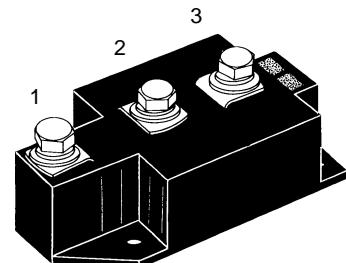
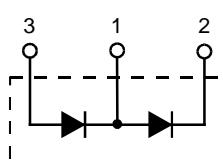


High Power Diode Modules

I_{FRMS} = 2x 450 A
I_{FAVM} = 2x 290 A
V_{RRM} = 800-1600 V

V _{RSM} V	V _{RRM} V	Type
900	800	MDD 250-08N1
1300	1200	MDD 250-12N1
1500	1400	MDD 250-14N1
1700	1600	MDD 250-16N1



Symbol	Test Conditions	Maximum Ratings		
I _{FRMS}	T _{VJ} = T _{VJM}	450	A	
I _{FAVM}	T _C = 100°C; 180° sine	290	A	
I _{FSM}	T _{VJ} = 45°C; V _R = 0	11 000	A	
	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	11 700	A	
	T _{VJ} = T _{VJM} V _R = 0	9000	A	
	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	9600	A	
i ² dt	T _{VJ} = 45°C	605 000	A ² s	
	V _R = 0	560 000	A ² s	
	T _{VJ} = T _{VJM} V _R = 0	405 000	A ² s	
	t = 10 ms (50 Hz), sine t = 8.3 ms (60 Hz), sine	380 000	A ² s	
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} ≤ 1 mA	t = 1 s	3600	V~
M _d	Mounting torque (M5) Terminal connection torque (M8)	2.5-5/22-44 Nm/lb.in. 12-15/106-132 Nm/lb.in.		
Weight	Typical including screws	320	g	

Symbol	Test Conditions	Characteristic Values		
I _{RRM}	T _{VJ} = T _{VJM} ; V _R = V _{RRM}	40	mA	
V _F	I _F = 600 A; T _{VJ} = 25°C	1.3	V	
V _{T0}	For power-loss calculations only	0.75	V	
r _T	T _{VJ} = T _{VJM}	0.75	mΩ	
R _{thJC}	per diode; DC current	0.129	K/W	
	per module	0.065	K/W	
R _{thJK}	per diode; DC current	0.169	K/W	
	see Fig. 6/7	0.0845	K/W	
Q _S	T _{VJ} = 125°C, I _F = 400 A; -di/dt = 50 A/μs	760	μC	
I _{RM}		275	A	
d _s	Creepage distance on surface	12.7	mm	
d _A	Strike distance through 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.
 IXYS reserves the right to change limits, test conditions and dimensions

Features

- Direct copper bonded Al₂O₃-ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873

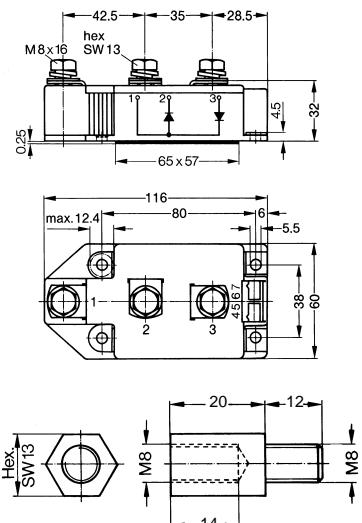
Applications

- 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")



Threaded spacer for higher Anode/Cathode construction: Type ZY 250, material brass

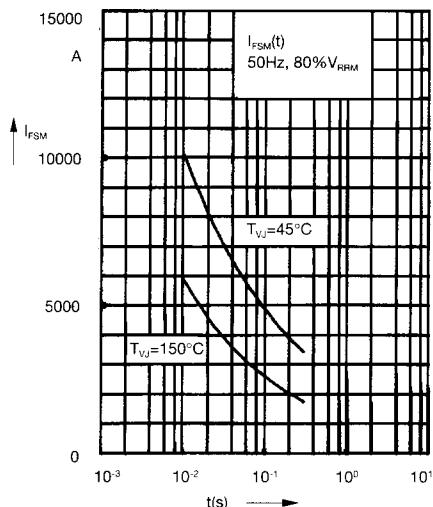


Fig. 1 Surge overload current
 I_{FSM} : Crest value, t : duration

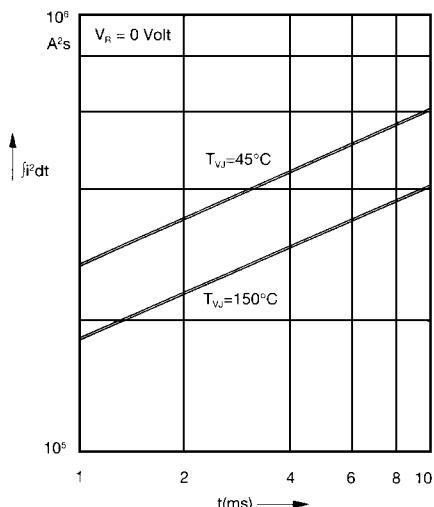


Fig. 2 $\int j^2 dt$ versus time (1-10 ms)

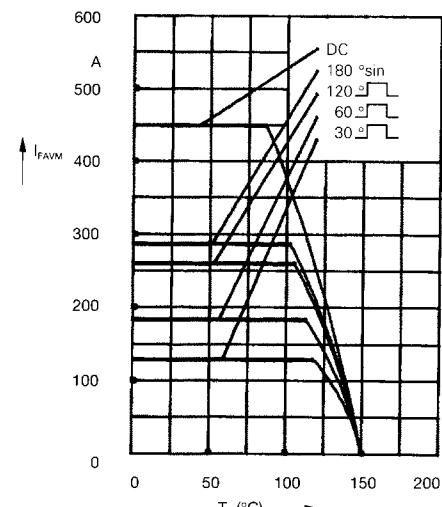


Fig. 2a Maximum forward current
at case temperature

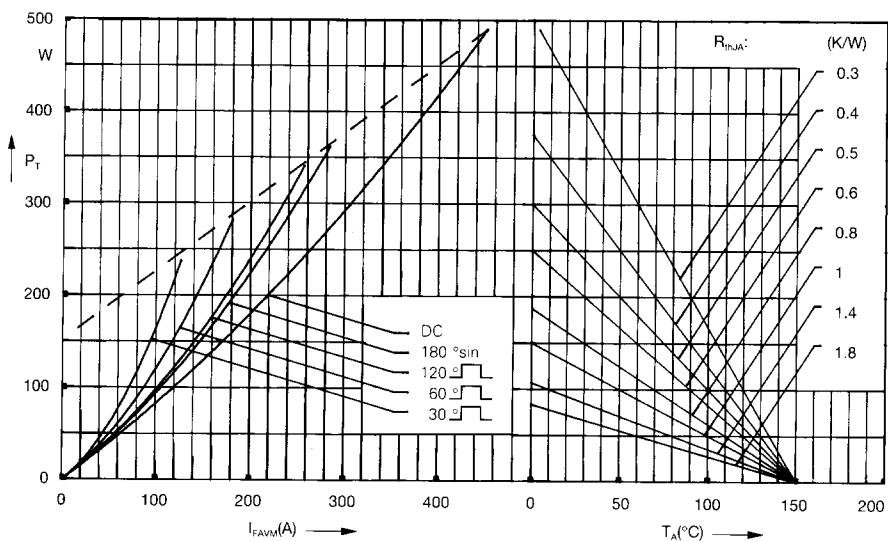


Fig. 3 Power dissipation versus
forward current and ambient
temperature (per diode)

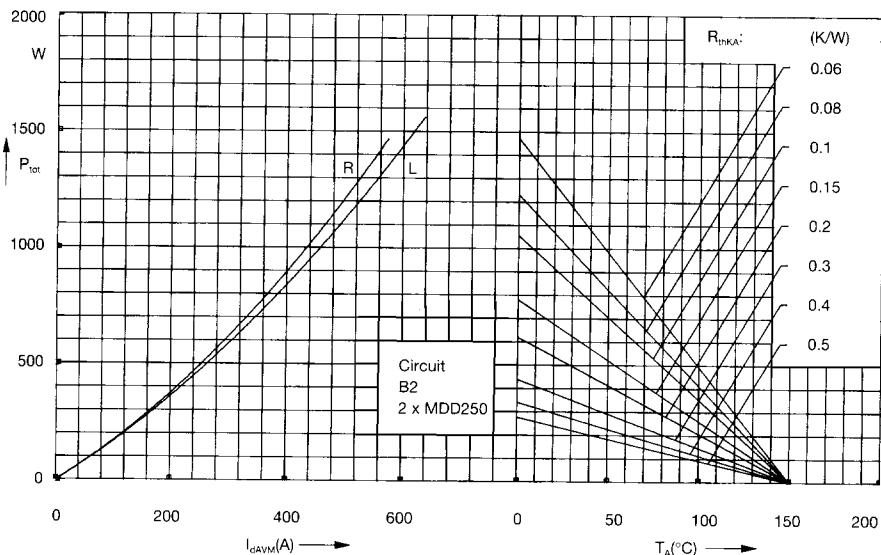


Fig. 4 Single phase rectifier bridge:
Power dissipation versus direct
output current and ambient
temperature
R = resistive load
L = inductive load

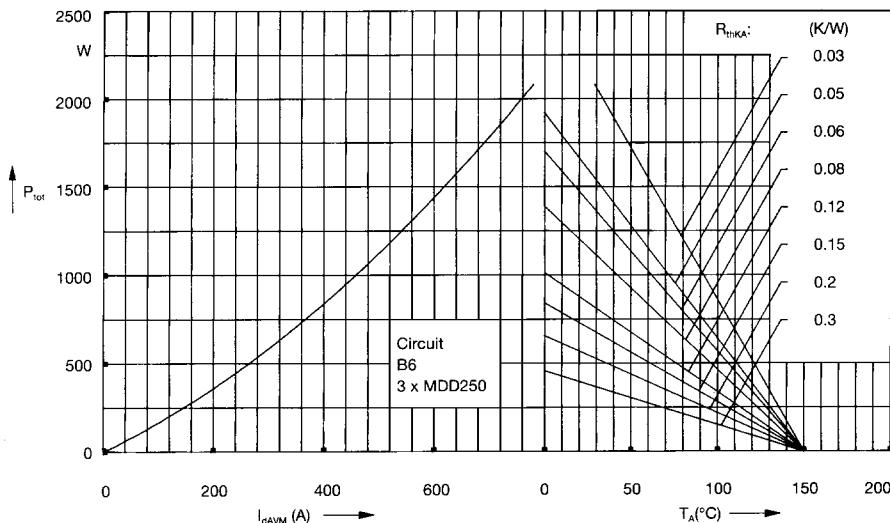


Fig. 5 Three phase rectifier bridge:
Power dissipation versus direct
output current and ambient
temperature

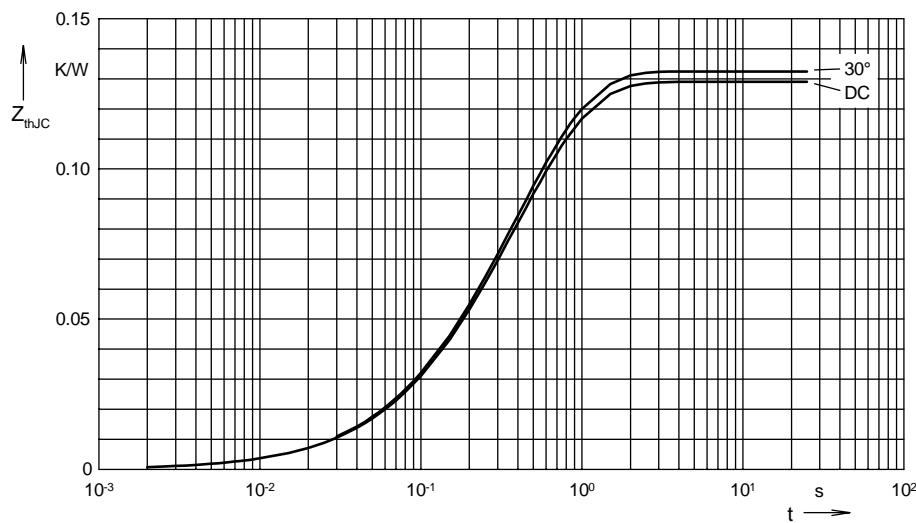


Fig. 6 Transient thermal impedance
junction to case (per diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.129
180°	0.131
120°	0.132
60°	0.132
30°	0.133

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456

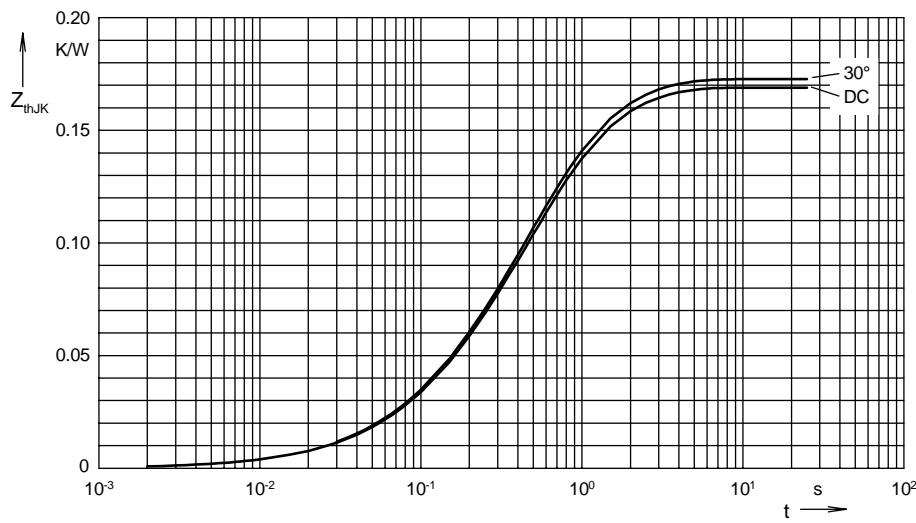


Fig. 7 Transient thermal impedance
junction to heatsink (per diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.169
180°	0.171
120°	0.172
60°	0.172
30°	0.173

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.0099
2	0.0165	0.168
3	0.1091	0.456
4	0.04	1.36