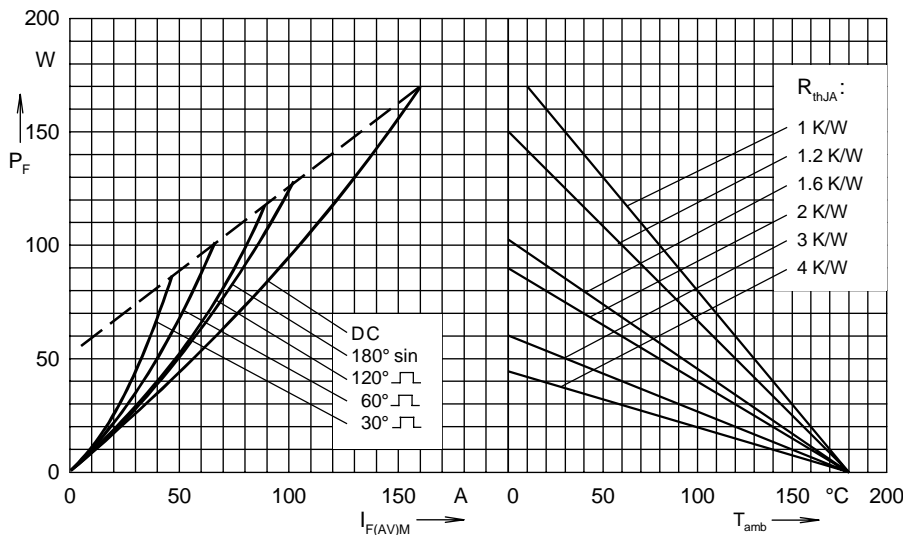


Fig. 4 Power dissipation versus forward current and ambient temperature

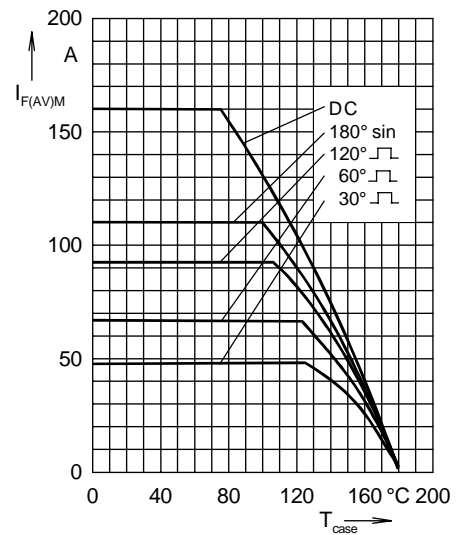


Fig. 5 Max. forward current at case temperature

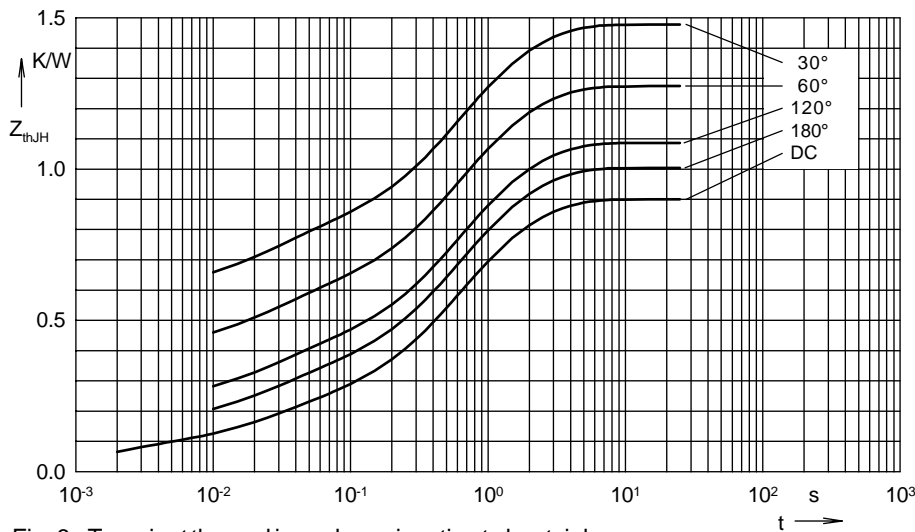


Fig. 6 Transient thermal impedance junction to heatsink

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

d	$R_{thJH}$ (K/W)
DC	0.900
180°	1.028
120°	1.085
60°	1.272
30°	1.476

Constants for  $Z_{thJH}$  calculation:

i	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.0731	0.0015
2	0.1234	0.0237
3	0.4035	0.4838
4	0.3000	1.5