

Rectifier Diode Avalanche Diode

Type	Replacement
DS2-12A	DSA1-12D
DSA2-12A	DSA1-12D
DSA2-16A	DSA1-16D
DSA2-18A	DSA1-18D

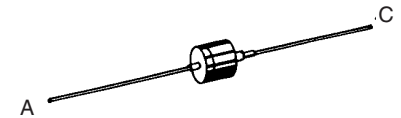
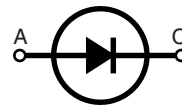
$$V_{RRM} = 1200-1800 \text{ V}$$

$$I_{F(RMS)} = 7 \text{ A}$$

$$I_{F(AV)M} = 3.6 \text{ A}$$

V_{RSM} V	$V_{(BR)min}$ ① V	V_{RRM} V	Standard Types	Avalanche Types
1300	1300	1200	DS2-12A	DSA2-12A
1700	1750	1600		DSA2-16A
1900	1950	1800		DSA2-18A

① Only for Avalanche Diodes



A = Anode C = Cathode

Symbol	Test Conditions	Maximum Ratings	
$I_{F(RMS)}$	$T_{VJ} = T_{VJM}$	7	A
$I_{F(AV)M}$	$T_{amb} = 45^{\circ}\text{C}; R_{thJA} = 30 \text{ K/W}; 180^{\circ} \text{ sine}$	3.6	A
	$T_{amb} = 45^{\circ}\text{C}; R_{thJA} = 115 \text{ K/W}; 180^{\circ} \text{ sine}$	1.2	A
P_{RSM}	DSA types, $T_{VJ} = 25^{\circ}\text{C}, t_p = 10 \mu\text{s}$	2.5	kW
I_{FSM}	$T_{VJ} = 45^{\circ}\text{C}; V_R = 0$	120	A
	$t = 10 \text{ ms (50 Hz), sine}$	127	A
	$t = 8.3 \text{ ms (60 Hz), sine}$		
	$T_{VJ} = T_{VJM}; V_R = 0$	100	A
	$t = 10 \text{ ms (50 Hz), sine}$	106	A
	$t = 8.3 \text{ ms (60 Hz), sine}$		
I^2t	$T_{VJ} = 45^{\circ}\text{C}; V_R = 0$	72	A ² s
	$t = 10 \text{ ms (50 Hz), sine}$	68	A ² s
	$t = 8.3 \text{ ms (60 Hz), sine}$		
	$T_{VJ} = T_{VJM}; V_R = 0$	50	A ² s
	$t = 10 \text{ ms (50 Hz), sine}$	47	A ² s
	$t = 8.3 \text{ ms (60 Hz), sine}$		
T_{VJM}		180	°C
T_{VJ}		-40...+180	°C
T_{stg}		-40...+180	°C
Weight		2.4	g

Features

- International standard package
- Axial wire connexions
- Planar glassivated chips

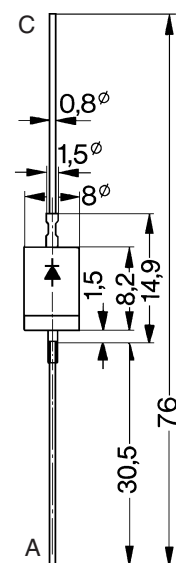
Applications

- Low power rectifiers
- Field supply for DC motors
- Power supplies
- High voltage rectifiers

Advantages

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

Dimensions in mm (1 mm = 0.0394")



Symbol	Test Conditions	Characteristic Values	
I_R	$T_{VJ} = 180^{\circ}\text{C}; V_R = V_{RRM}$	$\leq$	2 mA
V_F	$I_F = 7 \text{ A}; T_{VJ} = 25^{\circ}\text{C}$	$\leq$	1.25 V
V_{T0}	For power-loss calculations only	0.85	V
r_T	$T_{VJ} = T_{VJM}$	43	mΩ
R_{thJA}	Forced air cooling with 1.5 m/s, $T_{amb} = 45^{\circ}\text{C}$	30	K/W
	Soldered between 2 cooling fins, $T_{amb} = 45^{\circ}\text{C}$	37	K/W
	Soldered onto PC board (25 mm), $T_{amb} = 45^{\circ}\text{C}$	75	K/W
	Free air cooling, $T_{amb} = 45^{\circ}\text{C}$	115	K/W
d_s	Creepage distance on surface	2.25	mm
d_A	Strike distance through air	2.25	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

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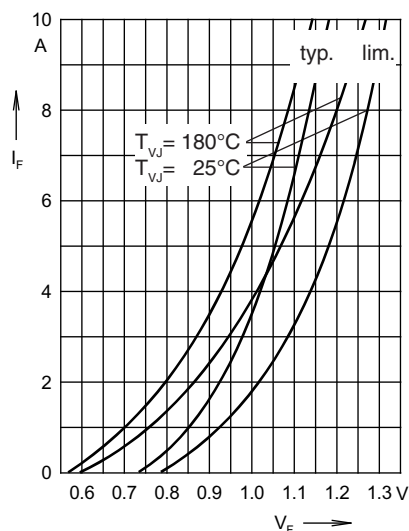


Fig. 1 Forward characteristics

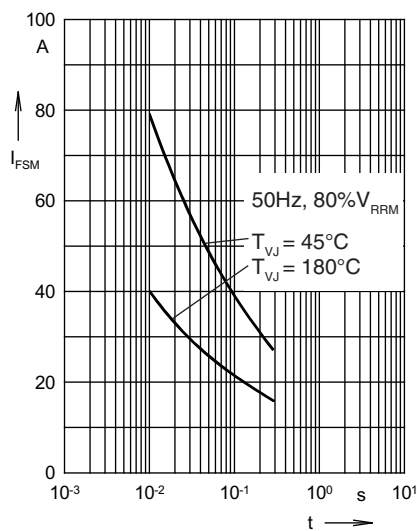


Fig. 2 Surge overload current
 I_{FSM} : crest value, t: duration

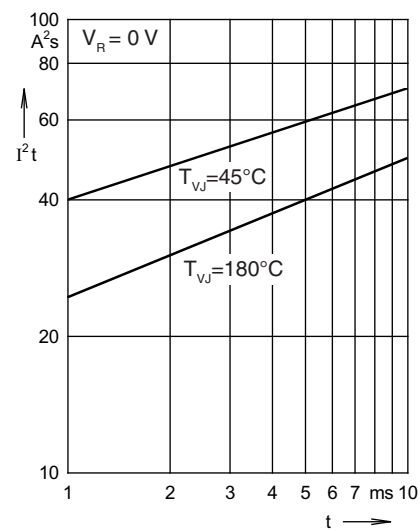


Fig. 3 I^2t versus time (1-10 ms)

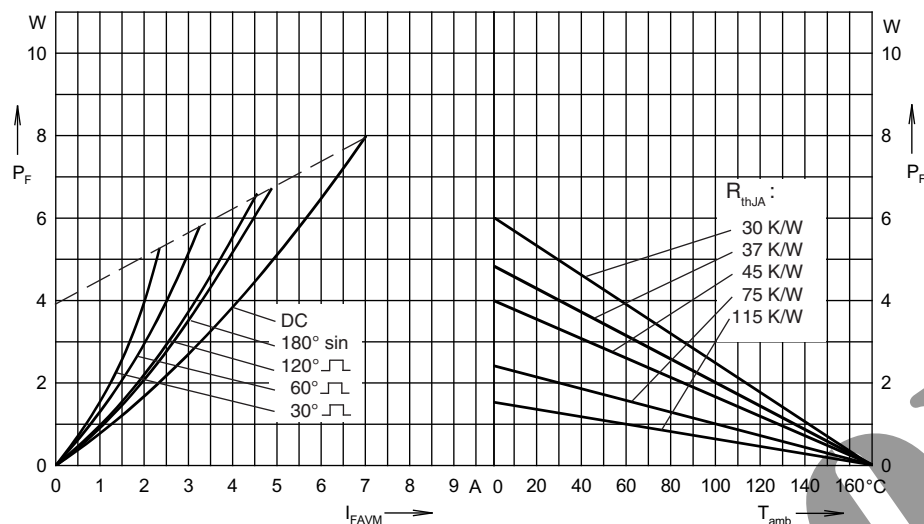


Fig. 4 Power dissipation versus forward current and ambient temperature

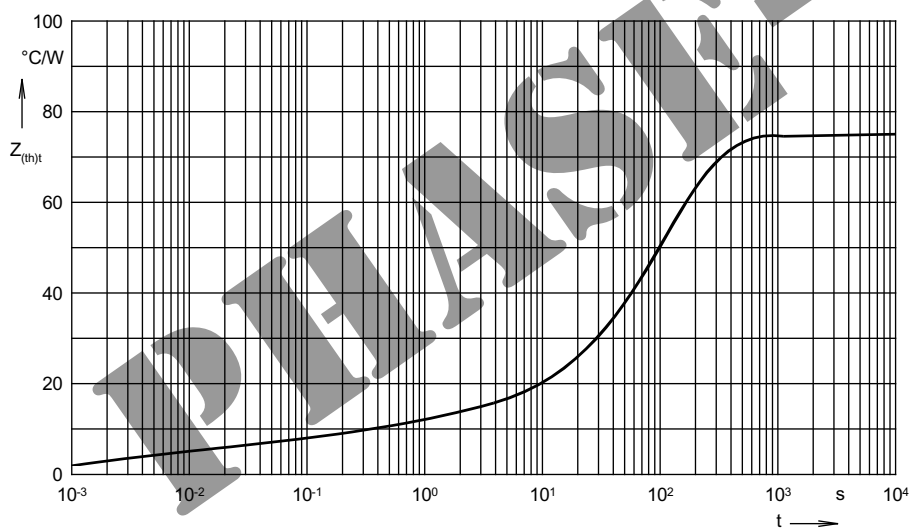


Fig. 5 Transient thermal impedance junction to ambient

R_{thJA} for various conduction angles d:

d	R_{thJA} (K/W)
DC	75
180°	75.7
120°	76.1
60°	76.7
30°	77.4

Constants for Z_{thJA} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.15	0.001
2	10.85	0.1
3	64	35