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!

Contact us

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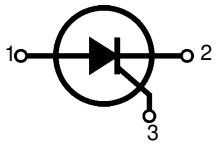
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

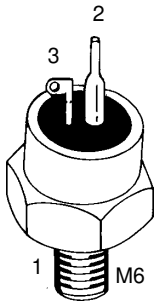
Phase Control Thyristors

V_{RRM} = 800-1600 V
$I_{T(RMS)}$ = 50 A
$I_{T(AV)M}$ = 32 A

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
900	800	CS 23-08io2
1300	1200	CS 23-12io2
1700	1600	CS 23-16io2



TO-208AA
(TO-48)



1 = Anode, 2 = Cathode, 3 = Gate

Symbol	Test Conditions		Maximum Ratings	
$I_{T(RMS)}$	$T_{VJ} = T_{VJM}$		50	A
$I_{T(AV)M}$	T_{case} = 85°C; 180° sine		25	A
	T_{case} = 69°C; 180° sine		32	A
I_{TSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	450	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	480	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	400	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	430	A
I^2t	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	1010	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	970	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	800	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	770	A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$	repetitive, I_T = 75 A	150	A/µs
	f = 50 Hz, t_P = 200 µs			
	V_D = 2/3 V_{DRM}			
	I_G = 0.3 A	non repetitive, $I_T = I_{T(AV)M}$	500	A/µs
	di_G/dt = 0.3 A/µs			
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$;	V_{DR} = 2/3 V_{DRM}	1000	V/µs
	R_{GK} = ∞; method 1 (linear voltage rise)			
P_{GM}	$T_{VJ} = T_{VJM}$	t_P = 30 µs	10	W
	$I_T = I_{T(AV)M}$	t_P = 300 µs	5	W
$P_{G(AV)}$			0.5	W
V_{RGM}			10	V
T_{VJ}			-40...+125	°C
T_{VJM}			125	°C
T_{stg}			-40...+125	°C
M_d	Mounting torque		2.7-3.3	Nm
			24-29	lb.in.
Weight			12	g

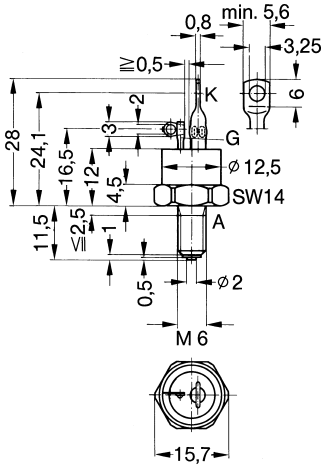
Data according to IEC 60747
IXYS reserves the right to change limits, test conditions and dimensions

Features
- Thyristor for line frequencies
- International standard package JEDEC TO-208AA
- Planar glassivated chip
- Long-term stability of blocking currents and voltages

Applications
- Motor control
- Power converter
- AC power controller

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

Dimensions in mm (1 mm = 0.0394")



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Symbol	Test Conditions		Characteristic Values		
I_R, I_D	$T_{VJ} = T_{VJM}$; $V_R = V_{RRM}$; $V_D = V_{DRM}$		≤	3	mA
V_T	I_T = 80 A; T_{VJ} = 25°C		≤	1.8	V
V_{T0}	For power-loss calculations only (T_{VJ} = 125°C)			1.0	V
r_T				10	mΩ
V_{GT}	V_D = 6 V;	T_{VJ} = 25°C	≤	2.5	V
		T_{VJ} = -40°C	≤	3.5	V
I_{GT}	V_D = 6 V;	T_{VJ} = 25°C	≤	50	mA
		T_{VJ} = -40°C	≤	80	mA
V_{GD}	$T_{VJ} = T_{VJM}$;	V_D = 2/3 V_{DRM}	≤	0.2	V
I_{GD}			≤	1	mA
I_L	T_{VJ} = 25°C; t_P = 10 µs I_G = 0.15 A; di_G/dt = 0.15 A/µs		≤	200	mA
I_H	T_{VJ} = 25°C; V_D = 6 V; R_{GK} = ∞		≤	100	mA
t_{gd}	T_{VJ} = 25°C; V_D = 1/2 V_{DRM} I_G = 0.15 A; di_G/dt = 0.15 A/µs		≤	2	µs
t_q	$T_{VJ} = T_{VJM}$; I_T = 25 A, t_P = 300 µs; di/dt = -20 A/µs V_R = 100 V; dv/dt = 20 V/µs; V_D = 2/3 V_{DRM}		typ.	60	µs
R_{thJC}	DC current			1.0	K/W
R_{thJH}	DC current			1.61	K/W
d_S	Creepage distance on surface			1.5	mm
d_A	Strike distance through air			1.5	mm
a	Max. acceleration, 50 Hz			50	m/s^2

Accessories:
Nut M6 DIN 439/SW14
Lock washer A6 DIN 128

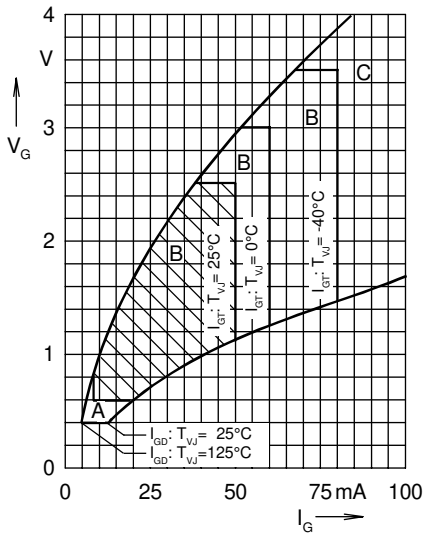

Fig. 1 Gate voltage and gate current
Triggering:
A = no; B = possible; C = safe

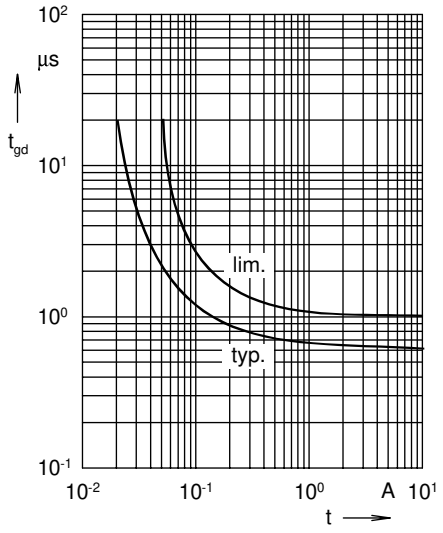

Fig. 2 Gate controlled delay time t_{gd}

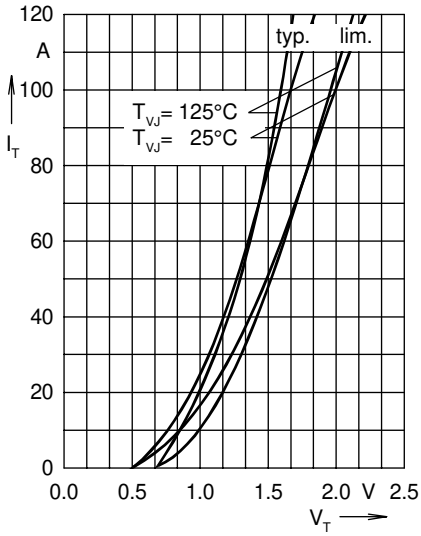

Fig. 3 On-state characteristics

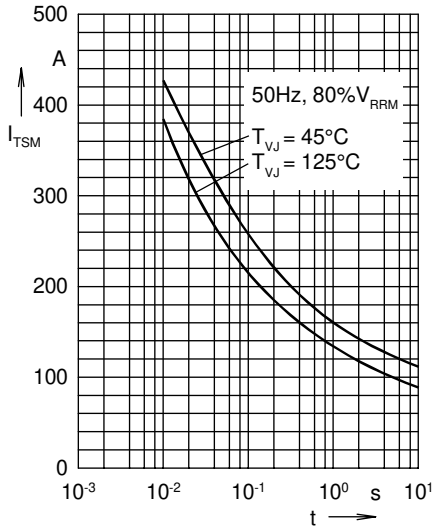

Fig. 4 Surge overload current
I_{TSM}: crest value, t: duration

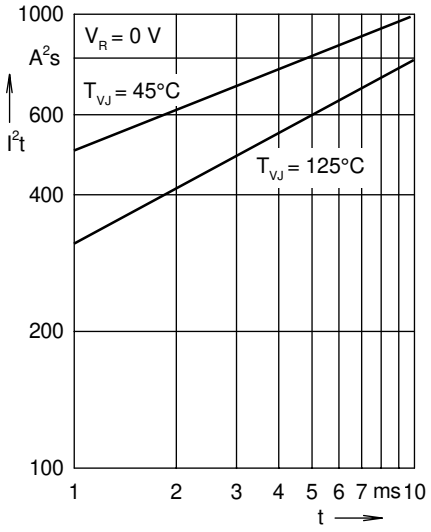

Fig. 5 I^2t versus time (1-10 ms)

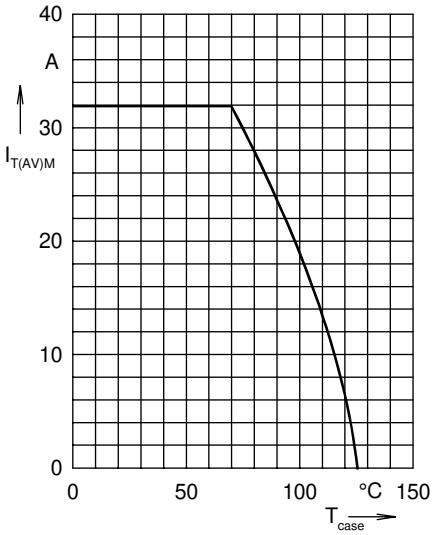

Fig. 6 Maximum forward current at case temperature 180° sine

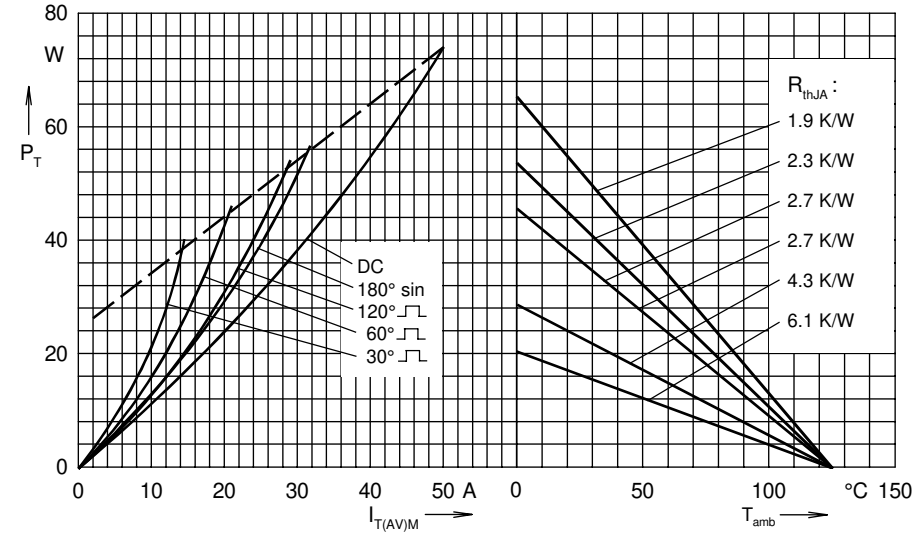

Fig. 7 Power dissipation versus on-state current and ambient temperature

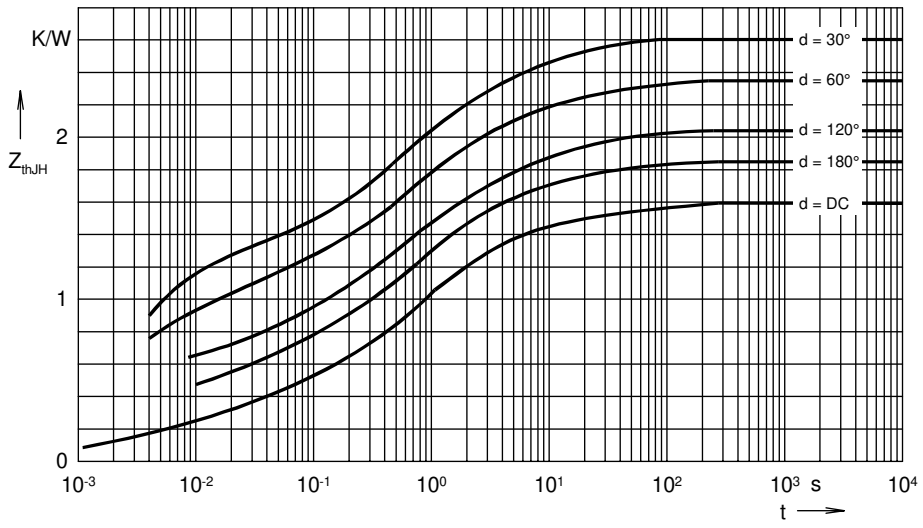

Fig. 8 Transient thermal impedance junction to heatsink

R_{thJH} for various conduction angles d:

d	R_{thJH} (K/W)
DC	1.61
180°	1.85
120°	2.03
60°	2.35
30°	2.60

Constants for Z_{thJH} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.224	0.003
2	0.132	0.028
3	0.321	0.216
4	0.522	1.1
5	0.249	4.2
6	0.162	43.2