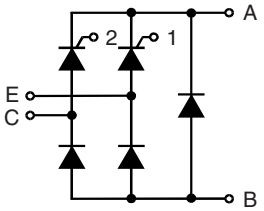
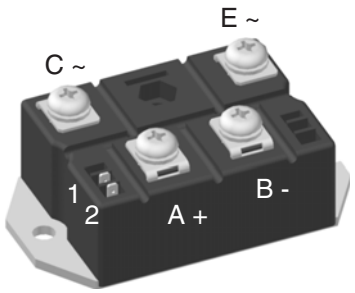
Half Controlled Single Phase Rectifier Bridge, B2HKF

with Freewheeling Diode

I_{dAV} = 82/123 A
V_{RRM} = 1200-1600 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°C; module		82	123	A
I_{FRMS}, I_{TRMS}	per leg		58	89	A
I_{FSM}, I_{TSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	1150	1500	A
	V_R = 0 V;	t = 8.3 ms (60 Hz), sine	1230	1600	A
	T_{VJ} = T_{VJM};	t = 10 ms (50 Hz), sine	1000	1350	A
	V_R = 0 V;	t = 8.3 ms (60 Hz), sine	1070	1450	A
I^2t	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	6600	11200	A^2s
	V_R = 0 V;	t = 8.3 ms (60 Hz), sine	6280	10750	A^2s
	T_{VJ} = T_{VJM};	t = 10 ms (50 Hz), sine	5000	9100	A^2s
	V_R = 0;	t = 8.3 ms (60 Hz), sine	4750	8830	A^2s
$(di/dt)_{cr}$	T_{VJ} = T_{VJM}; repetitive; I_T = 50 A; f = 400 Hz; t_P = 200 µs; V_D = $^2/_3$ V_{DRM};		150		A/µs
	I_G = 0.3 A; non repetitive; di_G/dt = 0.3 A/µs; I_T = $^1/_3$ 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 = I_{TAVM};	t_p = 500 µs	≤ 5		W
		t_p = 10ms	≤ 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	2500		V~
	I_{ISOL} ≤ 1 mA;	t = 1 s	3000		V~
M_d	Mounting torque (M6)		5 ±15%		Nm
	Terminal connection torque (M6)		5 ±15%		Nm
Weight	typ.		300		g

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

Features

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

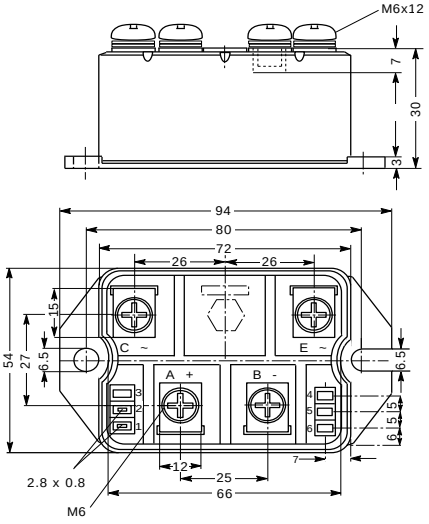
Applications

- 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")



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	$V_R = V_{RRM}$; $V_D = V_{DRM}$; $T_{VJ} = T_{VJM}$		≤ 5		mA
		T_{VJ} = 25°C	≤ 0.3		mA
V_F, V_T	I_F; I_T = 200 A; T_{VJ} = 25°C		≤ 1.75	≤ 1.57	V
V_{T0}	For power-loss calculations only		0.85	0.85	V
r_T	(T_{VJ} = 125°C)		6	3.5	mΩ
V_{GT}	V_D = 6 V;	T_{VJ} = 25°C	≤ 1.5		V
		T_{VJ} = -40°C	≤ 1.6		V
I_{GT}	V_D = 6 V;	T_{VJ} = 25°C	≤ 100		mA
		T_{VJ} = -40°C	≤ 200		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; di_G/dt = 0.3 A/µs		≤ 450		mA
I_H	T_{VJ} = 25°C; V_D = 6 V; R_{GK} = ∞		≤ 200		mA
t_{gd}	T_{VJ} = 25°C; V_D = 1/2 V_{DRM}; I_G = 0.3 A; di_G/dt = 0.3 A/µs		≤ 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

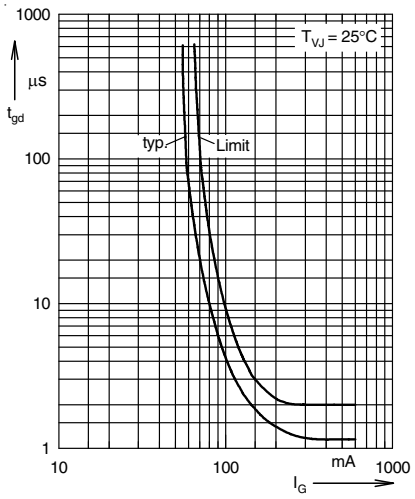


Fig. 1 Gate trigger delay time

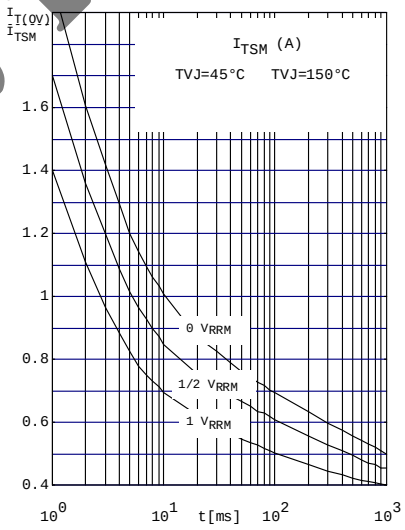


Fig. 2 Surge overload current per diode or thyristor
I_{FSM}, I_{TSM}: Crest value t: duration

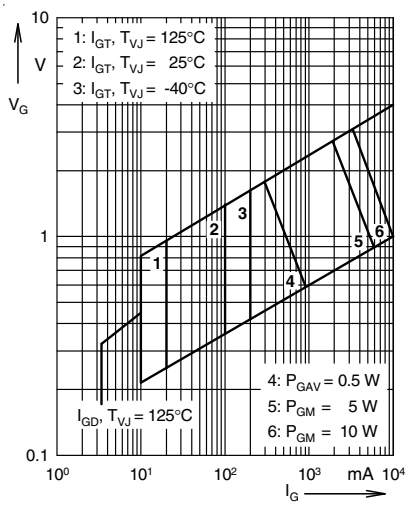


Fig.3 Gate trigger characteristic

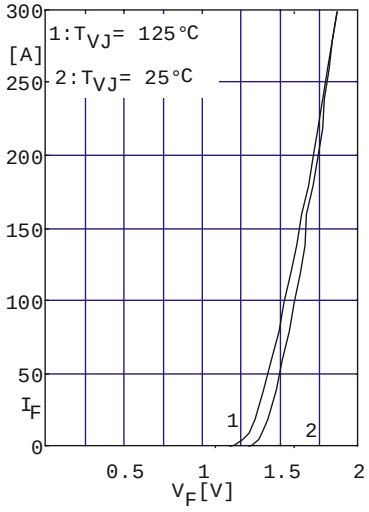


Fig. 4 Forward current vs. voltage trop per diode or thyristor

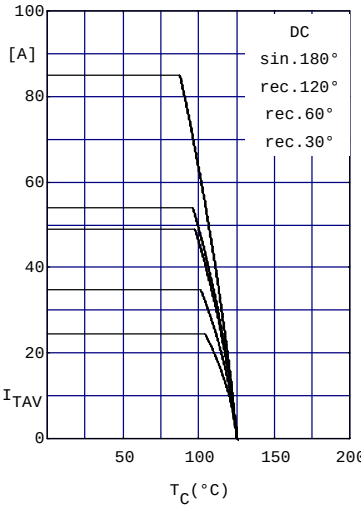


Fig. 5 Maximum forward current at case temperature

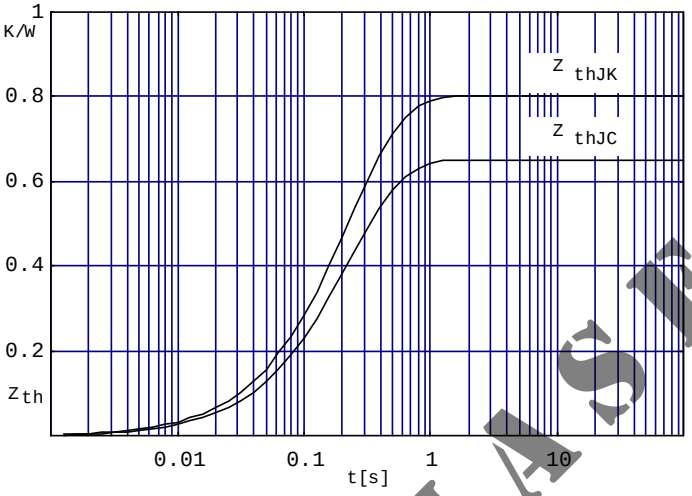


Fig. 6 Transient thermal impedance per thyristor or diode (calculated)

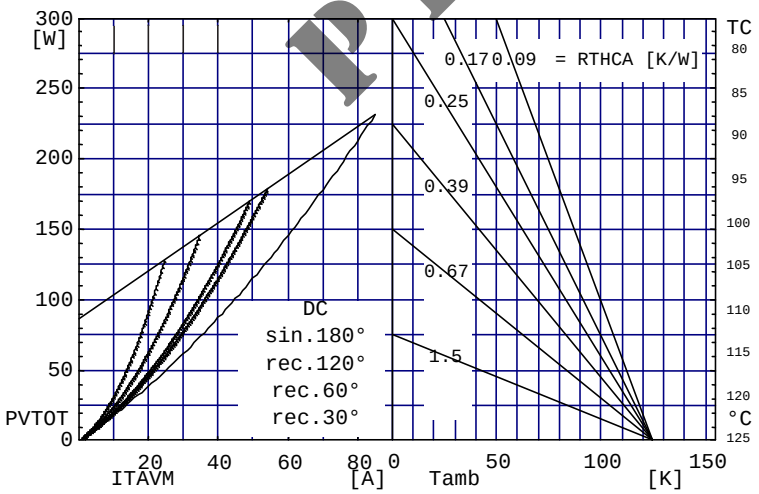


Fig. 7 Power dissipation vs. direct output current and ambient temperature

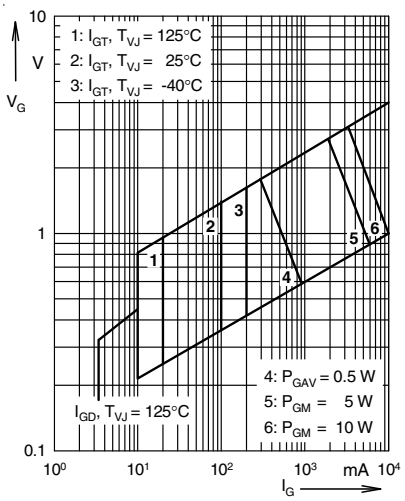


Fig. 3 Gate trigger characteristic

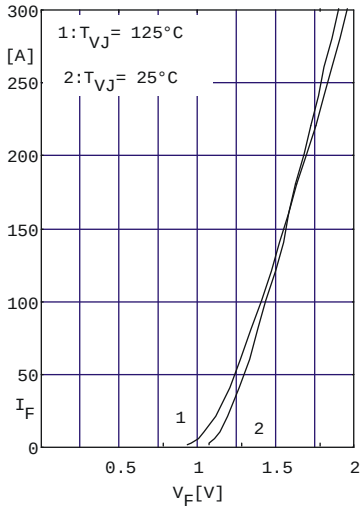


Fig. 4 Forward current vs. voltage trop per diode or thyristor

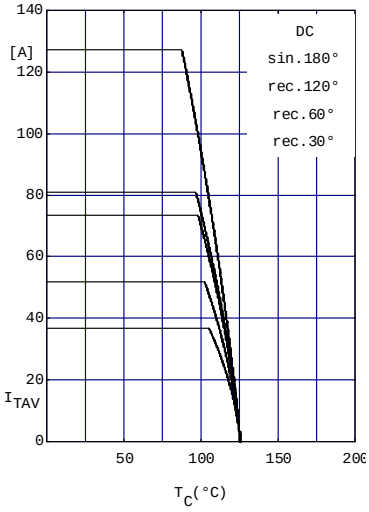
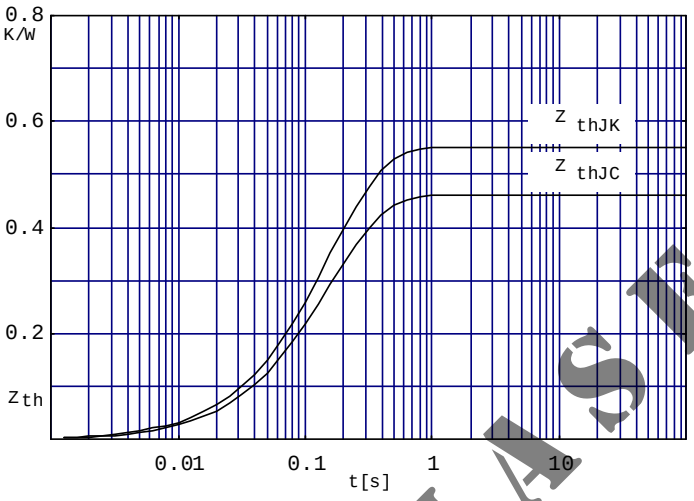


Fig. 5 Maximum forward current at case temperature



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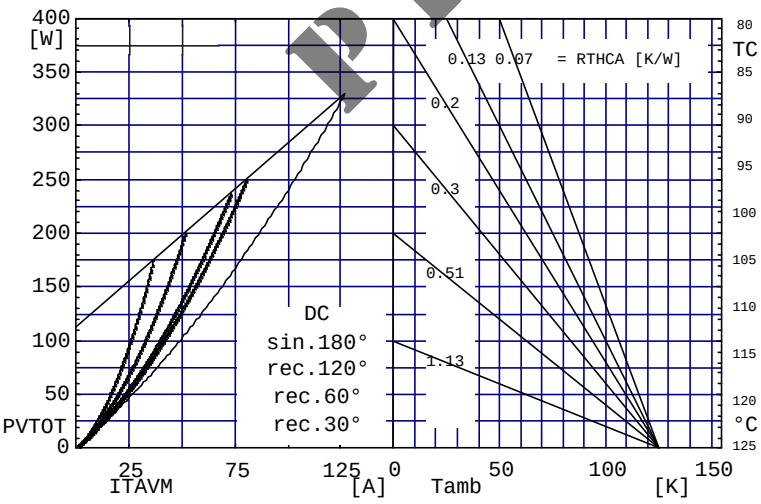

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