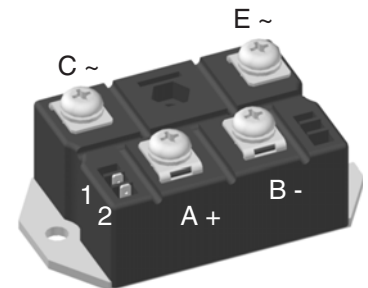
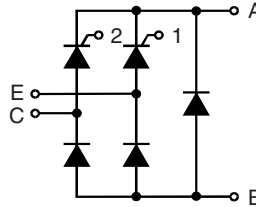


Half Controlled Single Phase Rectifier Bridge, B2HKF with Freewheeling Diode

$$I_{dAV} = 82/123 \text{ A}$$

$$V_{RRM} = 1200-1600 \text{ V}$$

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type	
1300	1200	VHF 85-12io7	VHF 125-12io7
1500	1400	VHF 85-14io7	VHF 125-14io7
1700	1600		VHF 125-16io7



Symbol	Conditions	Maximum Ratings	
		VHF 85	VHF 125
I_{dAV}	$T_C = 85^\circ\text{C}$; module per leg	82	123
I_{FRMS}, I_{TRMS}		58	89
I_{FSM}, I_{TSM}	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine $V_R = 0 \text{ V}$; $t = 8.3 \text{ ms}$ (60 Hz), sine	1150 1230	1500 1600
	$T_{VJ} = T_{VJM}$; $t = 10 \text{ ms}$ (50 Hz), sine $V_R = 0 \text{ V}$; $t = 8.3 \text{ ms}$ (60 Hz), sine	1000 1070	1350 1450
I^2t	$T_{VJ} = 45^\circ\text{C}$; $t = 10 \text{ ms}$ (50 Hz), sine $V_R = 0 \text{ V}$; $t = 8.3 \text{ ms}$ (60 Hz), sine	6600 6280	11200 10750
	$T_{VJ} = T_{VJM}$; $t = 10 \text{ ms}$ (50 Hz), sine $V_R = 0$; $t = 8.3 \text{ ms}$ (60 Hz), sine	5000 4750	9100 8830
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$; repetitive; $I_T = 50 \text{ A}$; $f = 400 \text{ Hz}$; $t_p = 200 \mu\text{s}$; $V_D = \frac{2}{3} V_{DRM}$; $I_G = 0.3 \text{ A}$; non repetitive; $di_G/dt = 0.3 \text{ A}/\mu\text{s}$; $I_T = \frac{1}{3} I_{dAV}$	150	$\text{A}/\mu\text{s}$
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $V_{DR} = \frac{2}{3} V_{DRM}$; $R_{GK} = \infty$; method 1 (linear voltage rise)	1000	$\text{V}/\mu\text{s}$
V_{RGM}		10	V
P_{GM}	$T_{VJ} = T_{VJM}$; $t_p = 30 \mu\text{s}$ $I_T = I_{TAVM}$; $t_p = 500 \mu\text{s}$ $t_p = 10 \text{ ms}$	≤ 10 ≤ 5 ≤ 1	W W W
P_{GAVM}		0.5	W
T_{VJ}		-40...+125	$^\circ\text{C}$
T_{VJM}		125	$^\circ\text{C}$
T_{stg}		-40...+125	$^\circ\text{C}$
V_{ISOL}	50/60 Hz RMS; $t = 1 \text{ min}$ $I_{ISOL} \leq 1 \text{ mA}$; $t = 1 \text{ s}$	2500 3000	V~ V~
M_d	Mounting torque (M6) Terminal connection torque (M6)	$5 \pm 15\%$ $5 \pm 15\%$	Nm Nm
Weight	typ.	300	g

Features

- Package with screw terminals
- Isolation voltage 3000 V~
- Planar passivated chips
- UL listing applied for

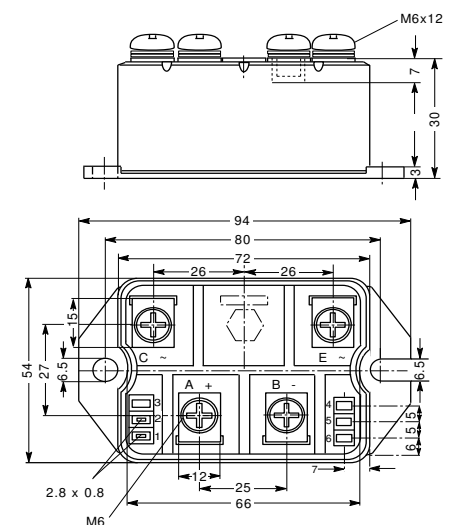
Applications

- 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.

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

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Symbol	Conditions	Characteristic Values	
		VHF 85	VHF 125
I_R, I_D	$V_R = V_{RRM}; V_D = V_{DRM}; T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$	≤ 5 ≤ 0.3	mA mA
V_F, V_T	$I_F, I_T = 200 \text{ A}; T_{VJ} = 25^\circ\text{C}$	≤ 1.75	≤ 1.57 V
V_{T0}	For power-loss calculations only	0.85	0.85 V
r_T	($T_{VJ} = 125^\circ\text{C}$)	6	3.5 mΩ
V_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$	≤ 1.5	V
	$T_{VJ} = -40^\circ\text{C}$	≤ 1.6	V
I_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$	≤ 100	mA
	$T_{VJ} = -40^\circ\text{C}$	≤ 200	mA
V_{GD}	$T_{VJ} = T_{VJM}; V_D = \frac{2}{3} V_{DRM}$	≤ 0.2	V
I_{GD}	$T_{VJ} = T_{VJM}; V_D = \frac{2}{3} V_{DRM}$	≤ 5	mA
I_L	$I_G = 0.3 \text{ A}; t_G = 30 \mu\text{s};$ $T_{VJ} = 25^\circ\text{C}; di_G/dt = 0.3 \text{ A}/\mu\text{s}$	≤ 450	mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	≤ 200	mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM};$ $I_G = 0.3 \text{ A}; di_G/dt = 0.3 \text{ A}/\mu\text{s}$	≤ 2	μs
R_{thJC}	per thyristor (diode); DC current	0.65	0.46 K/W
	per module	0.108	0.077 K/W
R_{thJK}	per thyristor (diode); DC current	0.8	0.55 K/W
	per module	0.133	0.092 K/W
d_S	Creeping distance on surface	10	mm
d_A	Creepage distance in air	9.4	mm
a	Max. allowable acceleration	50	m/s ²

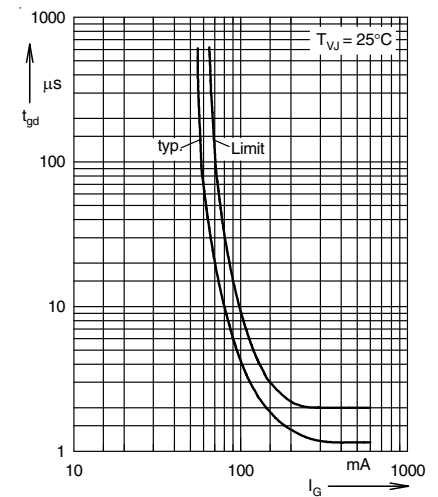


Fig. 1 Gate trigger delay time

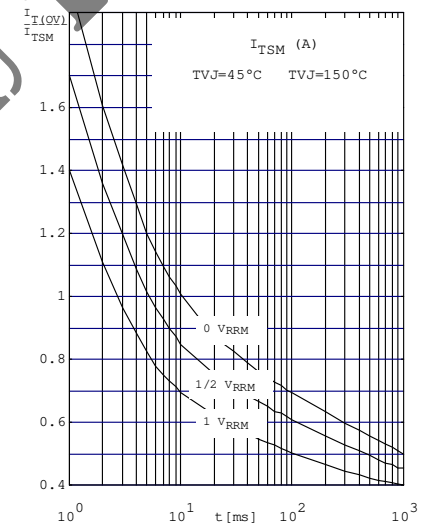


Fig. 2 Surge overload current per diode or thyristor
 I_{FSM}, I_{TSM} : Crest value t : duration

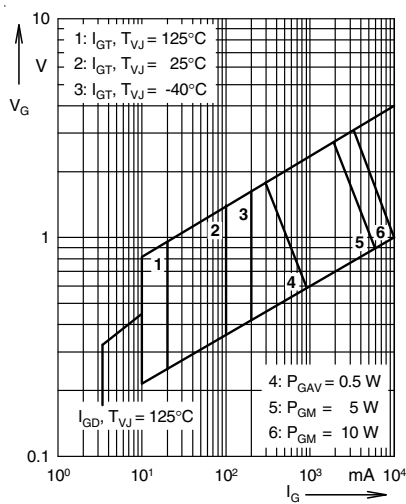


Fig.3 Gate trigger characteristic

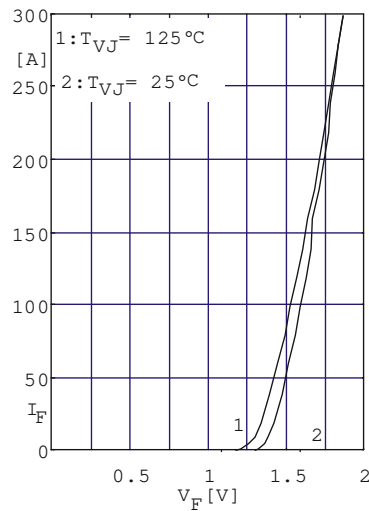


Fig. 4 Forward current vs. voltage drop per diode or thyristor

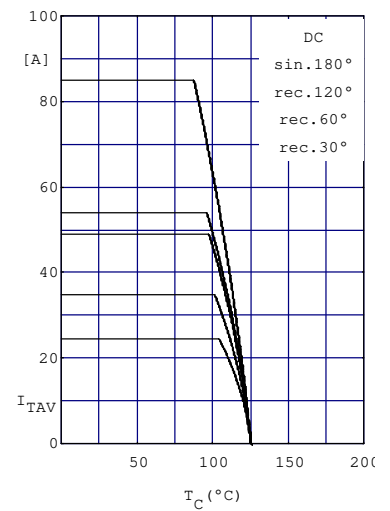


Fig.5 Maximum forward current at case temperature

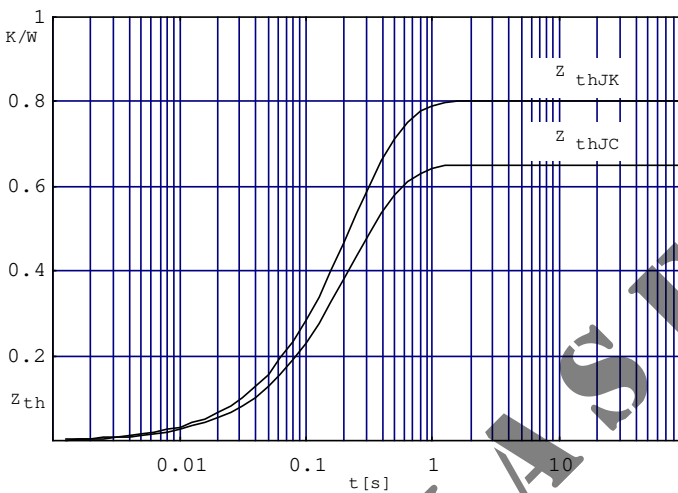


Fig. 6 Transient thermal impedance per thyristor or diode (calculated)

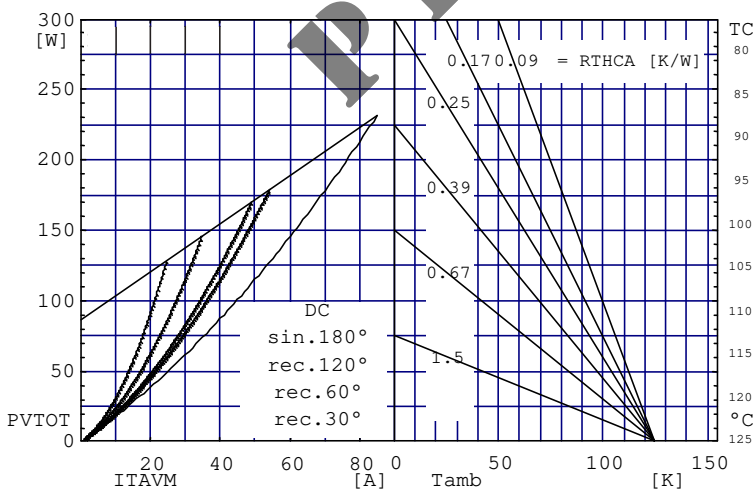


Fig. 7 Power dissipation vs. direct output current and ambient temperature

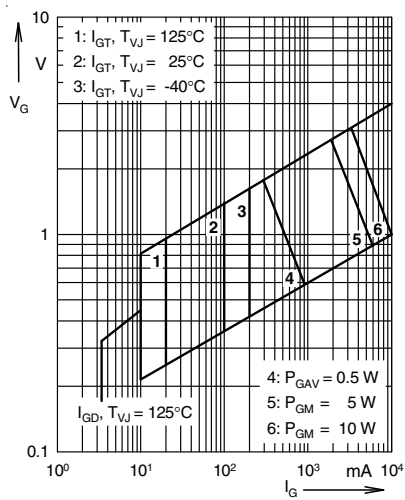


Fig. 3 Gate trigger characteristic

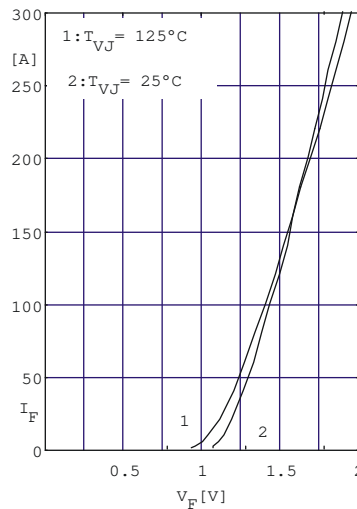


Fig. 4 Forward current vs. voltage drop per diode or thyristor

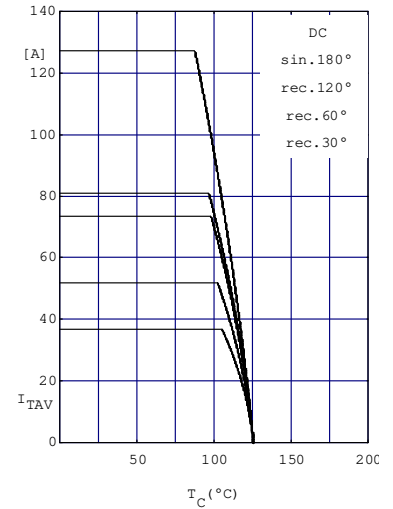


Fig. 5 Maximum forward current at case temperature

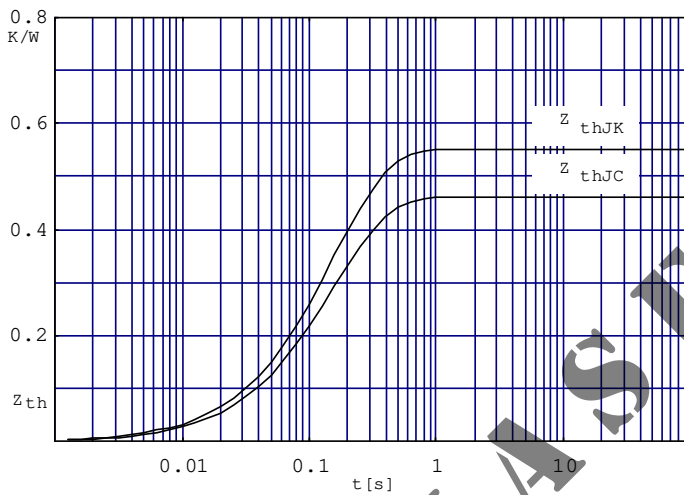


Fig. 6 Transient thermal impedance per thyristor or diode (calculated)

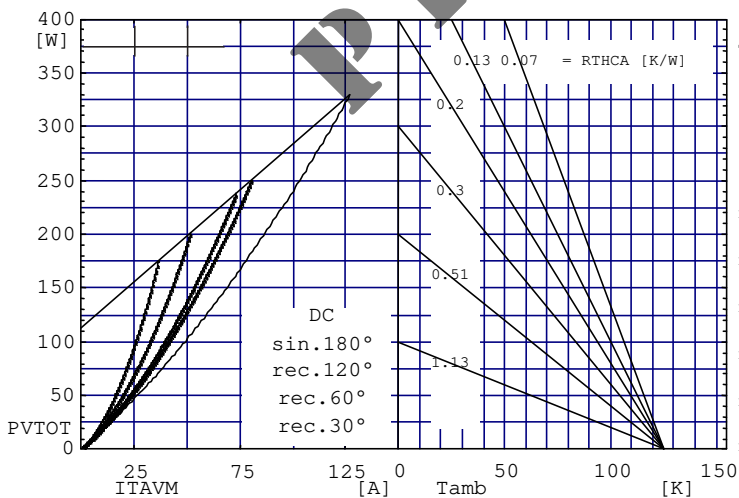


Fig. 7 Power dissipation vs. direct output current and ambient temperature