

## Rectifier Diode Avalanche Diode

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

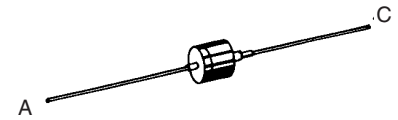
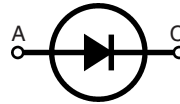
$$V_{RRM} = 1200-1800 \text{ V}$$

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

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

$V_{RSM}$ 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
$I_{FSM}$	$T_{VJ} = 45^{\circ}\text{C}; V_R = 0$	t = 10 ms (50 Hz), sine	120 A
		t = 8.3 ms (60 Hz), sine	127 A
$I^2t$	$T_{VJ} = 45^{\circ}\text{C}; V_R = 0$	t = 10 ms (50 Hz), sine	72 A <sup>2</sup> s
		t = 8.3 ms (60 Hz), sine	68 A <sup>2</sup> s
$T_{VJM}$	$T_{VJ} = T_{VJM}; V_R = 0$	t = 10 ms (50 Hz), sine	50 A <sup>2</sup> s
		t = 8.3 ms (60 Hz), sine	47 A <sup>2</sup> s
$T_{VJ}$		180	°C
$T_{stg}$		-40...+180	°C
$T_{stg}$		-40...+180	°C
Weight		2.4	g

### Features

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

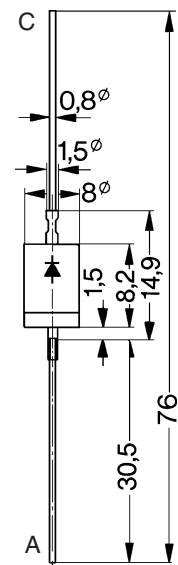
### Applications

- 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	
$I_R$	$T_{VJ} = 180^{\circ}\text{C}; V_R = V_{RRM}$	≤ 2	mA
$V_F$	$I_F = 7 \text{ A}; T_{VJ} = 25^{\circ}\text{C}$	≤ 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 <sup>2</sup>

Data according to IEC 60747

IXYS reserves the right to change limits, test conditions and dimensions

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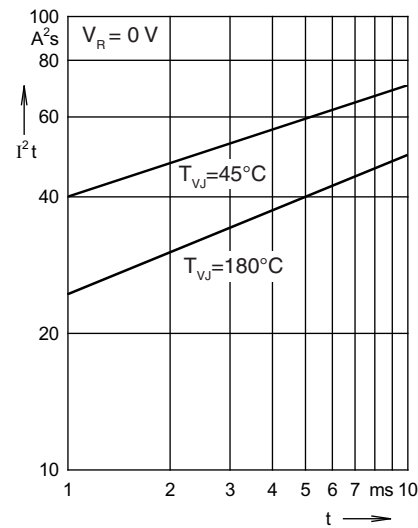
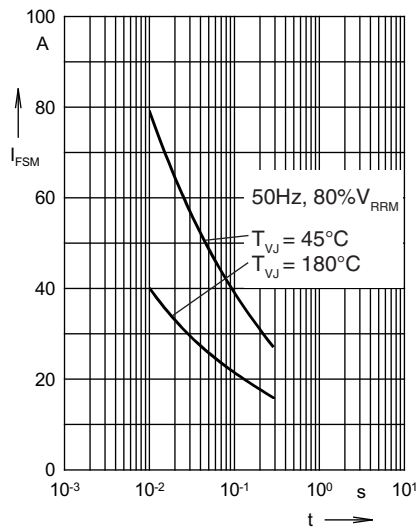
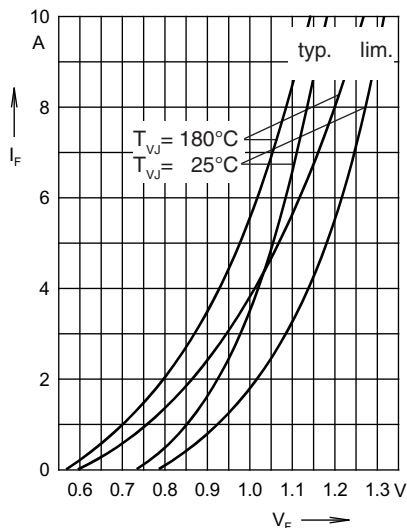


Fig. 1 Forward characteristics

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

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

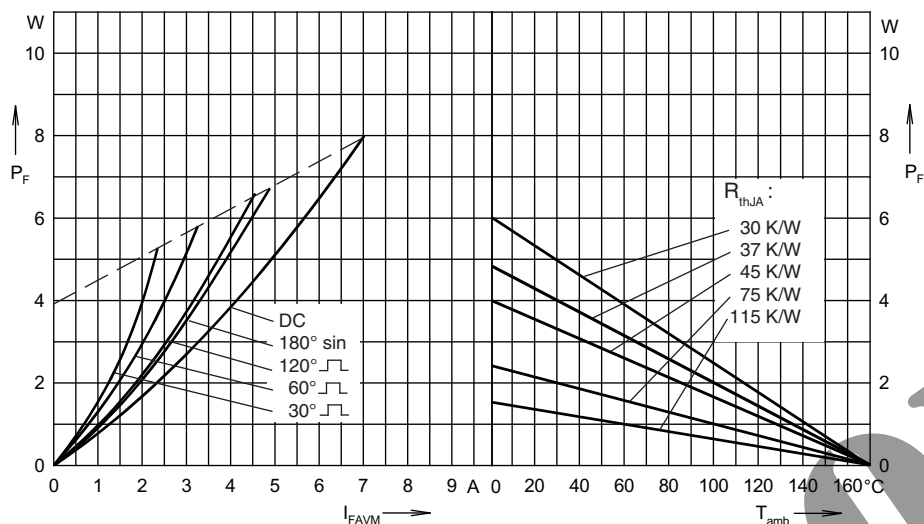


Fig. 4 Power dissipation versus forward current and ambient temperature

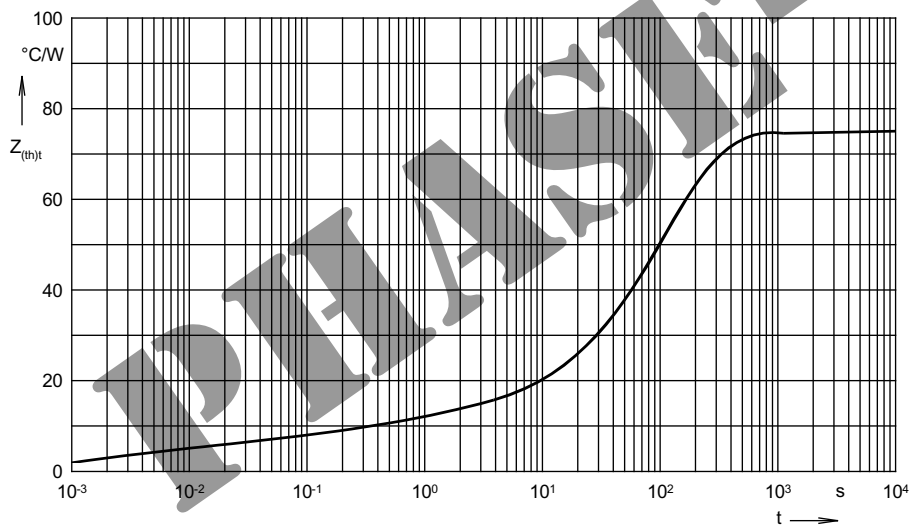


Fig. 5 Transient thermal impedance junction to ambient

$R_{thJA}$  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

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