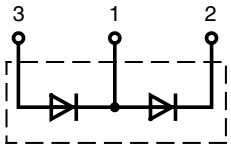
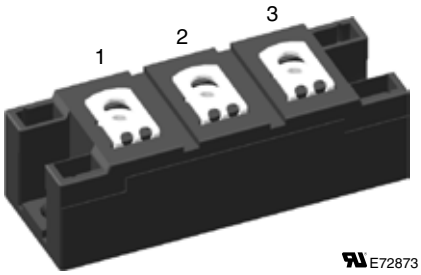
High Power Diode Modules

I_{FRSM} = 2x 350 A
I_{FAVM} = 2x 224 A
V_{RRM} = 1400-2200 V

V_{RSM} V	V_{RRM} V	Type
1500	1400	MDD 200-14N1
1700	1600	MDD 200-16N1
1900	1800	MDD 200-18N1
2300	2200	MDD 200-22N1





E72873

Symbol	Conditions			Maximum Ratings	
I_{FRMS}	$T_{VJ} = T_{VJM}$			350	A
I_{FAVM}	T_C = 100°C; 180° sine			224	A
I_{FSM}	T_{VJ} = 45°C;	t = 10 ms	(50 Hz)	10500	A
	V_R = 0	t = 8.3 ms	(60 Hz)	11200	A
	$T_{VJ} = T_{VJM}$;	t = 10 ms	(50 Hz)	9100	A
	V_R = 0	t = 8.3 ms	(60 Hz)	9700	A
I^2t	T_{VJ} = 45°C;	t = 10 ms	(50 Hz)	551000	A^2s
	V_R = 0	t = 8.3 ms	(60 Hz)	527000	A^2s
	$T_{VJ} = T_{VJM}$;	t = 10 ms	(50 Hz)	414000	A^2s
	V_R = 0	t = 8.3 ms	(60 Hz)	395000	A^2s
T_{VJ}				-40...+150	°C
T_{VJM}				150	°C
T_{stg}				-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min		3000	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 s		3600	V~
M_d	Mounting torque (M6)			2.25 - 2.75	Nm
	Terminal connection torque (M6)			4.5 - 5.5	Nm
Weight	Typical including screws			120	g

Symbol	Conditions		Characteristics Values	
I_{RRM}	$V_R = V_{RRM}$;	$T_{VJ} = T_{VJM}$	20	mA
V_F	I_F = 300 A;	T_{VJ} = 25°C	1.3	V
V_{T0}	For power-loss calculations only		0.8	V
r_t		$T_{VJ} = T_{VJM}$	0.6	mΩ
R_{thJC}	per diode; DC current		0.130	K/W
	per module		0.065	K/W
R_{thJK}	per diode; DC current		0.230	K/W
	per module		0.115	K/W
Q_S	T_{VJ} = 125°C; I_F = 300 A; -di/dt = 50 A/µs		625	µC
I_{RM}			275	A
d_S	Creeping distance on surface		12.7	mm
d_A	Creepage distance in air		9.6	mm
a	Maximum allowable acceleration		50	m/s^2

Data according to IEC 60747 and refer to a single diode unless otherwise stated.

Features

- International standard package
- Direct copper bonded Al_2O_3 ceramic with copper base plate
- Planar passivated chips
- Isolation voltage 3600 V~

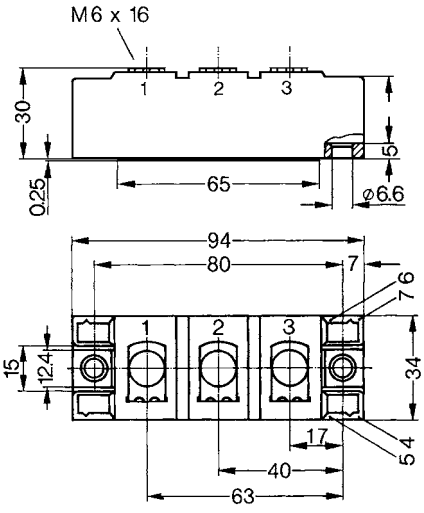
Applications

- 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“)



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

20080128a

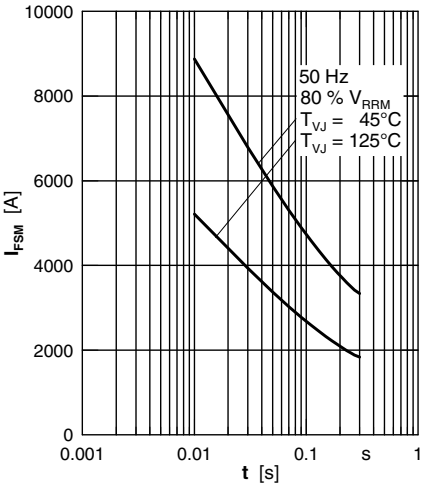


Fig. 1 Surge overload current
I_{FSM}: Crest value, t: duration

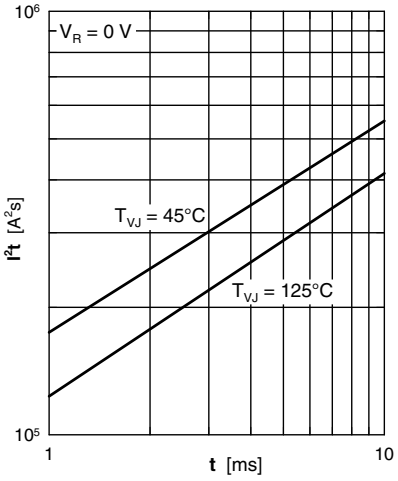


Fig. 2 I^2t versus time (1-10 ms)

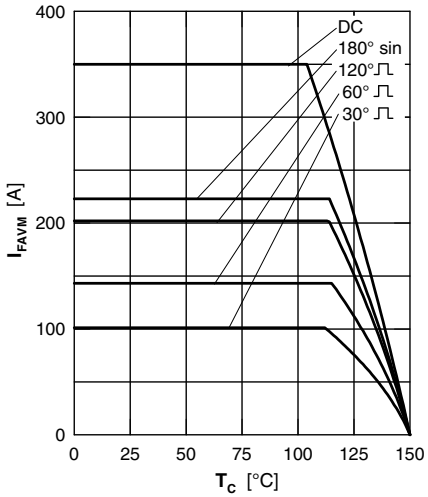


Fig. 3 Maximum forward current at case temperature

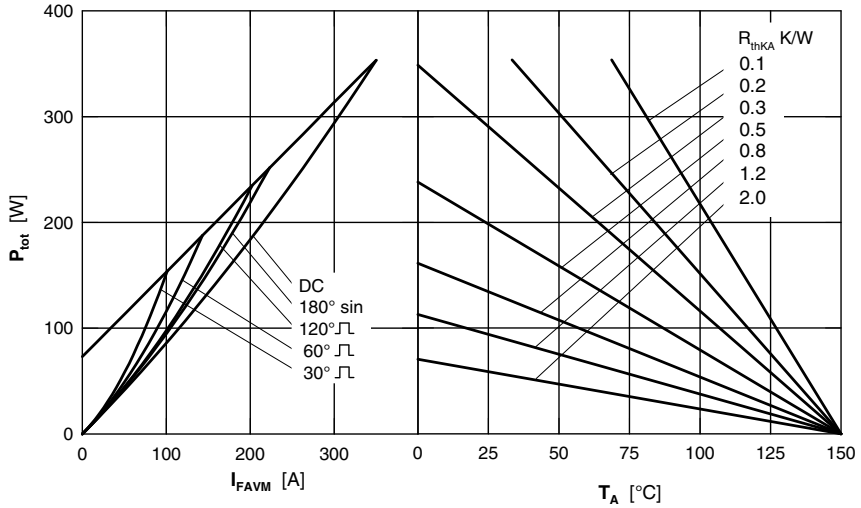


Fig. 4 Power dissipation versus forward current and ambient temperature (per diode)

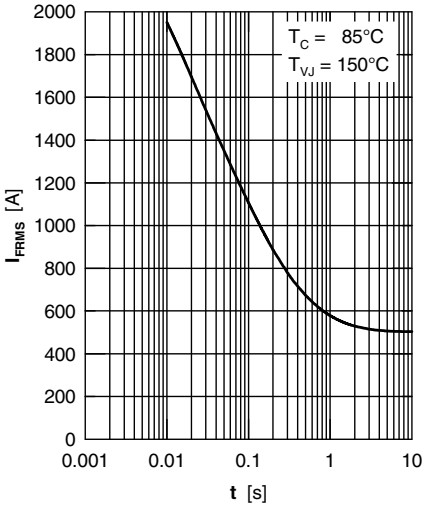


Fig. 5 Rated RMS current versus time (360° conduction)

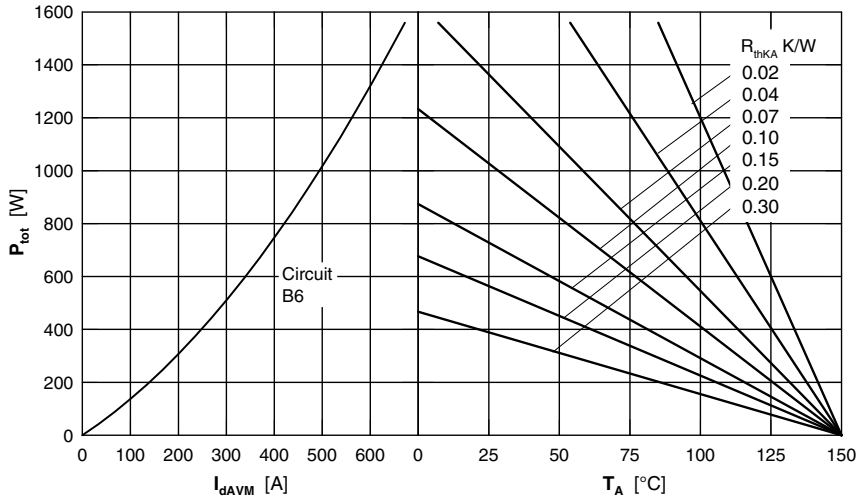


Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

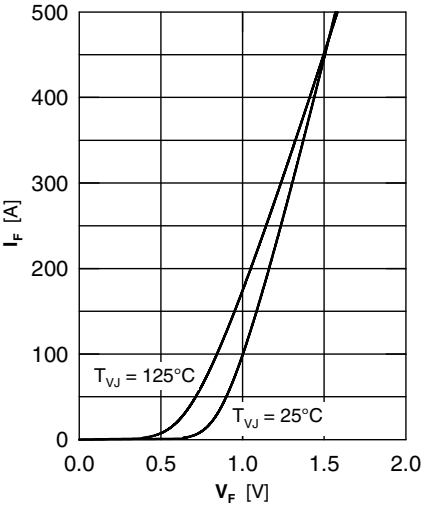
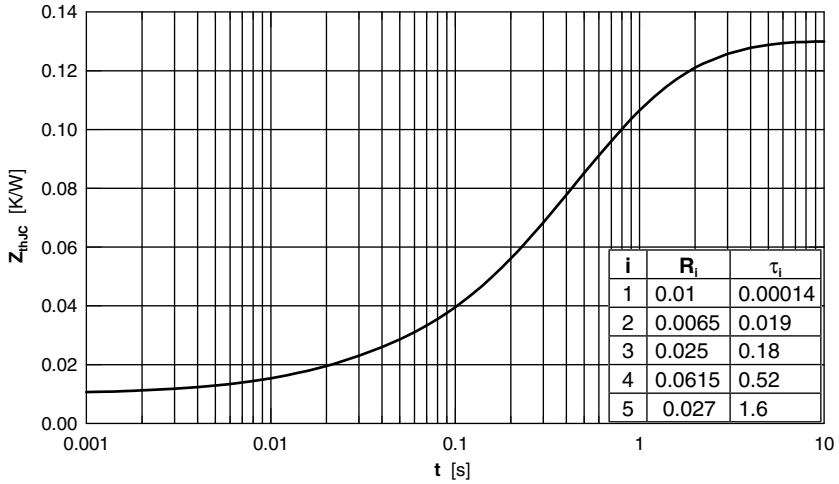


Fig. 7 Forward current versus voltage drop



i	R_i	τ_i
1	0.01	0.00014
2	0.0065	0.019
3	0.025	0.18
4	0.0615	0.52
5	0.027	1.6

Fig. 8 Transient thermal impedance junction to case