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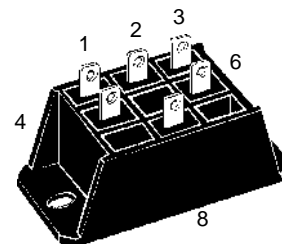
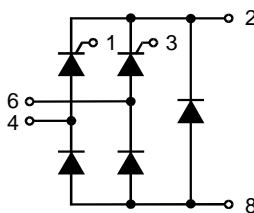
For any questions, you can email us directly:
sales@integrated-circuit.com

IXYS **VHF 15**

Half Controlled Single Phase Rectifier Bridge with Freewheeling Diode

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

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
900	800	VHF 15-08io5
1300	1200	VHF 15-12io5
1500	1400	VHF 15-14io5
1700	1600	VHF 15-16io5



Symbol	Test Conditions	Maximum Ratings	
I_{dAV}	$T_K = 85^\circ\text{C}$, module	15 A	
I_{dAVM} ①	module	21 A	
I_{FRMS} , I_{TRMS}	per leg	15 A	
I_{FSM} , I_{TSM}	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0\text{ V}$	$t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	190 A 210 A
	$T_{VJ} = T_{VJM}$ $V_R = 0\text{ V}$	$t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	170 A 190 A
I^2t	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0\text{ V}$	$t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	160 A ² s 180 A ² s
	$T_{VJ} = T_{VJM}$ $V_R = 0\text{ V}$	$t = 10\text{ ms}$ (50 Hz), sine $t = 8.3\text{ ms}$ (60 Hz), sine	140 A ² s 145 A ² s
$(di/dt)_{cr}$	$T_{VJ} = 125^\circ\text{C}$ $f = 50\text{ Hz}$, $t_p = 200\text{ }\mu\text{s}$ $V_D = 2/3 V_{DRM}$	repetitive, $I_T = 50\text{ A}$	150 A/ μs
	$I_G = 0.3\text{ A}$, $di_G/dt = 0.3\text{ A}/\mu\text{s}$	non repetitive, $I_T = 1/2 \cdot I_{dAV}$	500 A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $V_{DR} = 2/3 V_{DRM}$ $R_{GK} = \infty$; method 1 (linear voltage rise)		1000 V/ μs
V_{RGM}			10 V
P_{GM}	$T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$	$t_p = 30\text{ }\mu\text{s}$	$\leq 10\text{ W}$
		$t_p = 500\text{ }\mu\text{s}$	$\leq 5\text{ W}$
		$t_p = 10\text{ ms}$	$\leq 1\text{ W}$
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 $I_{ISOL} \leq 1\text{ mA}$	$t = 1\text{ min}$	3000 V~
		$t = 1\text{ s}$	3600 V~
M_d	Mounting torque (M5) (10-32 UNF)		2-2.5 Nm
			18-22 lb.in.
Weight			50 g

Features

- Package with DCB ceramic base plate
- Isolation voltage 3600 V~
- Planar passivated chips
- 1/4" fast-on terminals
- UL registered E 72873

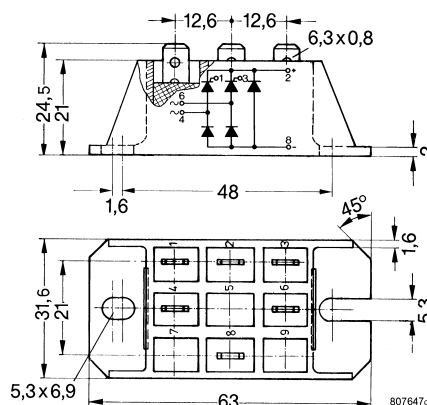
Applications

- 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")



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

① for resistive load

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

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Symbol	Test Conditions	Characteristic Values	
I_R, I_D	$V_R = V_{RRM}; V_D = V_{DRM}$	$T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$	≤ 5 mA
			≤ 0.3 mA
V_T, V_F	$I_T, I_F = 45$ A; $T_{VJ} = 25^\circ\text{C}$	≤ 2.8 V	
V_{T0}	For power-loss calculations only ($T_{VJ} = 125^\circ\text{C}$)		
r_T		40 mΩ	
V_{GT}	$V_D = 6$ V;	$T_{VJ} = 25^\circ\text{C}$	≤ 1.0 V
		$T_{VJ} = -40^\circ\text{C}$	≤ 1.2 V
I_{GT}	$V_D = 6$ V;	$T_{VJ} = 25^\circ\text{C}$	≤ 65 mA
		$T_{VJ} = -40^\circ\text{C}$	≤ 80 mA
		$T_{VJ} = 125^\circ\text{C}$	≤ 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; $di_G/dt = 0.3$ A/μs;	$T_{VJ} = 25^\circ\text{C}$	≤ 150 mA
		$T_{VJ} = -40^\circ\text{C}$	≤ 200 mA
		$T_{VJ} = 125^\circ\text{C}$	≤ 100 mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6$ V; $R_{CK} = \infty$	≤ 100 mA	
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.3$ A; $di_G/dt = 0.3$ A/μs	≤ 2 μs	
t_q	$T_{VJ} = 125^\circ\text{C}; I_T = 15$ 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_{thJK}	per thyristor (diode); DC current	3.0 K/W	
	per module	0.75 K/W	
d_s	Creepage distance on surface	12.6 mm	
d_A	Creepage distance in air	6.3 mm	
a	Max. allowable acceleration	50 m/s ²	

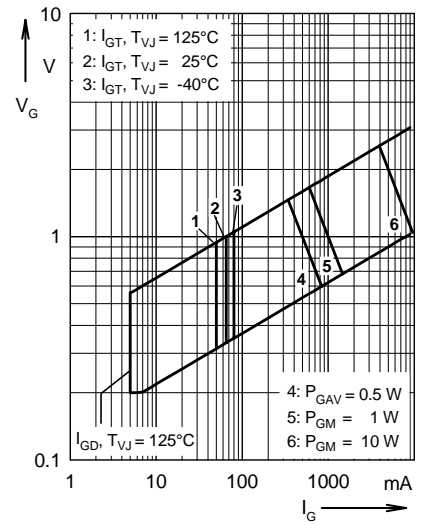


Fig. 1 Gate trigger range

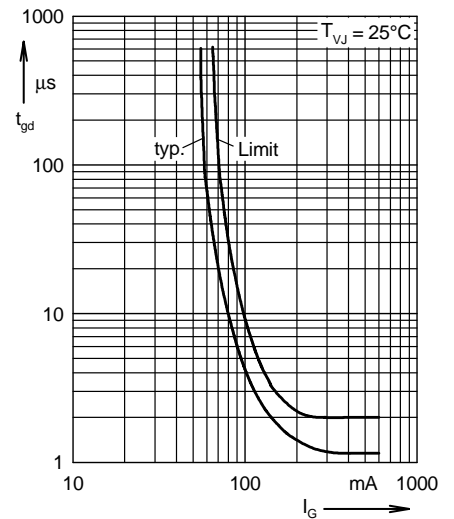


Fig. 2 Gate controlled delay time t_{gd}

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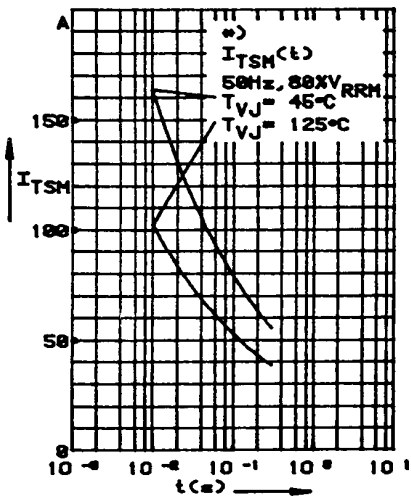


Fig. 3 Surge overload current per chip
 I_{FSM} : Crest value, t : duration

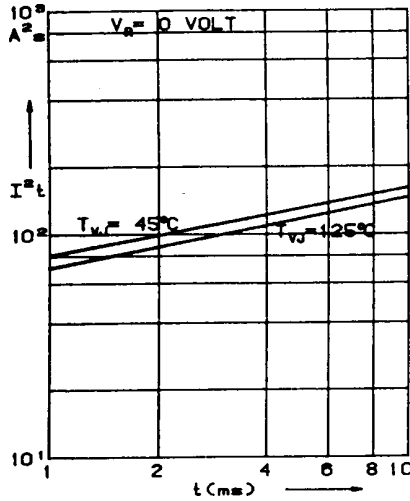


Fig. 4 I^2t versus time (1-10 ms) per chip

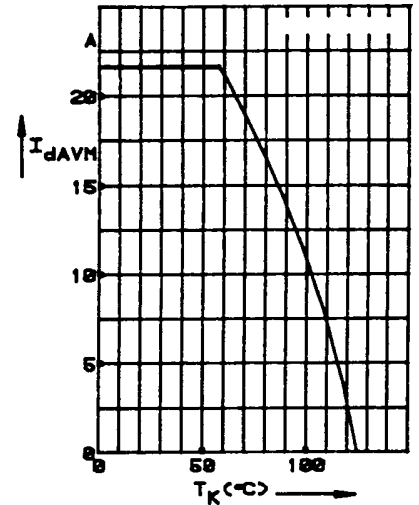


Fig. 5 Max. forward current at heatsink temperature

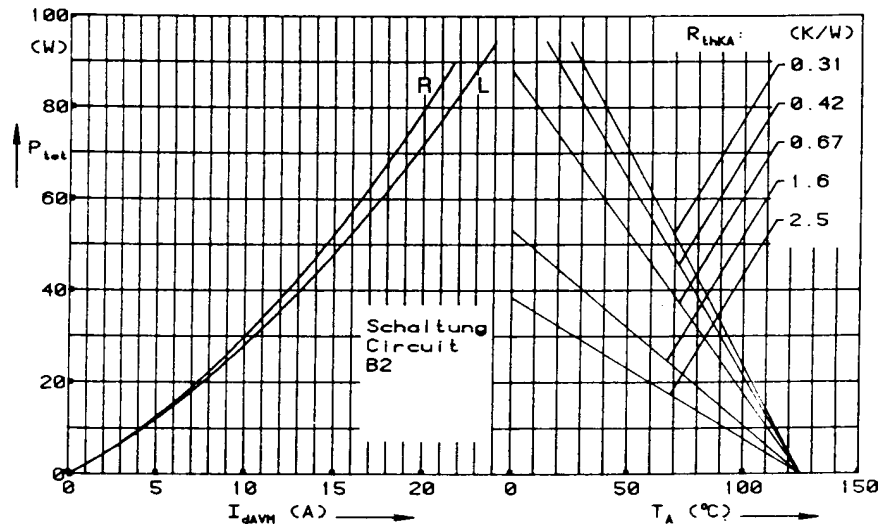


Fig. 6 Power dissipation versus direct output current and ambient temperature

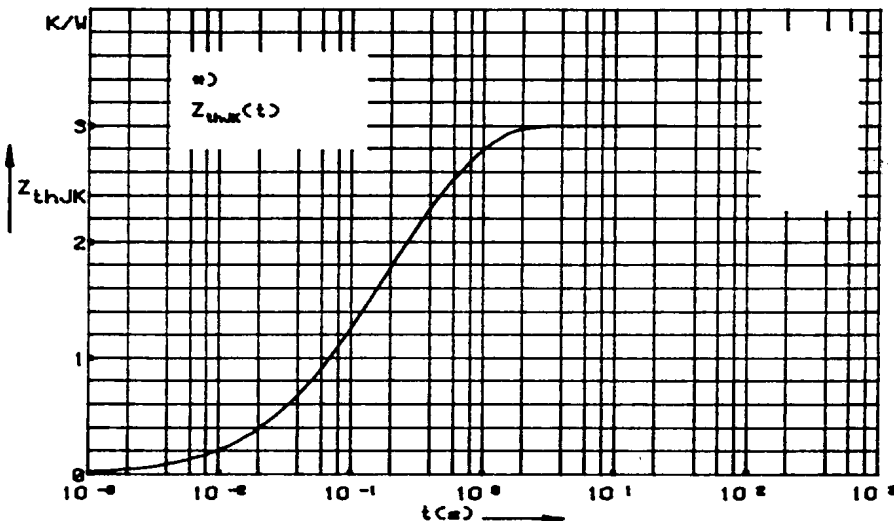


Fig. 7 Transient thermal impedance junction to heatsink per chip

Constants for Z_{thJK} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.34	0.0344
2	1.16	0.12
3	1.5	0.5