

Rectifier Diode Avalanche Diode

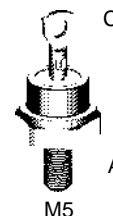
$V_{RRM} = 800-1800\text{ V}$
 $I_{F(RMS)} = 18\text{ A}$
 $I_{F(AV)M} = 11\text{ A}$

V_{RSM} V	$V_{(BR)min}$ ① V	V_{RRM} V	Standard Types	Avalanche Types
900		800	DS9-08F	
1300	1300	1200	DS9-12F	DSA 9-12F
1700	1750	1600		DSA 9-16F
1900	1950	1800		DSA 9-18F

① Only for Avalanche Diodes



DO-203 AA



A = Anode C = Cathode

Symbol	Test Conditions	Maximum Ratings	
$I_{F(RMS)}$	$T_{VJ} = T_{VJM}$	18	A
$I_{F(AV)M}$	$T_{case} = 150^{\circ}\text{C}; 180^{\circ}\text{ sine}$	11	A
P_{RSM}	DSA types, $T_{VJ} = T_{VJM}, t_p = 10\ \mu\text{s}$	4.5	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	250 A 265 A
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	200 A 220 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	310 A ² s 295 A ² s
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	200 A ² s 190 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		5	g

Features

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

Applications

- Supplies for DC power equipment
- DC supply for PWM inverter
- Field supply for DC motors
- Battery DC power supplies

Advantages

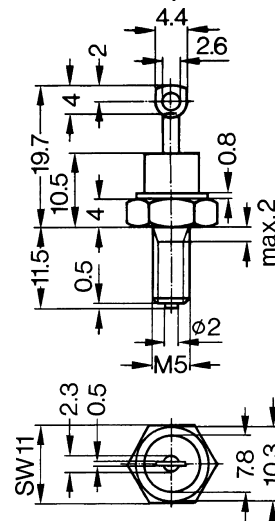
- Space and weight savings
- Simple mounting
- Improved temperature and power cycling
- Reduced protection circuits

Symbol	Test Conditions	Characteristic Values	
I_R	$T_{VJ} = T_{VJM}; V_R = V_{RRM}$	≤ 3	mA
V_F	$I_F = 36\text{ A}; T_{VJ} = 25^{\circ}\text{C}$	≤ 1.4	V
V_{T0}	For power-loss calculations only	0.85	V
r_T	$T_{VJ} = T_{VJM}$	15	mΩ
R_{thJC}	DC current	2.0	K/W
	180° sine	2.17	K/W
R_{thJH}	DC current	3.0	K/W
d_s	Creepage distance on surface	2.0	mm
d_A	Strike distance through air	2.0	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

Dimensions in mm (1 mm = 0.0394")



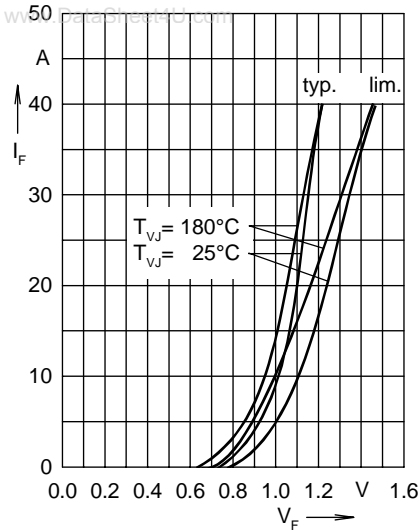


Fig. 1 Forward characteristics

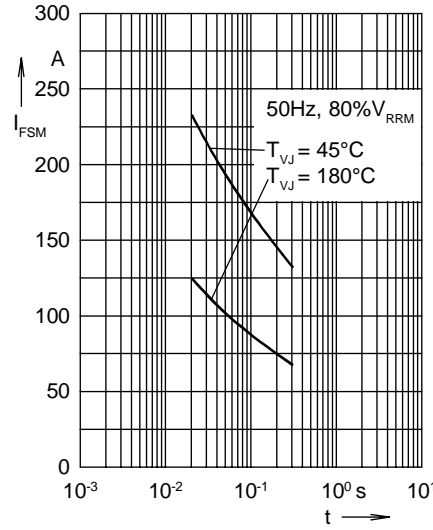


Fig. 2 Surge overload current
 I_{FSM} : crest value, t : duration

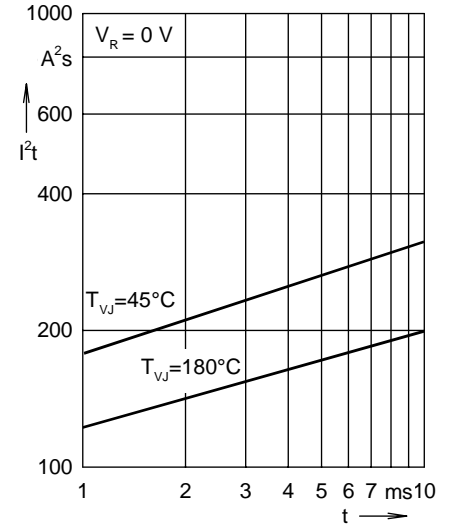


Fig. 3 I^2t versus time (1-10 ms)

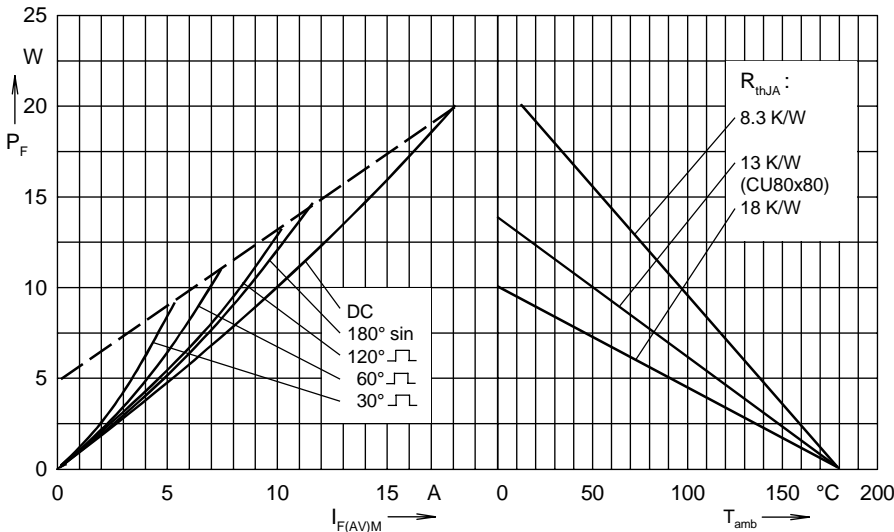


Fig. 4 Power dissipation versus forward current and ambient temperature

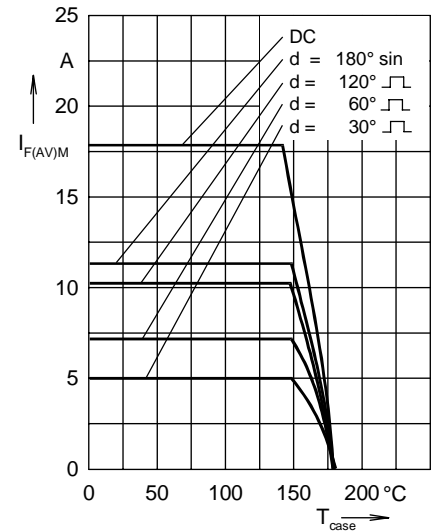


Fig. 5 Max. forward current at case temperature

R_{thJH} for various conduction angles d :

d	R_{thJH} (K/W)
DC	3.0
180°	3.35
120°	3.56
60°	4.0
30°	4.64

Constants for Z_{thJH} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.095	0.00032
2	0.515	0.0102
3	1.39	0.360
4	1.0	2.30

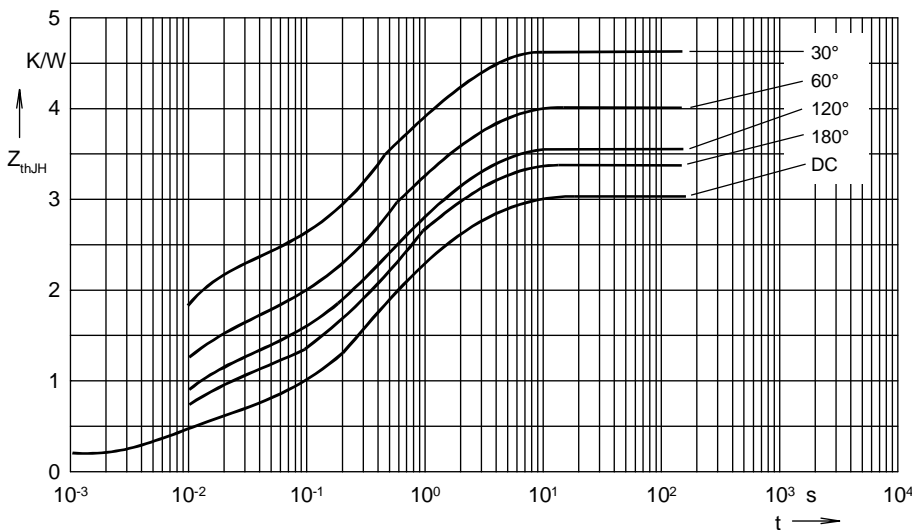


Fig. 6 Transient thermal impedance junction to heatsink