

# Rectifier Diodes

## Avalanche Diodes

$$V_{RRM} = 800 - 1800 \text{ V}$$

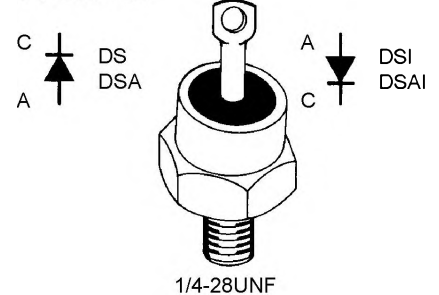
$$I_{F(RMS)} = 160 \text{ A}$$

$$I_{F(AV)M} = 110 \text{ A}$$

$V_{RSM}$ V	$V_{(BR)min}$ ① V	$V_{RRM}$ V	Anode on stud	Cathode on stud
900	-	800	DS 75-08B	DSI 75-08B
1300	-	1200	DS 75-12B	DSI 75-12B
1300	1300	1200	DSA 75-12B	DSAI 75-12B
1700	1760	1600	DSA 75-16B	DSAI 75-16B
1900	1950	1800	DSA 75-18B	DSAI 75-18B

① Only for Avalanche Diodes

DO-203 AB



A = Anode C = Cathode

Symbol	Test Conditions	Maximum Ratings	
$I_{F(RMS)}$	$T_{(vj)} = T_{(vj)m}$	160	A
$I_{F(AV)M}$	$T_{case} = 100^\circ\text{C}; 180^\circ \text{ sine}$	110	A
$P_{RSM}$	DSA(I) types, $T_{(vj)} = T_{(vj)m}, t_p = 10 \mu\text{s}$	20	kW
$I_{FSM}$	$T_{(vj)} = 45^\circ\text{C}; V_R = 0$	$t = 10 \text{ ms (50 Hz), sine}$	1400 A
		$t = 8.3 \text{ ms (60 Hz), sine}$	1500 A
$I^2t$	$T_{(vj)} = 45^\circ\text{C}; V_R = 0$	$t = 10 \text{ ms (50 Hz), sine}$	9800 A <sup>2</sup> s
		$t = 8.3 \text{ ms (60 Hz), sine}$	9450 A <sup>2</sup> s
$T_{(vj)}$	$T_{(vj)} = T_{(vj)m}; V_R = 0$	$t = 10 \text{ ms (50 Hz), sine}$	7820 A <sup>2</sup> s
		$t = 8.3 \text{ ms (60 Hz), sine}$	7210 A <sup>2</sup> s
$T_{(vj)m}$		-40...+180	°C
$T_{stg}$		180	°C
$M_d$	Mounting torque	3.5-4.5	Nm
Weight		31-40	lb.in.
		21	g

### Features

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

### Applications

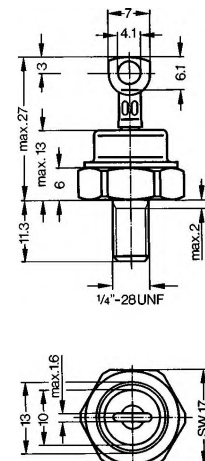
- High power rectifiers
- Field supply for DC motors
- Power supplies

### 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	
$I_R$	$T_{(vj)} = T_{(vj)m}; V_R = V_{RRM}$	≤ 6	mA
$V_F$	$I_F = 150 \text{ A}; T_{(vj)} = 25^\circ\text{C}$	≤ 1.17	V
$V_{T0}$	For power-loss calculations only	0.75	V
$r_T$	$T_{(vj)} = T_{(vj)m}$	2	mΩ
$R_{thJC}$	DC current	0.5	K/W
$R_{thJH}$	DC current	0.9	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 747-2

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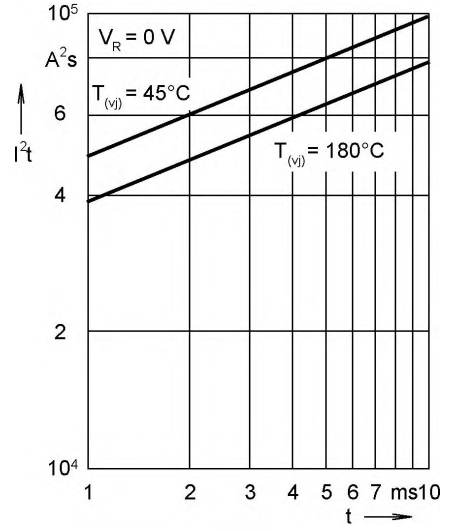
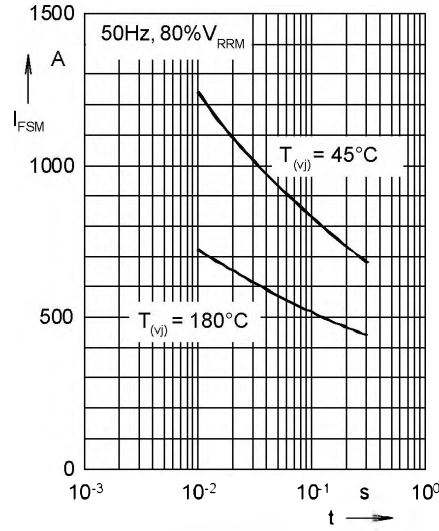
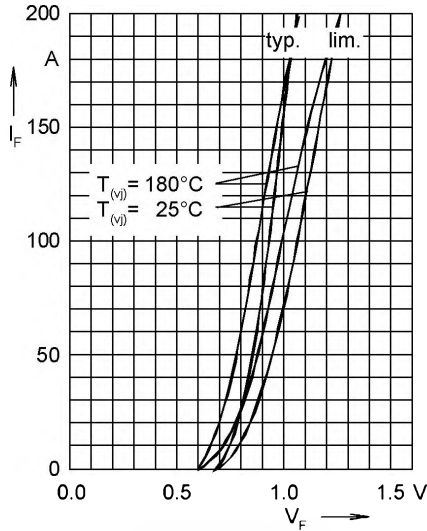


Fig. 1 Forward characteristics

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

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

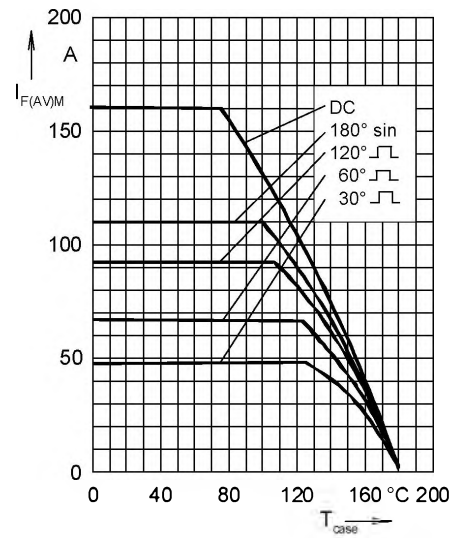
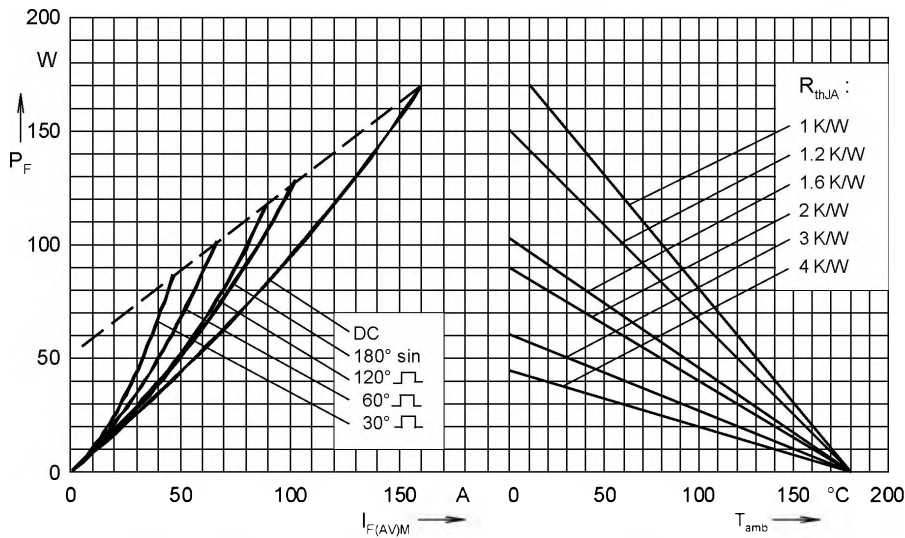
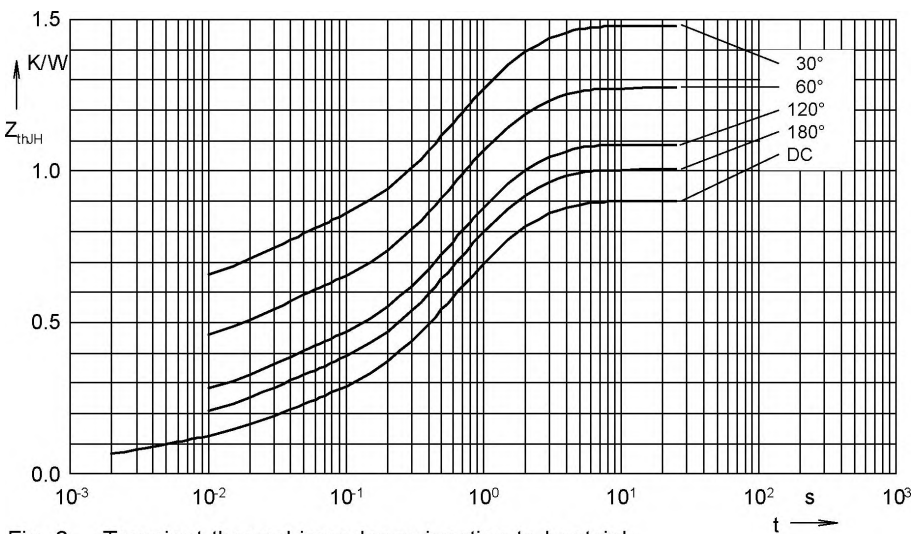


Fig. 4 Power dissipation versus forward current and ambient temperature

Fig. 5 Max. forward current at case temperature



$R_{thJH}$  for various conduction angles  $d$ :

$d$	$R_{thJH}$ (K/W)
DC	0.900
180°	1.028
120°	1.085
60°	1.272
30°	1.476

Constants for  $Z_{thJH}$  calculation:

$i$	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.0731	0.0015
2	0.1234	0.0237
3	0.4035	0.4838
4	0.3000	1.5