

IXYS

VHF 85

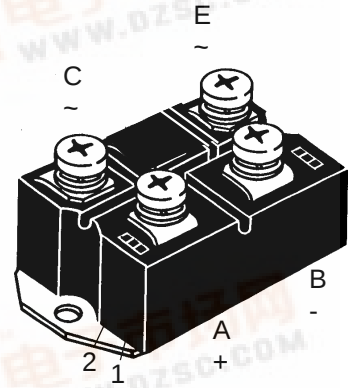
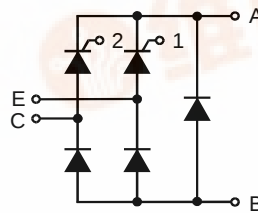
VHF 125

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

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.

Symbol	Test Conditions	Characteristic Values		
		VHF 85	VHF 125	
I_R, I_D	$V_R = V_{RRM}, V_D = V_{DRM}$ $T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$	$\leq$ $\leq$	5 0.3	mA mA
V_F, V_T	$I_F, I_T = 200 \text{ A}, T_{VJ} = 25^\circ\text{C}$	$\leq$	1.75	V
V_{T0}	For power-loss calculations only	0.85	0.85	V
r_T	$(T_{VJ} = 125^\circ\text{C})$	6	3.5	m Ω
V_{GT}	$V_D = 6 \text{ V};$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	$\leq$ $\leq$	1.5 1.6	V V
I_{GT}	$V_D = 6 \text{ V};$ $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	$\leq$ $\leq$	100 200	mA mA
V_{GD}	$T_{VJ} = T_{VJM};$ $T_{VJ} = T_{VJM};$	$\leq$ $\leq$	0.2 5	V mA
I_{GD}	$V_D = 2/3 V_{DRM}$ $V_D = 2/3 V_{DRM}$			
I_L	$I_G = 0.3 \text{ A}; t_G = 30 \mu\text{s}$ $di_G/dt = 0.3 \text{ A}/\mu\text{s}$ $T_{VJ} = 25^\circ\text{C}$	$\leq$	450	mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	$\leq$	200	mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.3 \text{ A}; di_G/dt = 0.3 \text{ A}/\mu\text{s}$	$\leq$	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

Dimensions in mm (1 mm = 0.0394")

