Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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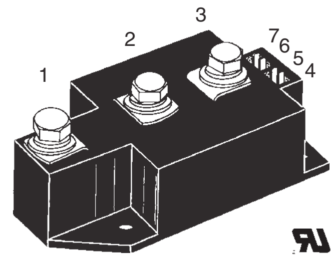
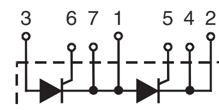
Thyristor Modules
Thyristor/Diode Modules

I_{TRMS} = 2x450 A
I_{TAVM} = 2x287 A
V_{RRM} = 800-1800 V

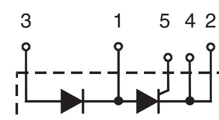
V_{RSM} V_{DSM}	V_{RRM} V_{DRM}	Type	
V	V	Version 1	Version 1
900	800	MCC 250-08io1	MCD 250-08io1
1300	1200	MCC 250-12io1	MCD 250-12io1
1500	1400	MCC 250-14io1	MCD 250-14io1
1700	1600	MCC 250-16io1	MCD 250-16io1
1900	1800	MCC 250-18io1	MCD 250-18io1



MCC



MCD



Symbol	Conditions		Maximum Ratings	
I_{TRMS}, I_{FRMS}	$T_{VJ} = T_{VJM}$		450	A
I_{TAVM}, I_{FAVM}	T_C = 85°C; 180° sine		287	A
I_{TSM}, I_{FSM}	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	9000	A
	$V_R = 0$	t = 8.3 ms (60 Hz), sine	9600	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	7800	A
	$V_R = 0$	t = 8.3 ms (60 Hz), sine	8500	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	405 000	A^2s
	$V_R = 0$	t = 8.3 ms (60 Hz), sine	380 000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	304 000	A^2s
	$V_R = 0$	t = 8.3 ms (60 Hz), sine	300 000	A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$; f = 50 Hz; t_P = 200 µs; $V_D = ^2/_3 V_{DRM}$	repetitive, I_T = 860 A	100	A/µs
	I_G = 1 A; di_G/dt = 1 A/µs	non repetitive, I_T = 290 A	800	A/µs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$;	$V_{DR} = ^2/_3 V_{DRM}$	1000	V/µs
	$R_{GK} = \infty$; method 1 (linear voltage rise)			
P_{GM}	$T_{VJ} = T_{VJM}$;	t_P = 30 µs	120	W
	$I_T = I_{TAVM}$;	t_P = 500 µs	60	W
P_{GAV}			20	W
V_{RGM}			10	V
T_{VJ}			-40...+140	°C
T_{VJM}			140	°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 (M5)		2.5-5/22-44	Nm/lb.in.
	Terminal connection torque (M8)		12-15/106-132	Nm/lb.in.
Weight	Typical including screws		320	g

Data according to IEC 60747 and refer to a single thyristor/diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions

Features
- International standard package
- Direct copper bonded Al_2O_3 -ceramic base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered, E 72873
- Keyed gate/cathode twin pins

Applications
- Motor control
- Power converter
- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Contactless switches

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

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

Symbol	Conditions		Characteristic Values	
I_{RRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$; $V_D = V_{DRM}$		70	mA
I_{DRM}			40	mA
V_T, V_F	I_T/I_F = 600 A; T_{VJ} = 25°C		1.36	V
V_{T0}	For power-loss calculations only (T_{VJ} = 140°C)		0.85	V
r_T			0.82	mΩ
V_{GT}	V_D = 6 V;	T_{VJ} = 25°C	2	V
		T_{VJ} = -40°C	3	V
I_{GT}	V_D = 6 V;	T_{VJ} = 25°C	150	mA
		T_{VJ} = -40°C	200	mA
V_{GD}	$T_{VJ} = T_{VJM}$;	$V_D = {}^2/_3\, V_{DRM}$	0.25	V
I_{GD}			10	mA
I_L	T_{VJ} = 25°C; t_P = 30 µs; V_D = 6 V I_G = 0.45 A; di_G/dt = 0.45 A/µs		200	mA
I_H	T_{VJ} = 25°C; V_D = 6 V; $R_{GK} = \infty$		150	mA
t_{gd}	T_{VJ} = 25°C; V_D = ½ V_{DRM} I_G = 1 A; di_G/dt = 1 A/µs		2	µs
t_q	$T_{VJ} = T_{VJM}$; I_T = 300 A, t_P = 200 µs; -di/dt = 10 A/µs V_R = 100 V; dv/dt = 50 V/µs; $V_D = {}^2/_3\, V_{DRM}$	typ.	200	µs
Q_S	T_{VJ} = 125°C; I_T/I_F = 400 A, -di/dt = 50 A/µs		760	µC
I_{RM}			275	A
R_{thJC}	per thyristor/diode; DC current	other values see Fig. 8/9	0.129	K/W
	per module		0.0645	K/W
R_{thJK}	per thyristor/diode; DC current		0.169	K/W
	per module		0.0845	K/W
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

Optional accessories for modules
Keyed gate/cathode twin plugs with wire length = 350 mm, gate = yellow, cathode = red
Type **ZY 180L** (L = Left for pin pair 4/5) } UL 758, style 1385,
Type **ZY 180R** (R = right for pin pair 6/7) } CSA class 5851, guide 460-1-1

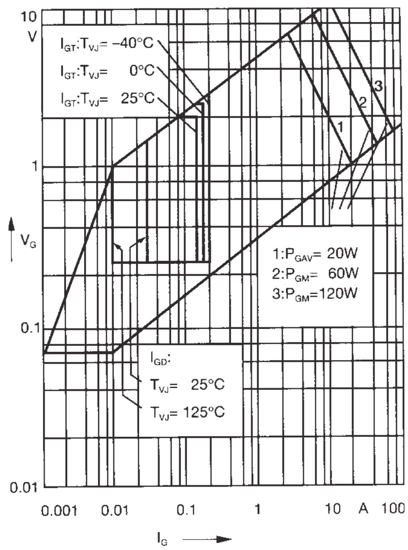


Fig. 1 Gate trigger characteristics

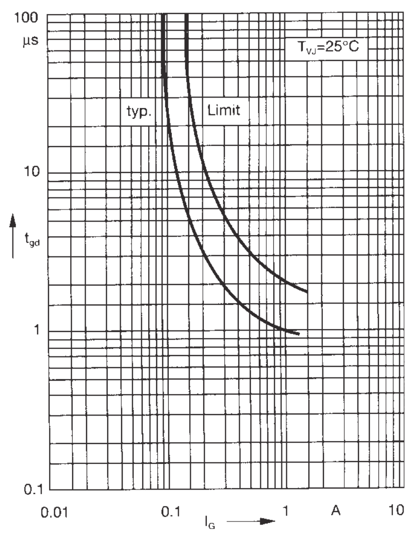
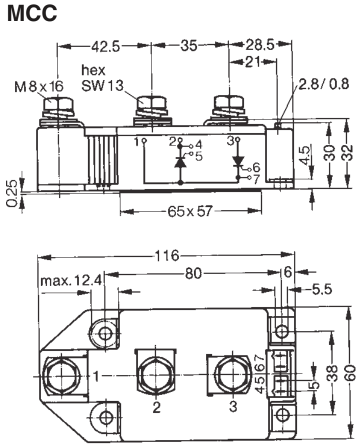


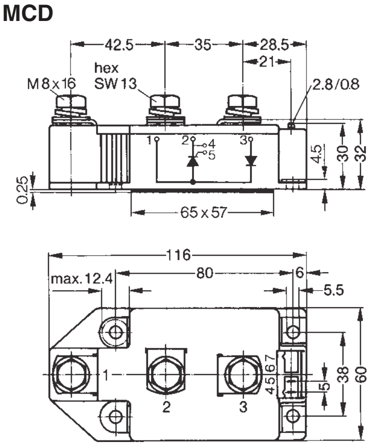
Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")

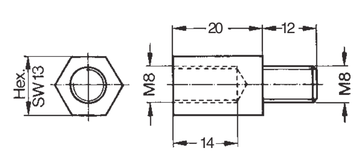
MCC



MCD



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



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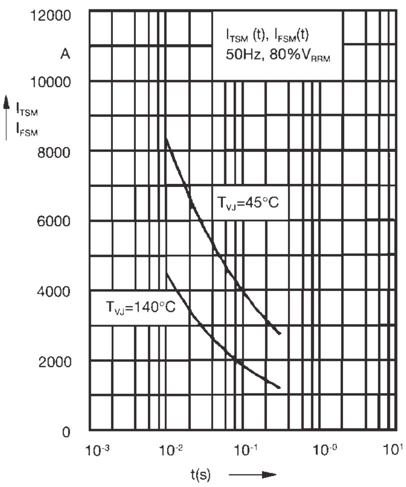

Fig. 3 Surge overload current
I_{TSM}, I_{FSM}: Crest value, t: duration

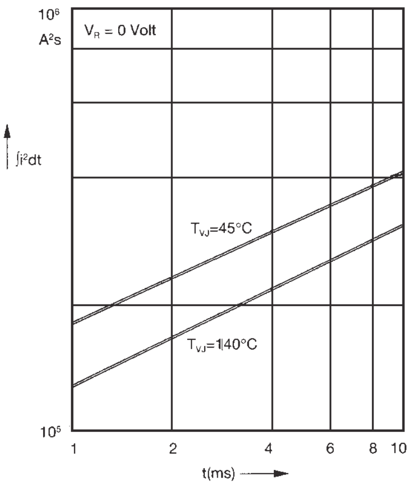

Fig. 4 ∫i²dt versus time (1-10 ms)

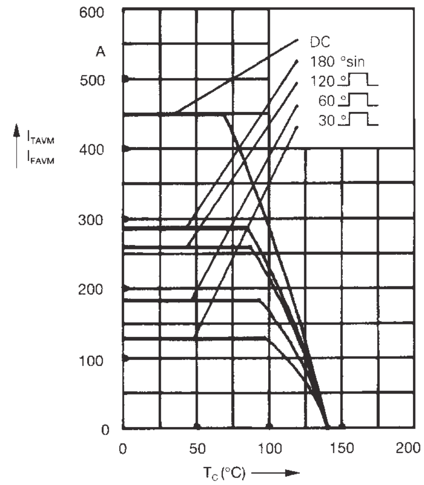

Fig. 4a Maximum forward current at case temperature

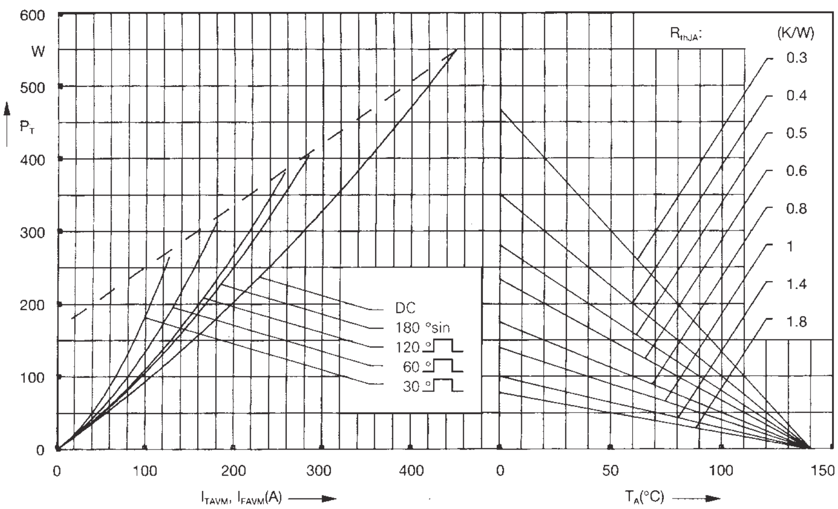

Fig. 5 Power dissipation versus on-state current and ambient temperature (per thyristor or diode)

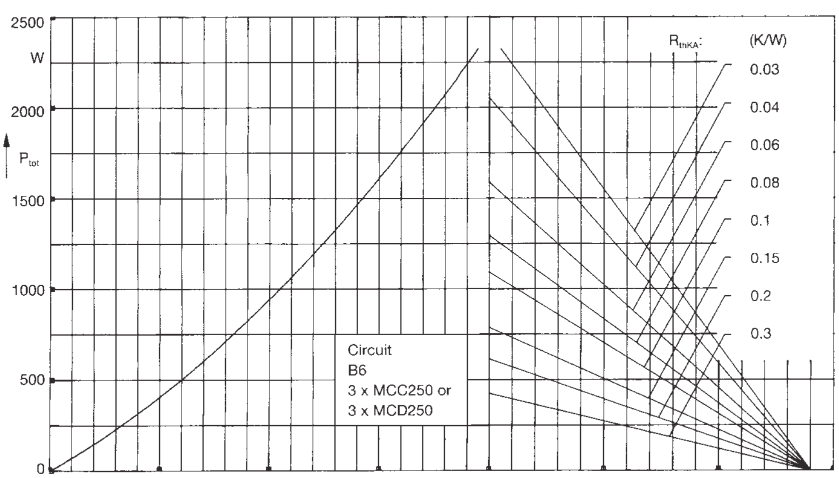

Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

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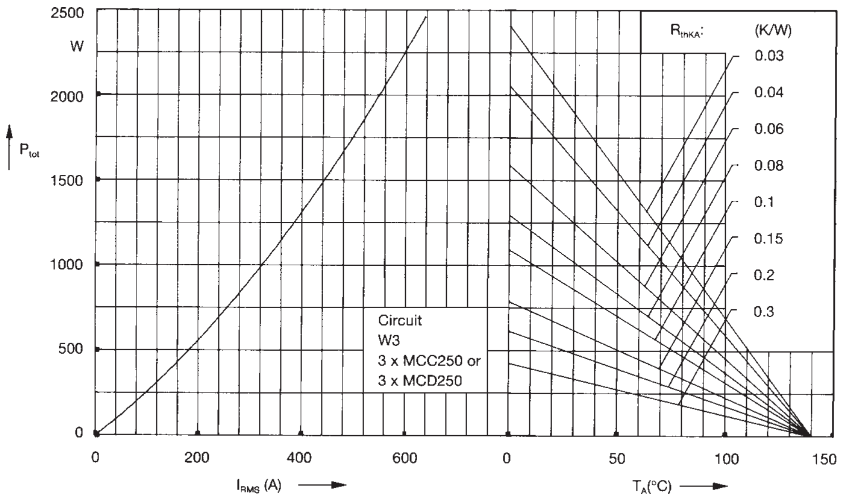

Fig. 7 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

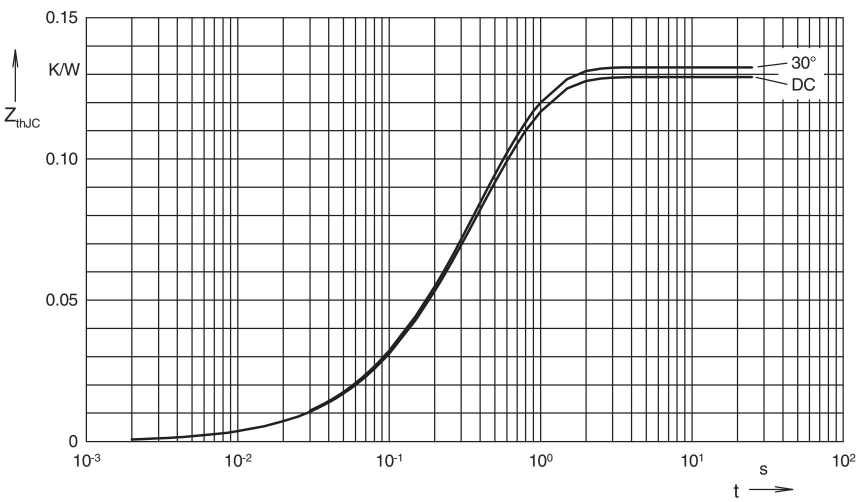

Fig. 8 Transient thermal impedance junction to case (per thyristor or diode)

R_{thJC} for various conduction angles d:

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

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0035	0.099
2	0.0165	0.168
3	0.1091	0.456

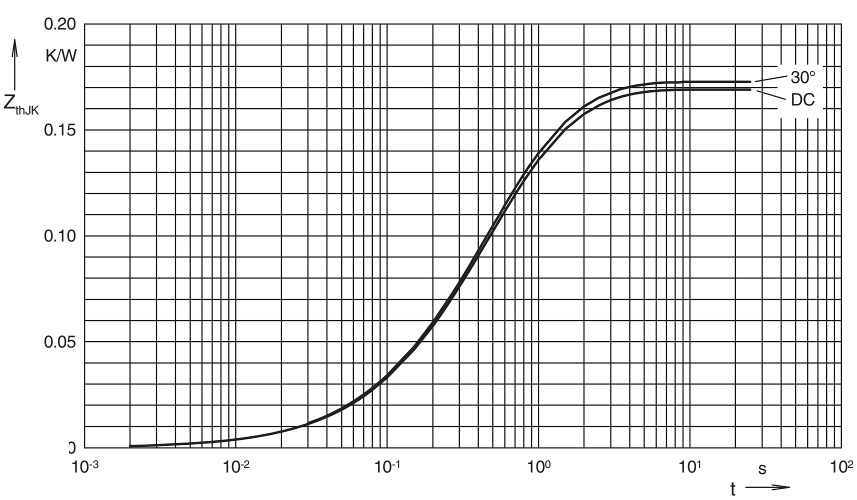

Fig. 9 Transient thermal impedance junction to heatsink (per thyristor or diode)

R_{thJK} for various conduction angles d:

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

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0033	0.099
2	0.0159	0.168
3	0.1053	0.456
4	0.04	1.36

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