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.

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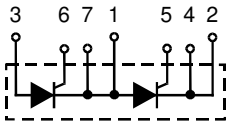
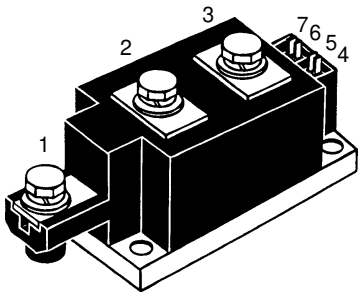
Thyristor Modules
Thyristor/Diode Modules

I_{TRMS} = 2x 350 A
I_{TAVM} = 2x 203 A
V_{RRM} = 1200-1800 V

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1300	1200	MCC 170-12io1
1500	1400	MCC 170-14io1
1700	1600	MCC 170-16io1
1900	1800	MCC 170-18io1





Symbol	Test Conditions		Maximum Ratings	
I_{TRMS}	$T_{VJ} = T_{VJM}$		350	A
I_{TAVM}	T_C = 85°C; 180° sine		203	A
I_{TSM}, I_{FSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz)	5400	A
	V_R = 0	t = 8.3 ms (60 Hz)	5800	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	5000	A
	V_R = 0	t = 8.3 ms (60 Hz)	5500	A
$\int i^2dt$	T_{VJ} = 45°C	t = 10 ms (50 Hz)	146 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz)	140 000	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz)	125 000	A^2s
	V_R = 0	t = 8.3 ms (60 Hz)	126 000	A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$; f =50 Hz, t_P =200 µs; V_D = 2/3 V_{DRM}; I_G = 1 A, di_G/dt = 1 A/µs	repetitive, I_T = 660 A	100	A/µs
		non repetitive, $I_T = I_{TAVM}$	500	A/µs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; V_{DR} = 2/3 V_{DRM}; R_{GK} = ∞; method 1 (linear voltage rise)		1000	V/µs
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...+130	°C
T_{VJM}			130	°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)		4.5-7/40-62	Nm/lb.in.
	Terminal connection torque (M8)		11-13/97-115	Nm/lb.in.
Weight	Typical including screws		750	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 with copper base plate
- Planar passivated chips
- Isolation voltage 3600 V~
- UL registered E 72873
- Keyed gate/cathode twin pins

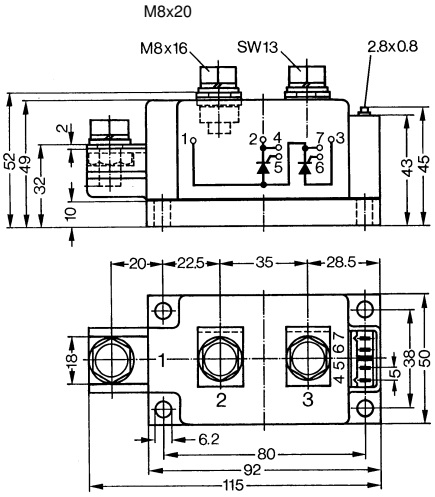
Applications
- Motor control, softstarter
- Power converter
- Heat and temperature control for industrial furnaces and chemical processes
- Lighting control
- Solid state switches

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

Symbol	Test Conditions		Characteristic Values	
I_{RRM}, I_{DRM}	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$; $V_D = V_{DRM}$		40	mA
V_T, V_F	I_T, I_F = 600 A; T_{VJ} = 25°C		1.65	V
V_{T0}	For power-loss calculations only (T_{VJ} = 130°C)		0.8	V
r_T			1	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	220	mA
V_{GD}	$T_{VJ} = T_{VJM}$;	V_D = 2/3 V_{DRM}	0.25	V
I_{GD}	$T_{VJ} = T_{VJM}$;	V_D = 2/3 V_{DRM}	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} = ∞		150	mA
t_{gd}	T_{VJ} = 25°C; V_D = 1/2 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 = 300 A; -di/dt = 50 A/µs		550	µC
I_{RM}			235	A
R_{thJC}	per thyristor (diode); DC current	other values see Fig. 8/9	0.164	K/W
	per module		0.082	K/W
R_{thJK}	per thyristor (diode); DC current		0.204	K/W
	per module		0.102	K/W
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

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

Dimensions in mm (1 mm = 0.0394")



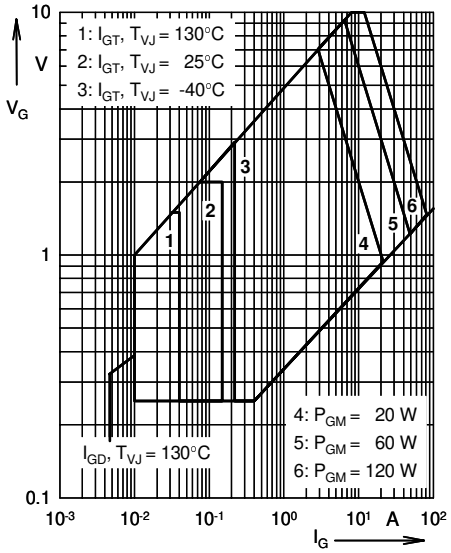


Fig. 1 Gate trigger characteristics

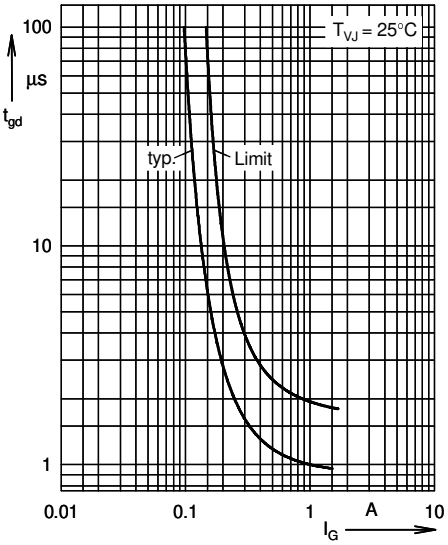


Fig. 2 Gate trigger delay time

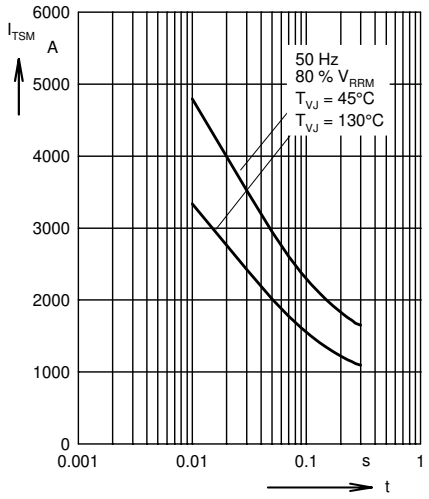


Fig. 3 Surge overload current
I_{TSM}, I_{FSM}: Crest value, t: duration

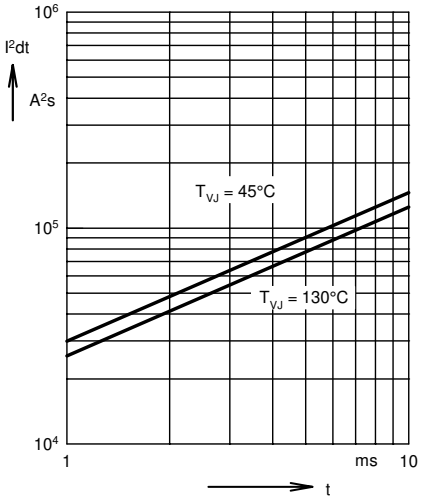


Fig. 4 $\int i^2dt$ versus time (1-10 ms)

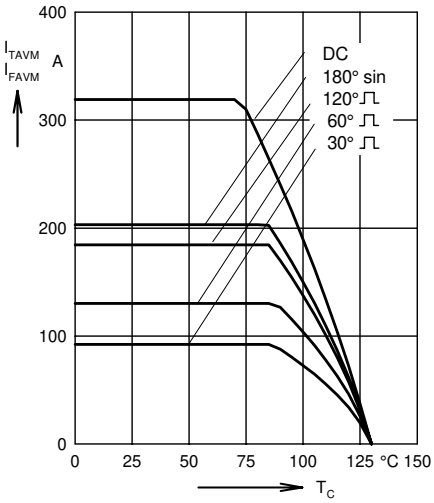


Fig. 4a Maximum forward current at case temperature

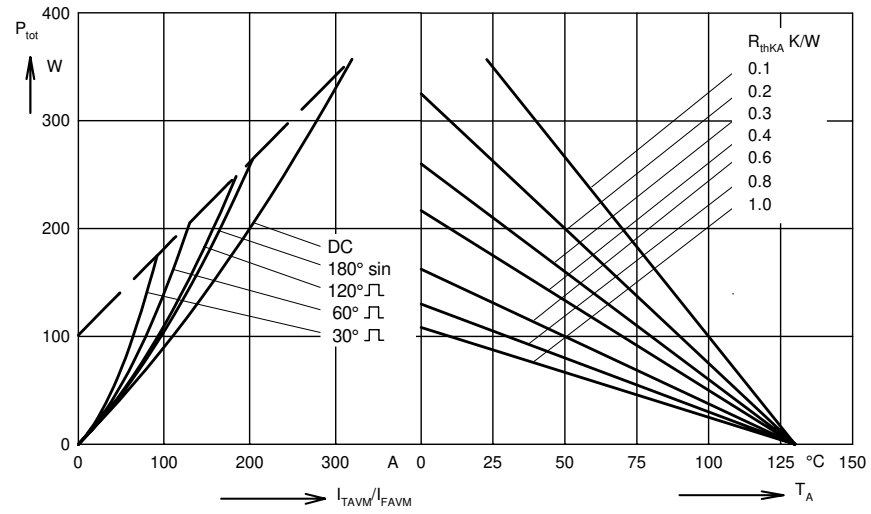


Fig. 5 Power dissipation versus on-state current and ambient temperature (per thyristor or diode)

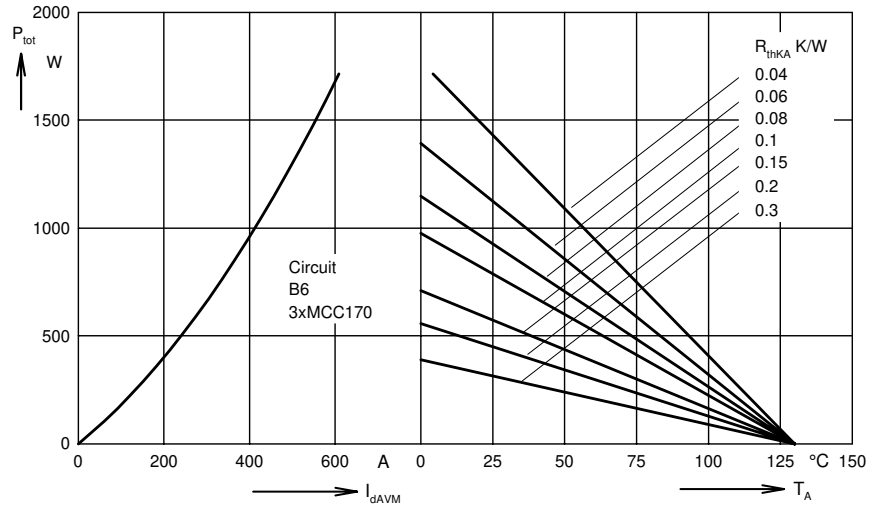


Fig. 6 Three phase rectifier bridge: Power dissipation versus direct output current and ambient temperature

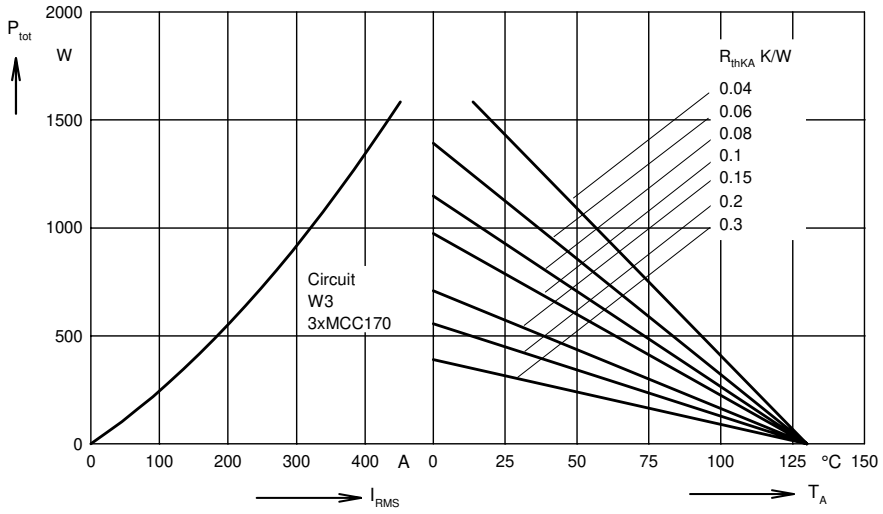


Fig. 7 Three phase AC-controller: Power dissipation versus RMS output current and ambient temperature

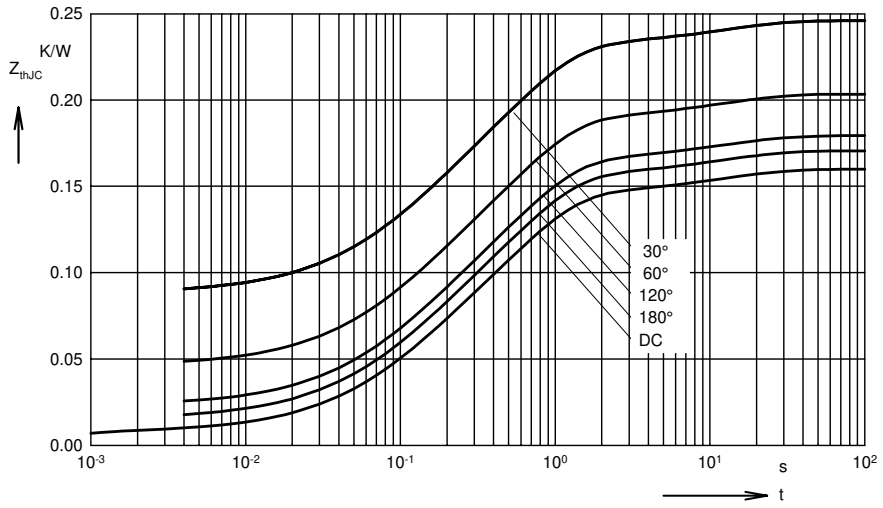


Fig. 8 Transient thermal impedance junction to case (per thyristor or diode)

R_{thJC} for various conduction angles d:

d	R_{thJC} (K/W)
DC	0.160
180°	0.171
120°	0.180
60°	0.203
30°	0.247

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0077	0.00054
2	0.0413	0.098
3	0.096	0.54
4	0.0149	12

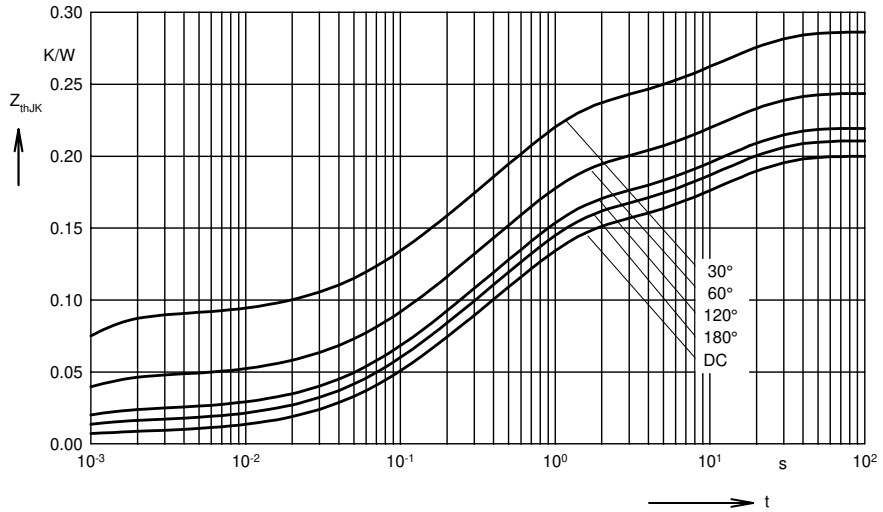


Fig. 9 Transient thermal impedance junction to heatsink (per thyristor or diode)

R_{thJK} for various conduction angles d:

d	R_{thJK} (K/W)
DC	0.200
180°	0.211
120°	0.220
60°	0.243
30°	0.287

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0077	0.00054
2	0.0413	0.098
3	0.096	0.54
4	0.0149	12
5	0.04	12