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

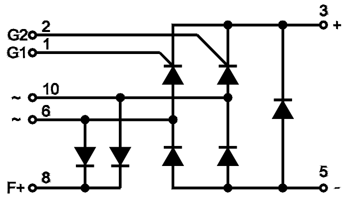
Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

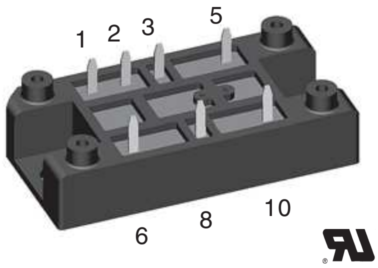
Half Controlled Single Phase Rectifier Bridge

Including Freewheeling Diode and Field Diodes

V_{RRM} = 800-1600 V
I_{dAVM} = 40 A

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
900	800	VHFD 37-08io1
1300	1200	VHFD 37-12io1
1700	1600	VHFD 37-16io1





Bridge and Freewheeling Diode

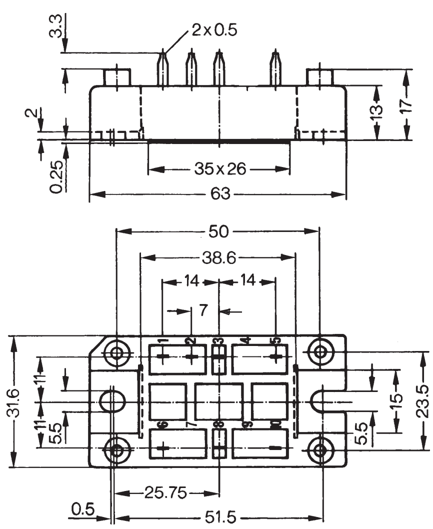
Symbol	Conditions		Maximum Ratings	
I_{dAV}	T_H = 85°C, module		36	A
I_{dAVM} ✶	module		40	A
I_{FRMS}, I_{TRMS}	per leg		31	A
I_{FSM}, I_{TSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	320	A
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	350	A
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	280	A
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	310	A
I^2t	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	500	A^2s
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	520	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	390	A^2s
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	400	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
$(dv/dt)_{cr}$	$T_{VJ} = T_{(vj)m}$; V_{DR} = 2/3 V_{DRM} $R_{GK} = \infty$; 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/s^2
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	$V_R = V_{RRM}$; $V_D = V_{DRM}$	$T_{VJ} = T_{VJM}$	≤	5	mA
		$T_{VJ} = 25°C$	≤	0.3	mA
V_T, V_F	I_T, I_F = 45 A; $T_{VJ} = 25°C$		≤	1.45	V
V_{T0}	For power-loss calculations only ($T_{VJ} = 125°C$)			0.85	V
r_T				13	mΩ
V_{GT}	V_D = 6 V;	$T_{VJ} = 25°C$	≤	1.0	V
		$T_{VJ} = -40°C$	≤	1.2	V
I_{GT}	V_D = 6 V;	$T_{VJ} = 25°C$	≤	65	mA
		$T_{VJ} = -40°C$	≤	80	mA
		$T_{VJ} = 125°C$	≤	50	mA
V_{GD}	$T_{VJ} = T_{VJM}$;	$V_D = 2/3\ V_{DRM}$	≤	0.2	V
I_{GD}	$T_{VJ} = T_{VJM}$;	$V_D = 2/3\ V_{DRM}$	≤	5	mA
I_L	I_G = 0.3 A; t_G = 30 µs;	$T_{VJ} = 25°C$	≤	150	mA
	di_G/dt = 0.3 A/µs;	$T_{VJ} = -40°C$	≤	200	mA
		$T_{VJ} = 125°C$	≤	100	mA
I_H	$T_{VJ} = 25°C$; V_D = 6 V; $R_{GK} = \infty$		≤	100	mA
t_{gd}	$T_{VJ} = 25°C$; $V_D = 1/2\ V_{DRM}$		≤	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			1.2	K/W
	per module			0.3	K/W
R_{thJH}	per thyristor (diode); DC current			1.55	K/W
	per module			0.39	K/W

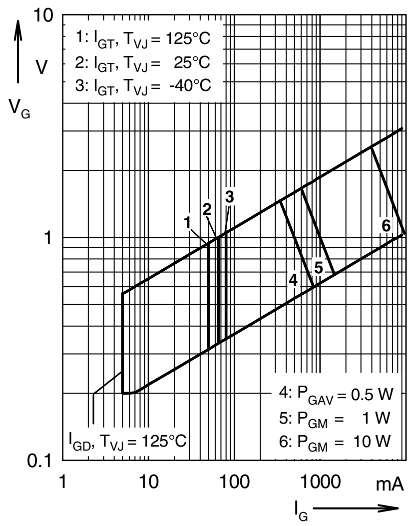


Fig. 1 Gate trigger range

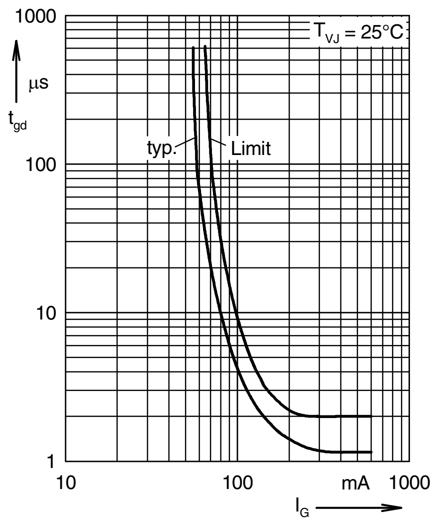


Fig. 2 Gate controlled delay time t_{gd}

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	A^2s
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	50	A^2s
	$T_{VJ} = T_{VJM}$	t = 10 ms (50 Hz), sine	36	A^2s
	V_R = 0 V	t = 8.3 ms (60 Hz), sine	37	A^2s
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

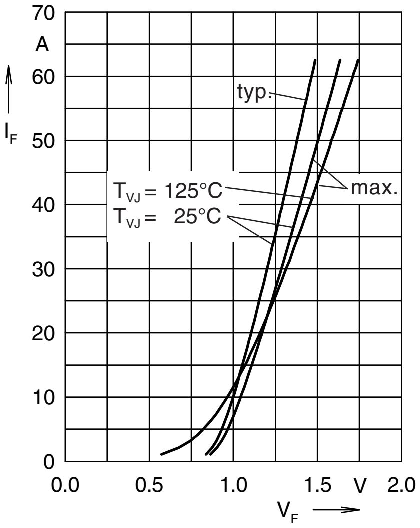


Fig. 3 Forward current vs. voltage drop per diode

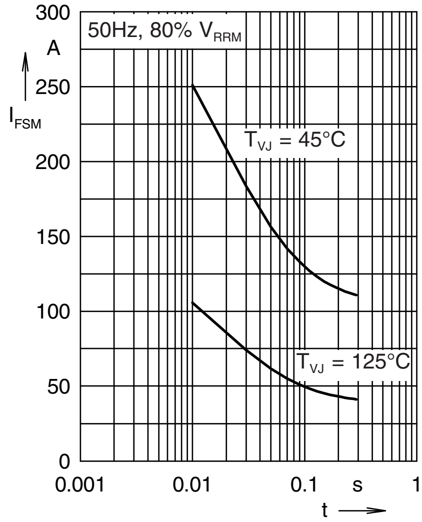


Fig. 4 Surge overload current

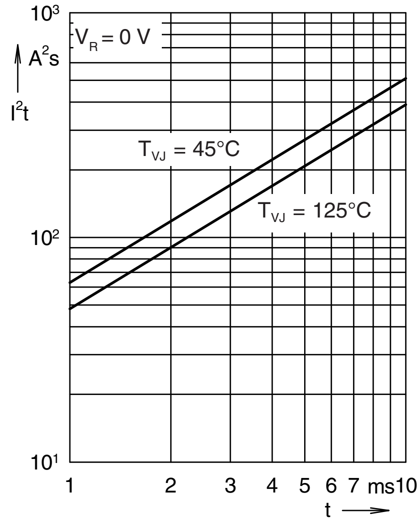


Fig. 5 I^2t versus time per diode

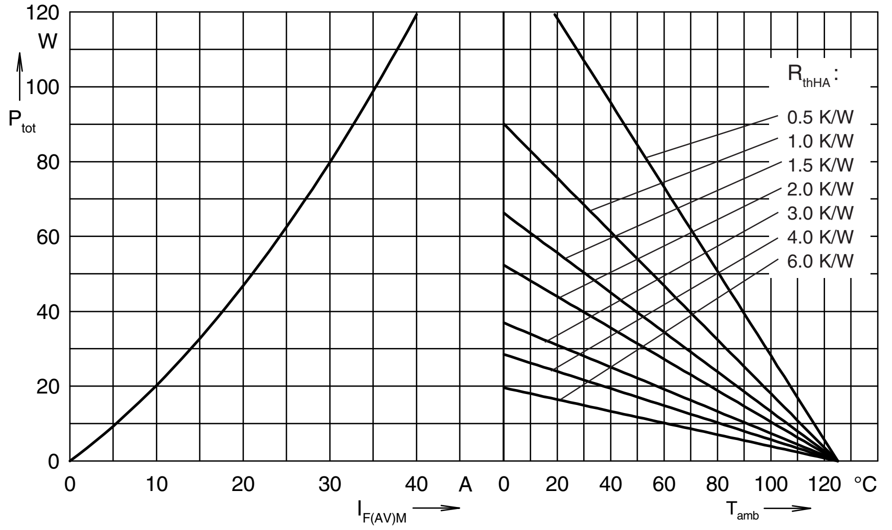


Fig. 6 Power dissipation vs. direct output current and ambient temperature

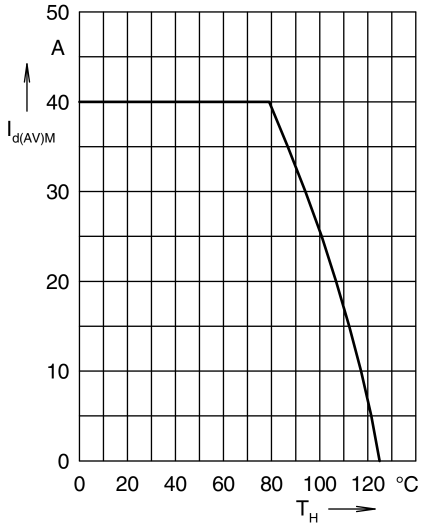


Fig. 7 Max. forward current vs. heatsink temperature

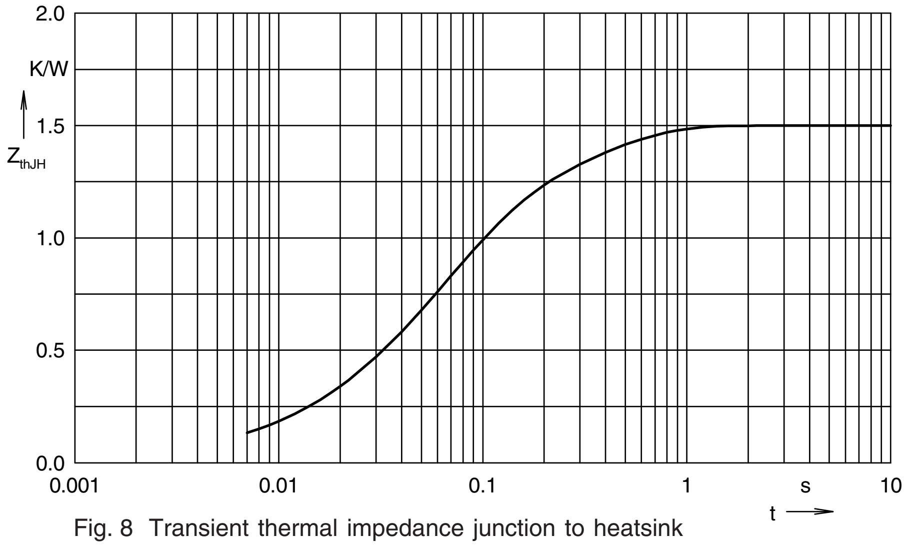


Fig. 8 Transient thermal impedance junction to heatsink

Constants for Z_{thJH} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.005	0.008
2	0.2	0.05
3	0.875	0.06
4	0.47	0.25

20100705a