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

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
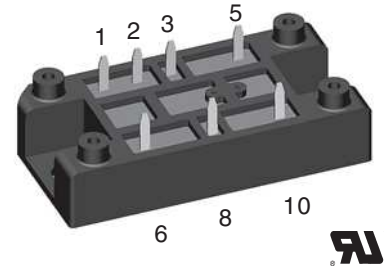Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China
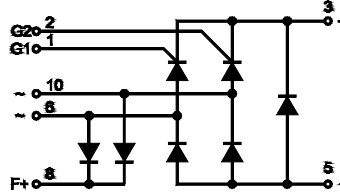
Half Controlled Single Phase Rectifier Bridge
Including Freewheeling Diode and Field Diodes

V_{RRM} = 800-1600 V
I_{dAVM} = 21 A

V_{RSM} V_{DSM}	V_{RRM} V_{DRM}	Type
V	V	
900	800	VHFD 16-08io1
1300	1200	VHFD 16-12io1
1700	1600	VHFD 16-16io1

Bridge and Freewheeling Diode

Symbol	Conditions		Maximum Ratings	
I_{dAV}	T_H = 85°C, module		16	A
I_{dAVM} ✱	module		21	A
I_{FRMS}, I_{TRMS}	per leg		15	A
I_{FSM}, I_{TSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	150	A
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	170	A
	T_{VJ} = T_{VJM}	t = 10 ms (50 Hz), sine	130	A
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	140	A
I^2t	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	110	A^2s
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	120	A^2s
	T_{VJ} = T_{VJM}	t = 10 ms (50 Hz), sine	85	A^2s
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	80	A^2s
$(di/dt)_{cr}$	T_{VJ} = 125°C f = 50 Hz, t_P = 200 µs V_D = 2/3 V_{DRM}	repetitive, I_T = 50 A	150	A/µs
	I_G = 0.3 A, di_G/dt = 0.3 A/µs	non repetitive, I_T = 0.5 I_{dAV}	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
V_{RGM}			10	V
P_{GM}	T_{VJ} = T_{VJM}	t_p = 30 µs	≤ 10	W
	I_T = 0.5 I_{dAVM}	t_p = 500 µs	≤ 5	W
		t_p = 10 ms	≤ 1	W
P_{GAVM}			0.5	W
T_{VJ}			-40...+125	°C
T_{VJM}			125	°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~
d_S	Creep distance on surface		12.7	mm
d_A	Strike distance in air		9.4	mm
a	Max. allowable acceleration		50	m/s²
M_d	Mounting torque	(M5)	2-2.5	Nm
		(10-32 UNF)	18-22	lb.in.
Weight			35	g

Features
- Package with DCB ceramic base plate
- Isolation voltage 3600 V~
- Planar passivated chips
- Blocking voltage up to 1600 V
- Low forward voltage drop
- Leads suitable for PC board soldering
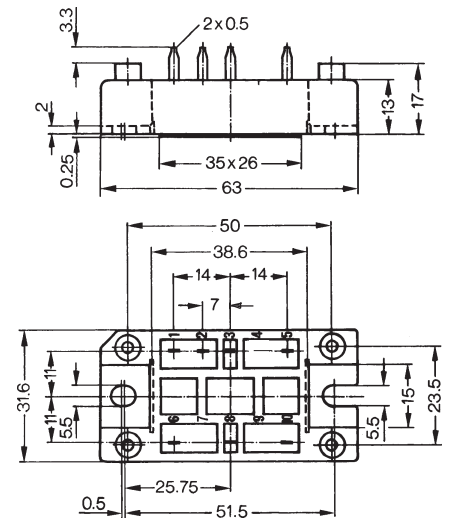- UL registered E 72873

Applications
- Supply for DC power equipment
- DC motor control

Advantages
- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling

Dimensions in mm (1 mm = 0.0394")

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

20100705a

Symbol	Conditions		Characteristic	Values	
I_R, I_D	$V_R = V_{RRM}$; $V_D = V_{DRM}$	$T_{VJ} = T_{VJM}$	$\leq$	5	mA
		$T_{VJ} = 25°C$	$\leq$	0.3	mA
V_T, V_F	I_T, $I_F = 45$ A; $T_{VJ} = 25°C$		$\leq$	2.55	V
V_{T0}	For power-loss calculations only ($T_{VJ} = 125°C$)			1.0	V
r_T				40	mΩ
V_{GT}	$V_D = 6$ V;	$T_{VJ} = 25°C$	$\leq$	1.0	V
		$T_{VJ} = -40°C$	$\leq$	1.2	V
I_{GT}	$V_D = 6$ V;	$T_{VJ} = 25°C$	$\leq$	65	mA
		$T_{VJ} = -40°C$	$\leq$	80	mA
		$T_{VJ} = 125°C$	$\leq$	50	mA
V_{GD}	$T_{VJ} = T_{VJM}$;	$V_D = 2/3\ V_{DRM}$	$\leq$	0.2	V
I_{GD}	$T_{VJ} = T_{VJM}$;	$V_D = 2/3\ V_{DRM}$	$\leq$	5	mA
I_L	$I_G = 0.3$ A; $t_G = 30$ µs;	$T_{VJ} = 25°C$	$\leq$	150	mA
	$di_G/dt = 0.3$ A/µs;	$T_{VJ} = -40°C$	$\leq$	200	mA
		$T_{VJ} = 125°C$	$\leq$	100	mA
I_H	$T_{VJ} = 25°C$; $V_D = 6$ V; $R_{GK} = \infty$		$\leq$	100	mA
t_{gd}	$T_{VJ} = 25°C$; $V_D = 0.5V_{DRM}$		$\leq$	2	µs
	$I_G = 0.3$ A; $di_G/dt = 0.3$ A/µs				
t_q	$T_{VJ} = 125°C$, $I_T = 15$ A, $t_P = 300$ µs, $V_R = 100$ V		typ.	150	µs
Q_r	$di/dt = -10$ A/µs, $dv/dt = 20$ V/µs, $V_D = 2/3\ V_{DRM}$			75	µC
R_{thJC}	per thyristor (diode); DC current			2.4	K/W
	per module			0.6	K/W
R_{thJH}	per thyristor (diode); DC current			3.0	K/W
	per module			0.75	K/W

Fig. 1 Gate trigger range

1: I_{GT}, $T_{VJ} = 125°C$
2: I_{GT}, $T_{VJ} = 25°C$
3: I_{GT}, $T_{VJ} = -40°C$
4: $P_{GAV} = 0.5$ W
5: $P_{GM} = 1$ W
6: $P_{GM} = 10$ W
I_{GD}, $T_{VJ} = 125°C$

Fig. 2 Gate controlled delay time t_{gd}

Field Diodes

Symbol	Conditions		Maximum	Ratings	
I_{FAV}	$T_H = 85°C$, per Diode			4	A
I_{FAVM}	per diode			4	A
I_{FRMS}	per diode			6	A
I_{FSM}	$T_{VJ} = 45°C$;	$t = 10$ ms (50 Hz), sine		100	A
	$V_R = 0$ V	$t = 8.3$ ms (60 Hz), sine		110	A
	$T_{VJ} = T_{VJM}$	$t = 10$ ms (50 Hz), sine		85	A
	$V_R = 0$ V	$t = 8.3$ ms (60 Hz), sine		94	A
I^2t	$T_{VJ} = 45°C$	$t = 10$ ms (50 Hz), sine		50	A²s
	$V_R = 0$ V	$t = 8.3$ ms (60 Hz), sine		50	A²s
	$T_{VJ} = T_{VJM}$	$t = 10$ ms (50 Hz), sine		36	A²s
	$V_R = 0$ V	$t = 8.3$ ms (60 Hz), sine		37	A²s
I_R	$V_R = V_{RRM}$	$T_{VJ} = T_{VJM}$		1	mA
		$T_{VJ} = 25°C$		0.15	mA
V_F	$I_F = 21$ A; $T_{VJ} = 25°C$			1.83	V
V_{T0}	For power-loss calculations only ($T_{VJ} = 125°C$)			0.9	V
r_T				50	mΩ
R_{thJC}	per diode; DC current			4.4	K/W
R_{thJH}	per diode; DC current			5.2	K/W

Data according to IEC 60747 and refer to a single thyristor/diode unless otherwise stated.
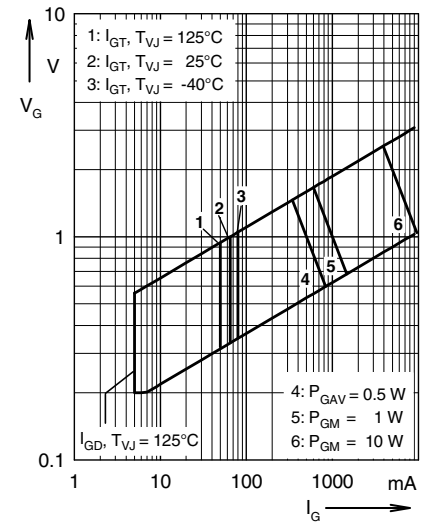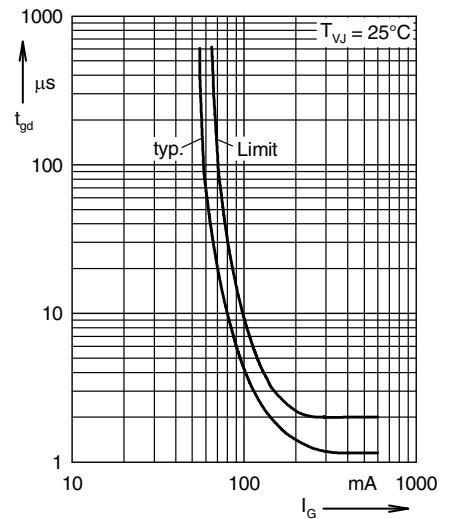
✱ for resistive load

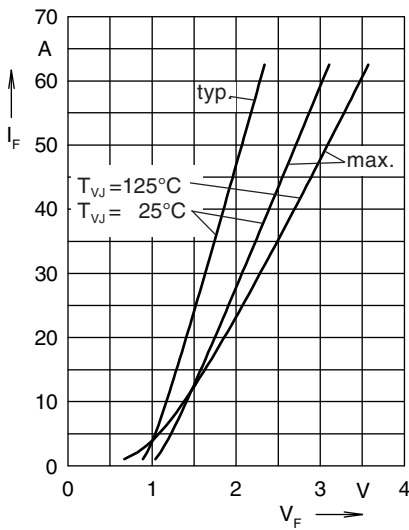IXYS reserves the right to change limits, test conditions and dimensions.

20100705a
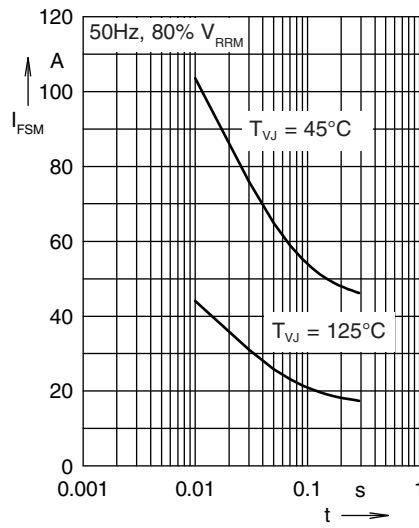
Fig. 3 Forward current vs. voltage drop per diode
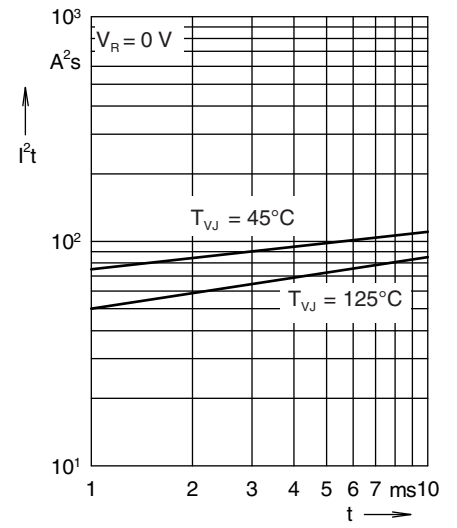

Fig. 4 Surge overload current
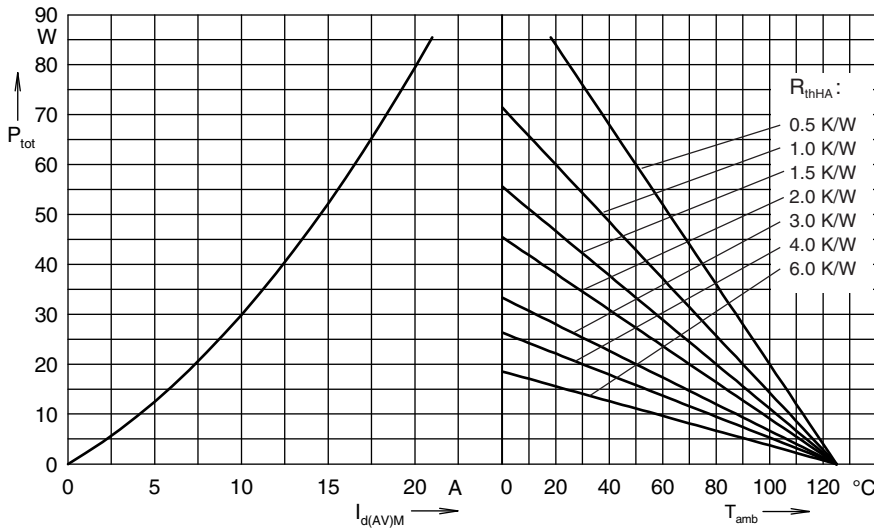

Fig. 5 I²t versus time per diode

Fig. 6 Power dissipation vs. direct output current and ambient temperature

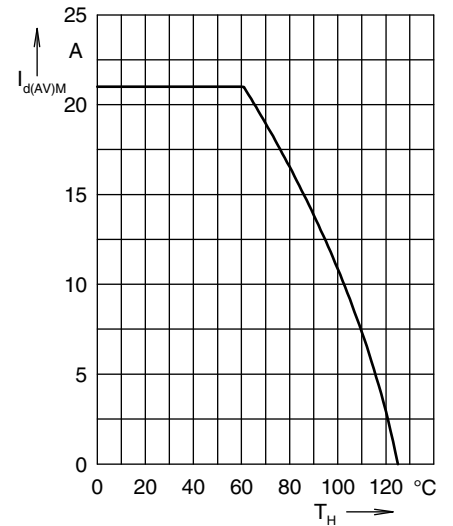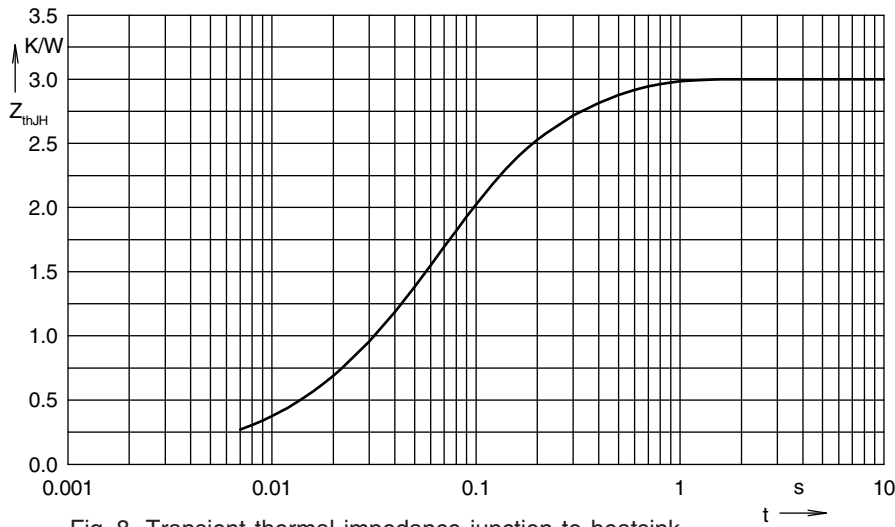Fig. 7 Max. forward current vs. heatsink temperature

Fig. 8 Transient thermal impedance junction to heatsink

Constants for Z_{thJH} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.01	0.008
2	0.4	0.05
3	1.69	0.06
4	0.9	0.25

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

20100705a