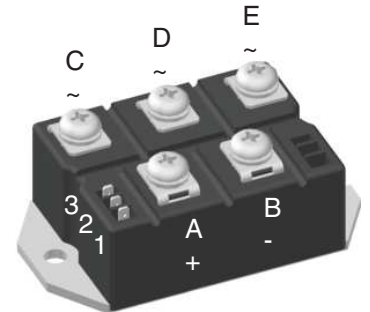
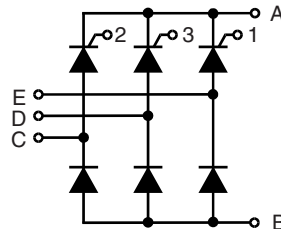


Three Phase Half Controlled Rectifier Bridge, B6HK

$$I_{dAVM} = 110/167 \text{ A}$$

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

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1300	1200	VVZ 110-12io7
1700	1600	VVZ 175-12io7 VVZ 175-16io7



Symbol	Test Conditions	Maximum Ratings			
		VVZ 110	VVZ 175		
I_{dAV}	$T_C = 85^\circ\text{C}$; module per leg	110	167	A	
I_{FRMS}, I_{TRMS}		58	89	A	
I_{FSM}, I_{TSM}	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	1150	1500	A
		$t = 8.3 \text{ ms}$ (60 Hz), sine	1230	1600	A
I^2t	$T_{VJ} = T_{VJM}$; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	1000	1350	A
		$t = 8.3 \text{ ms}$ (60 Hz), sine	1070	1450	A
$(di/dt)_{cr}$	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	6600	11200	A ² s
		$t = 8.3 \text{ ms}$ (60 Hz), sine	6280	10750	A ² s
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $V_{DR} = 2/3 V_{DRM}$	$t = 10 \text{ ms}$ (50 Hz), sine	5000	9100	A ² s
		$t = 8.3 \text{ ms}$ (60 Hz), sine	4750	8830	A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ repetitive, $I_T = 50 \text{ A}$ $f = 400 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$		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}	$T_{VJ} = T_{VJM}$	$t_p = 30 \mu\text{s}$	≤ 10		W
	$I_T = I_{TAVM}$	$t_p = 500 \mu\text{s}$	≤ 5		W
		$t_p = 10 \text{ ms}$	≤ 1		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 $t = 1 \text{ min}$		2500		V~
	$I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$		3000		V~
M_d	Mounting torque (M6)		5±15 %		Nm
	Terminal connection torque (M6)		5±15 %		Nm
Weight	typ.		300		g

Features

- Package with screw terminals
- Isolation voltage 3000 V~
- Planar passivated chips
- UL registered E72873

Applications

- Input rectifier for PWM converter
- Input rectifier for switch mode power supplies (SMPS)
- Softstart capacitor charging

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.

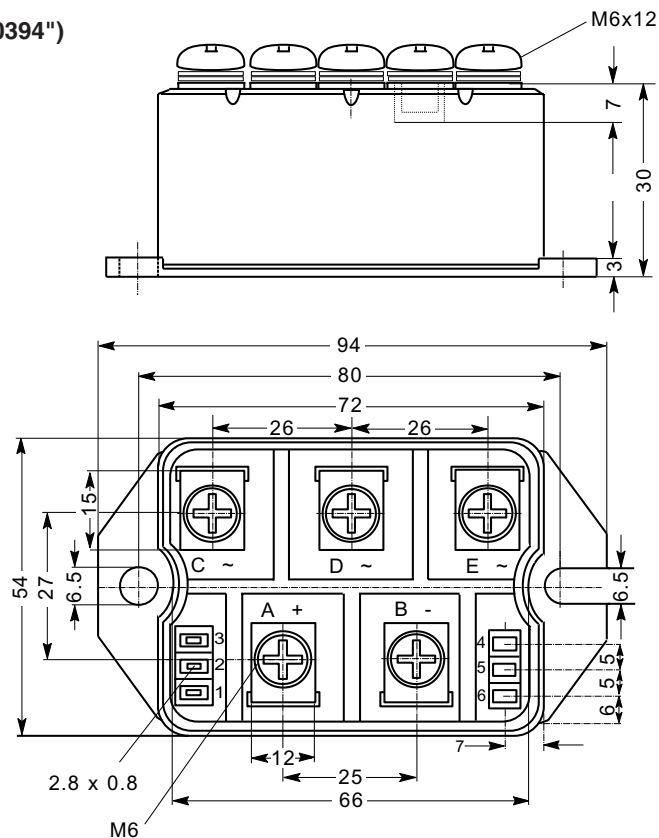
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IXYS reserves the right to change limits, test conditions and dimensions.

20200117c

Symbol	Test Conditions	Characteristic Values		
		VVZ 110	VVZ 175	
$I_{R'} I_D$	$V_R = V_{RRM}; V_D = V_{DRM}$	$T_{VJ} = T_{VJM}$	≤ 5	mA
		$T_{VJ} = 25^\circ\text{C}$	≤ 0.3	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	0.2	V
I_{GD}	$T_{VJ} = T_{VJM}; V_D = \frac{2}{3} V_{DRM}$	≤ 5	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	450	mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	≤ 200	200	mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = \frac{1}{2} V_{DRM}$ $I_G = 0.3 \text{ A}; di_G/dt = 0.3 \text{ A}/\mu\text{s}$	≤ 2	2	μs
R_{thJC}	per thyristor (diode); DC current per module	0.65	0.46	K/W
		0.108	0.077	K/W
R_{thJH}	per thyristor (diode); DC current per module	0.8	0.55	K/W
		0.133	0.092	K/W
d_s	Creeping distance on surface	10	10	mm
d_A	Creepage distance in air	9.4	9.4	mm
a	Max. allowable acceleration	50	50	m/s ²

Dimensions in mm (1 mm = 0.0394")


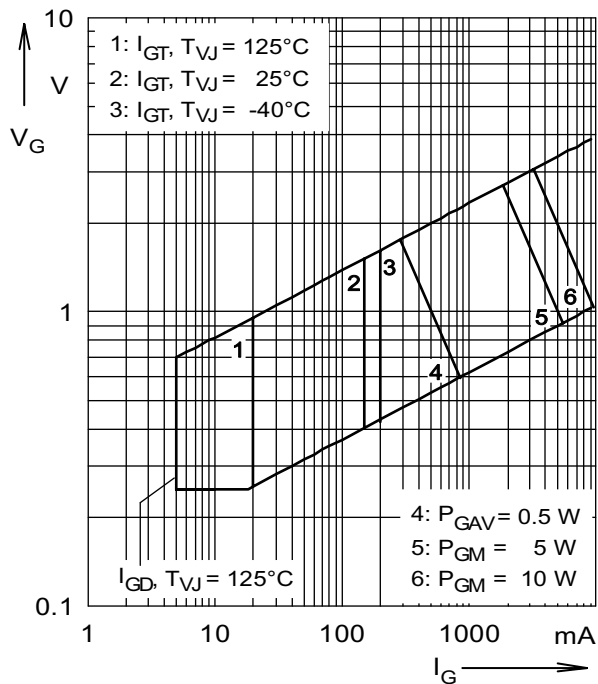


Fig. 1 Gate trigger characteristics

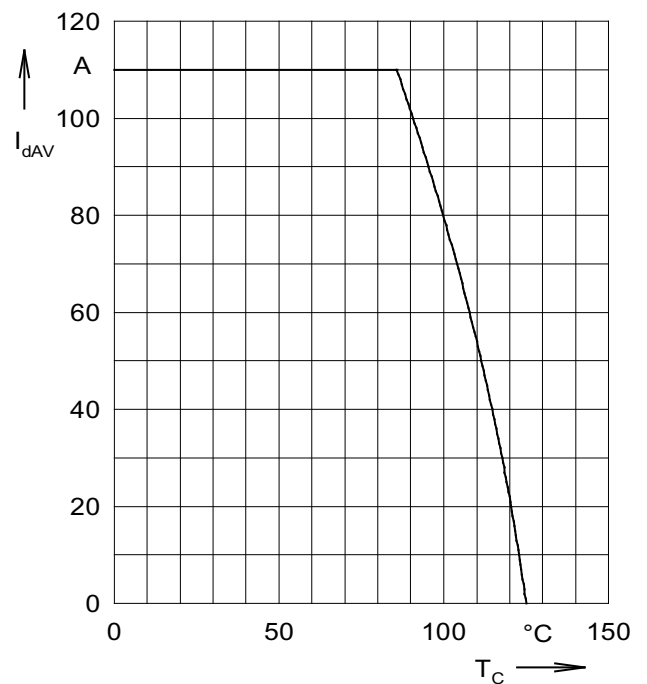


Fig. 2 DC output current at case temperature

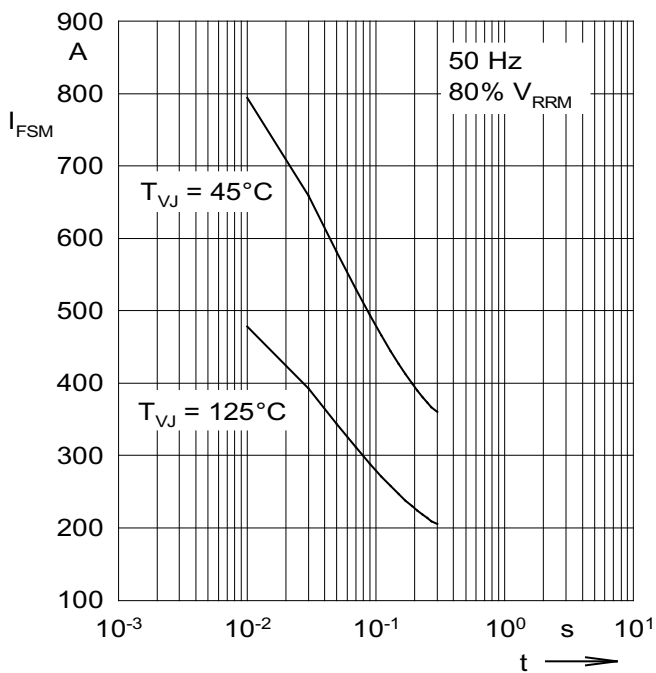


Fig. 3 Surge overload current
 I_{FSM} : Crest value, t : duration

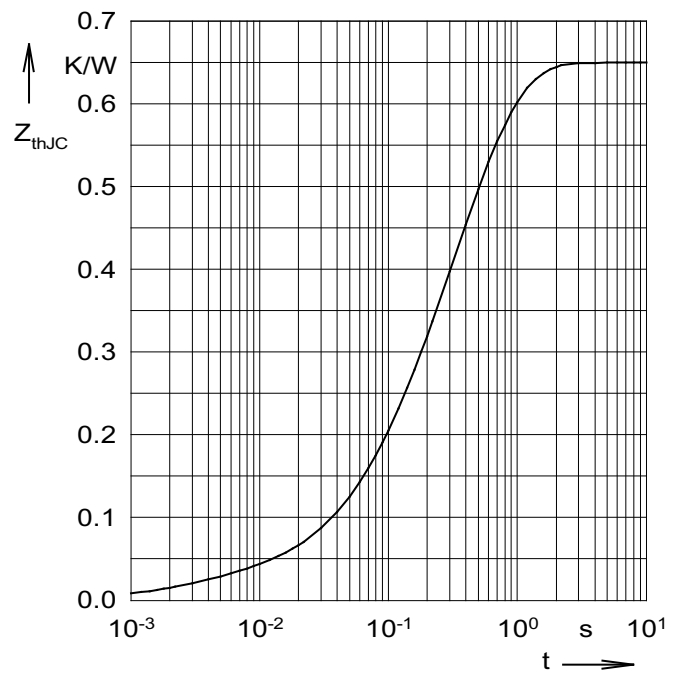


Fig. 4 Transient thermal impedance
junction to case (per leg)