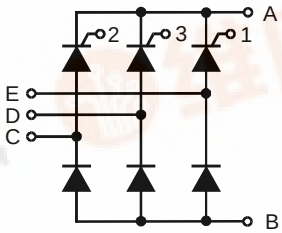
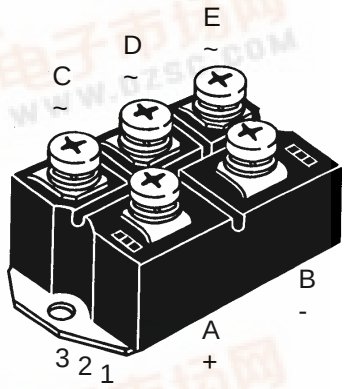
Three Phase Half Controlled Rectifier Bridge, B6HK

I_{dAVM} = 110/167 A
V_{RRM} = 1200-1600 V

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type	
1300	1200	VVZ 110-12io7	VVZ 175-12io7
1500	1400	VVZ 110-14io7	VVZ 175-14io7
1700	1600		VVZ 175-16io7





Symbol	Test Conditions		Maximum Ratings VVZ 110	VVZ 175	
I_{dAV}	T_C = 85°C; module		110	167	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	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	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	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		150	A/µs
	f =400 Hz, t_p =200 µs				
	V_D = 2/3 V_{DRM}				
	I_G = 0.3 A,	non repetitive,		500	A/µs
	di_G/dt = 0.3 A/µs, I_T = 1/3 • I_{dAV}				
$(dv/dt)_{cr}$	T_{VJ} = T_{VJM}; V_{DR} = 2/3 V_{DRM}			1000	V/µs
	R_{GK} = ∞; method 1 (linear voltage rise)				
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 = 10 ms	≤	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

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

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
		$T_{VJ} = 25°C$ ≤		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; di_G/dt = 0.3 A/µs	$T_{VJ} = 25°C$ ≤		450	mA
I_H	$T_{VJ} = 25°C$; V_D = 6 V; $R_{GK} = \infty$	≤		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_{thJH}	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

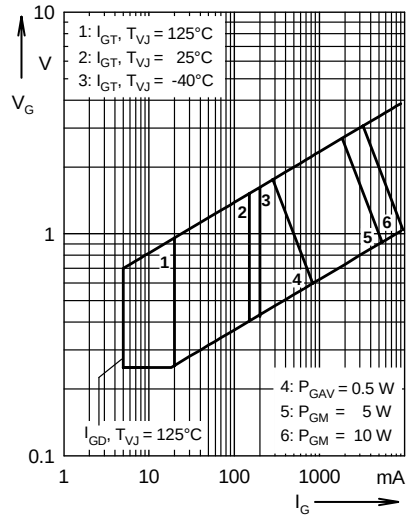


Fig. 1 Gate trigger characteristics

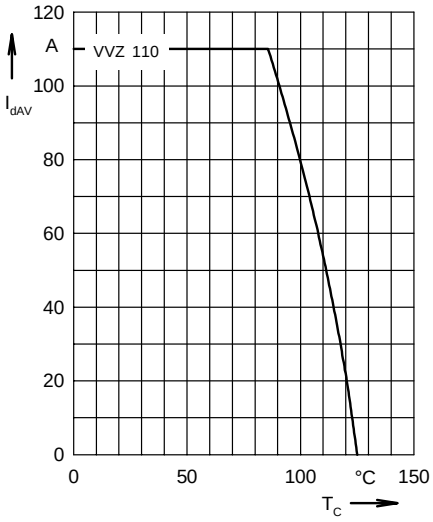
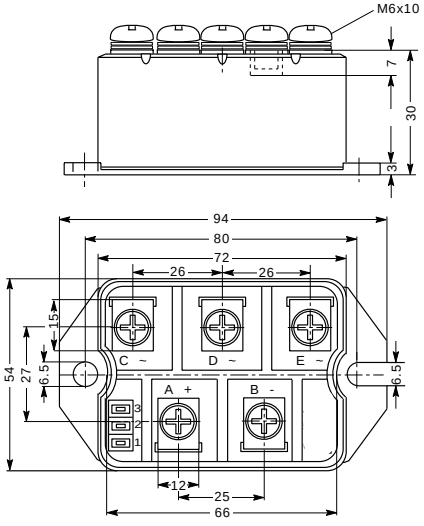


Fig. 2 DC output current at case temperature

Dimensions in mm (1 mm = 0.0394")



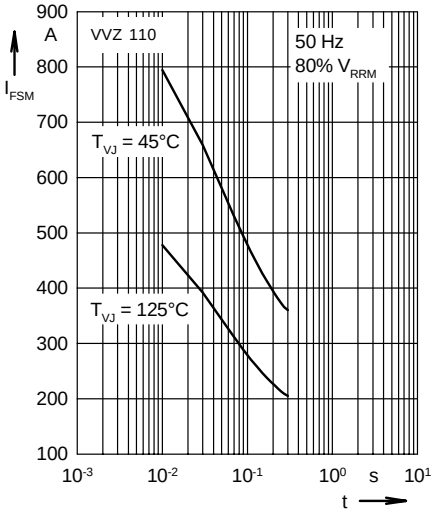


Fig. 3 Surge overload current
I_{FSM}: Crest value, t: duration

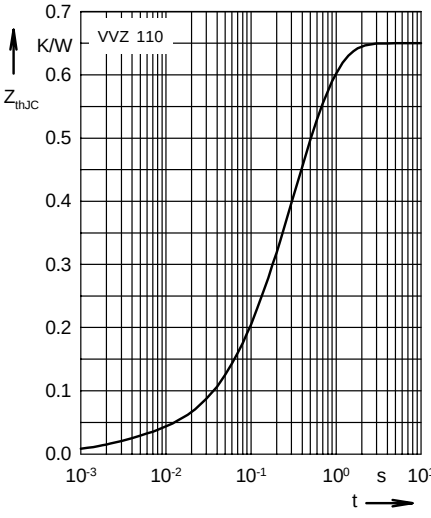


Fig. 4 Transient thermal impedance junction to case (per leg)