

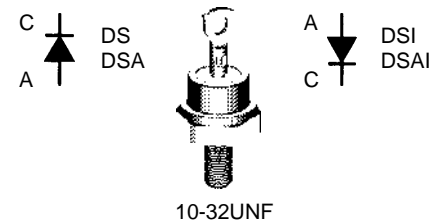
# Rectifier Diode Avalanche Diode

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

$V_{RSM}$ 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
$I_{F(AV)M}$	$T_{case} = 125^{\circ}\text{C}; 180^{\circ}$ 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 A 400 A
	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	300 A 320 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 A <sup>2</sup> s 660 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	450 A <sup>2</sup> s 430 A <sup>2</sup> 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

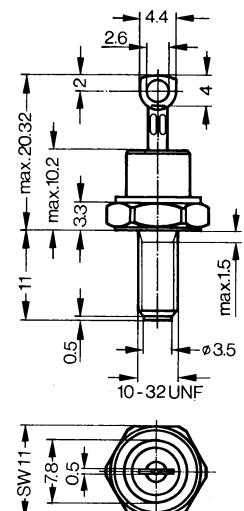
## Applications

- 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 <sup>2</sup>

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

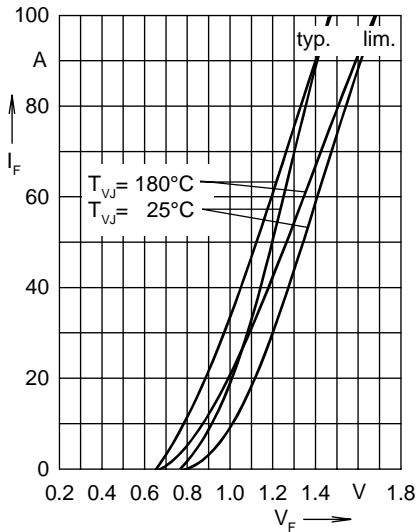


Fig. 1 Forward characteristics

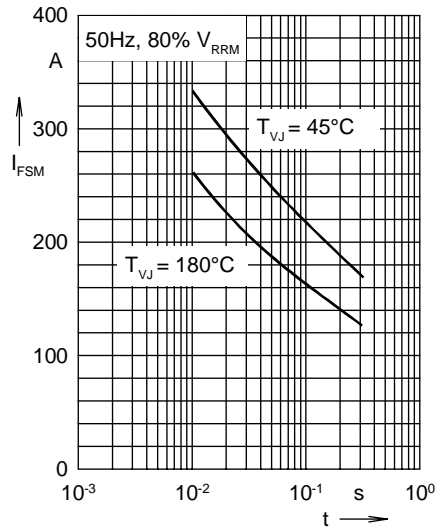


Fig. 2 Surge overload current  
 $I_{FSM}$ : crest value,  $t$ : duration

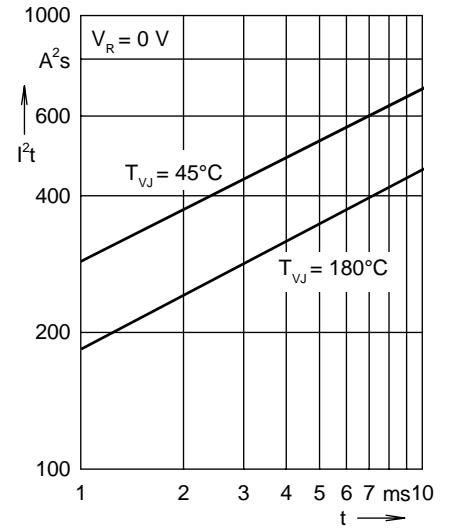


Fig. 3  $I^2t$  versus time (1-10 ms)

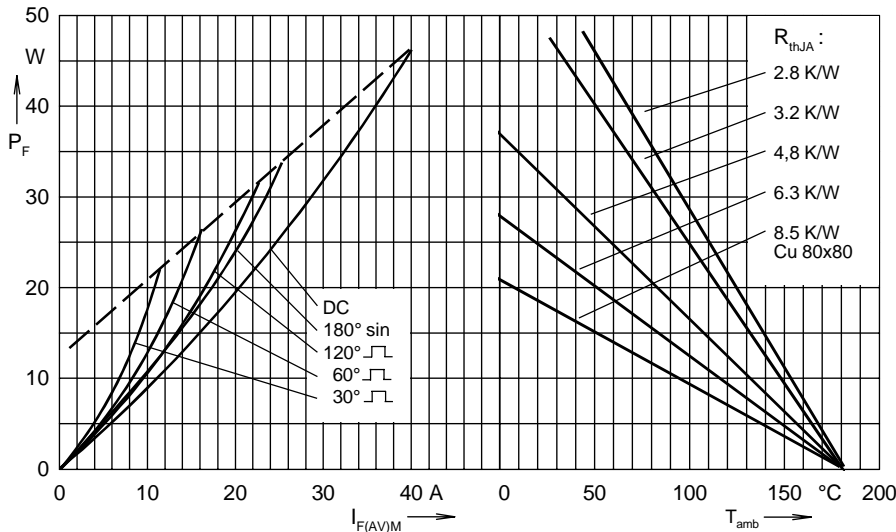


Fig. 4 Power dissipation versus forward current and ambient temperature

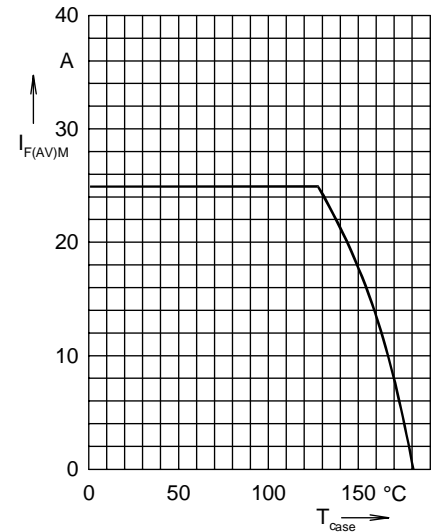


Fig. 5 Max. forward current at case temperature 180° sine

$R_{thJH}$  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

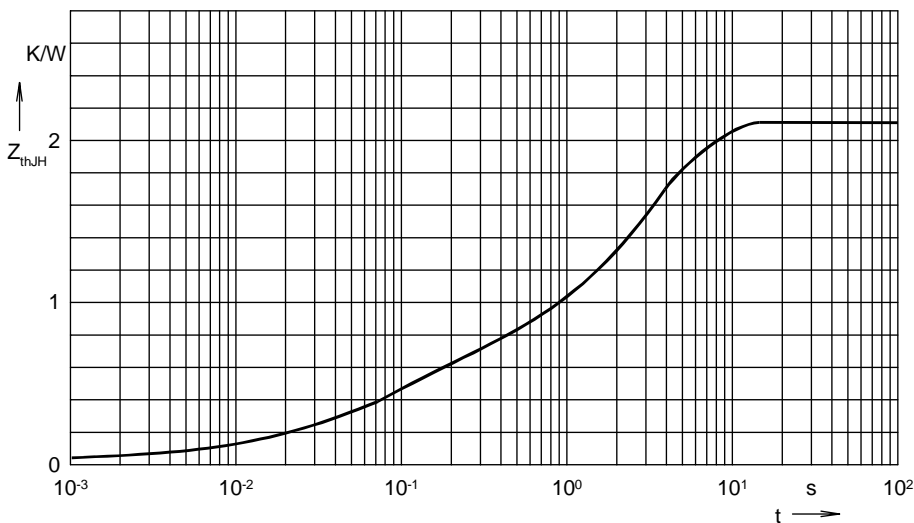


Fig. 6 Transient thermal impedance junction to heatsink