

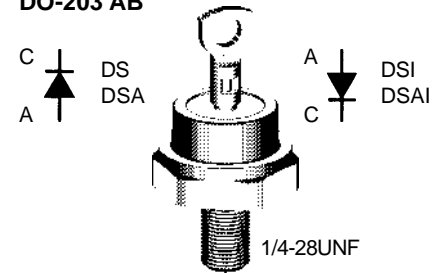
# Rectifier Diode Avalanche Diode

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

$V_{RSM}$ 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
$I_{F(AVM)}$	$T_{case} = 100^\circ\text{C}; 180^\circ \text{ sine}$	49	A
$P_{RSM}$	DSA(I) types, $T_{VJ} = T_{VJM}, t_p = 10 \mu\text{s}$	11	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	650 A 690 A
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	600 A 640 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	2100 A <sup>2</sup> s 2000 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	1800 A <sup>2</sup> s 1700 A <sup>2</sup> s
$T_{VJ}$		-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

### Features

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

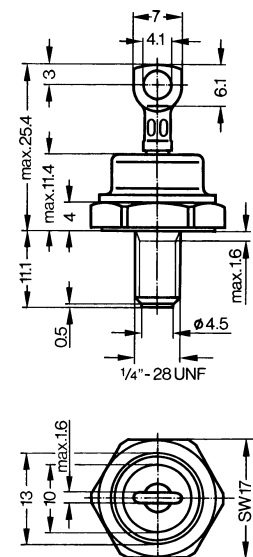
### Applications

- 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	
$I_R$	$T_{VJ} = T_{VJM}; V_R = V_{RRM}$	≤ 4	mA
$V_F$	$I_F = 150 \text{ A}; T_{VJ} = 25^\circ\text{C}$	≤ 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 <sup>2</sup>

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

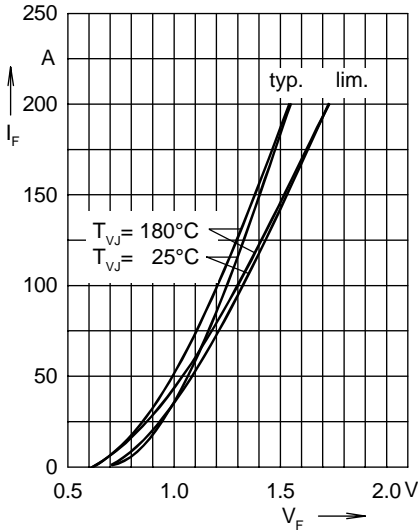


Fig. 1 Forward characteristics

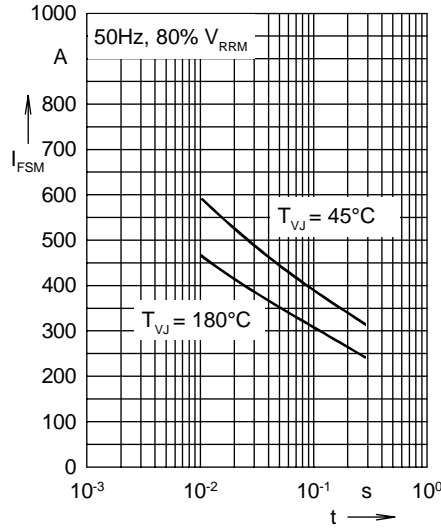


Fig. 2 Surge overload current  
 $I_{FSM}$ : crest value,  $t$ : duration

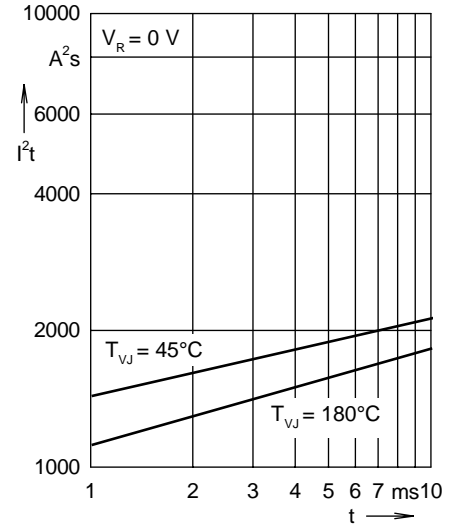


Fig. 3  $I^2t$  versus time (1-10 ms)

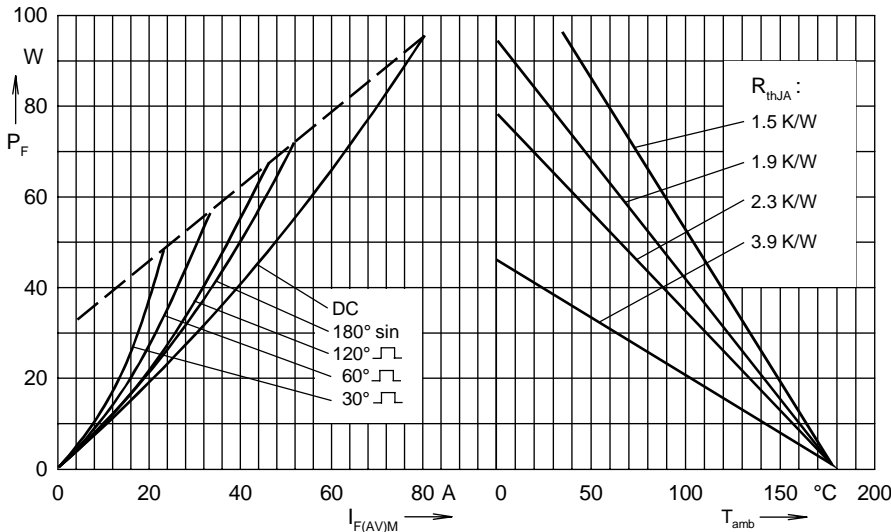


Fig. 4 Power dissipation versus forward current and ambient temperature

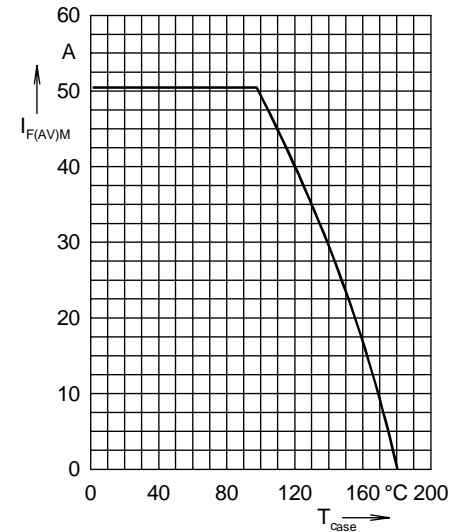


Fig. 5 Max. forward current at case temperature 180° sine

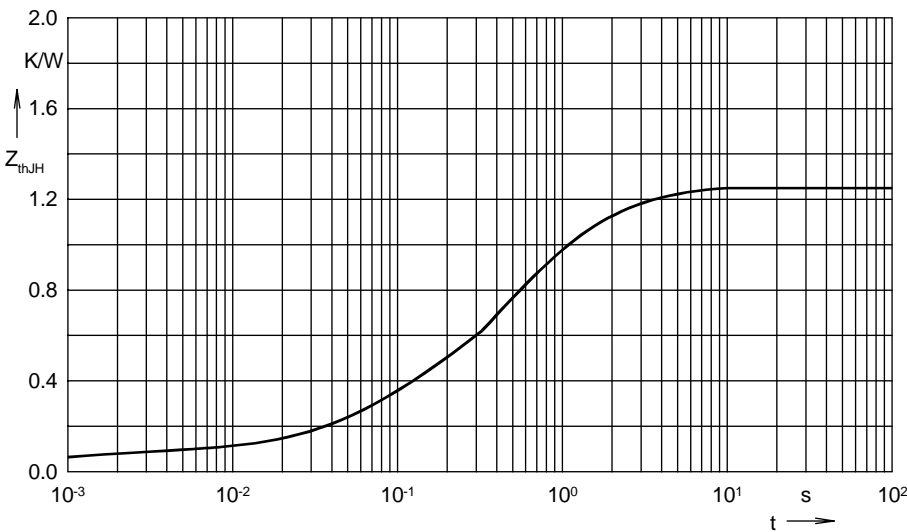


Fig. 6 Transient thermal impedance junction to heatsink

$R_{thJH}$  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