

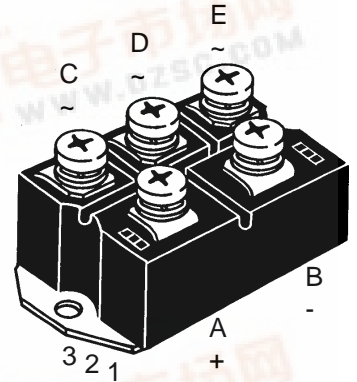
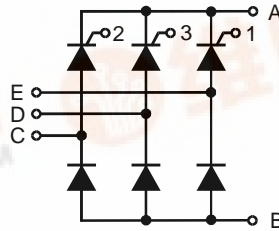


VVZ 110
VVZ 175

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	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} I_{FRMS}, I_{TRMS}	$T_C = 85^\circ\text{C}$; module per leg	110	167	A
		58	89	A
I_{FSM}, I_{TSM}	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	1150	A
		$t = 8.3 \text{ ms}$ (60 Hz), sine	1230	A
	$T_{VJ} = T_{VJM}$; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	1000	A
		$t = 8.3 \text{ ms}$ (60 Hz), sine	1070	A
I^2t	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	6600	A ² s
		$t = 8.3 \text{ ms}$ (60 Hz), sine	6280	A ² s
	$T_{VJ} = T_{VJM}$; $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	5000	A ² s
		$t = 8.3 \text{ ms}$ (60 Hz), sine	4750	A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ repetitive, $I_T = 50 \text{ A}$ $f = 400 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.3 \text{ A}$, non repetitive, $di_G/dt = 0.3 \text{ A}/\mu\text{s}$, $I_T = 1/3 \cdot I_{dAV}$	150		A/ μs
		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}	$T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$	$t_p = 30 \mu\text{s}$	≤ 10	W
		$t_p = 500 \mu\text{s}$	≤ 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 $t = 1 \text{ min}$ $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$	2500		V~
		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

Symbol	Test Conditions	Characteristic Values		
		VVZ 110	VVZ 175	
I_R, I_D	$V_R = V_{RRM}; V_D = V_{DRM}$ $T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$	\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	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}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	\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	100 200	mA mA
V_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	\leq	0.2	V
I_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	\leq	5	mA
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 per module		0.65 0.108	K/W K/W
R_{thJH}	per thyristor (diode); DC current per module		0.8 0.133	K/W 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

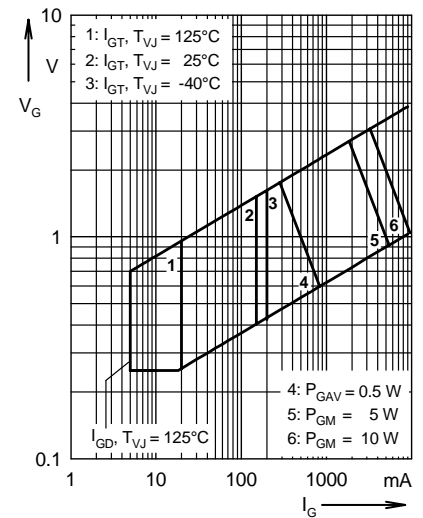


Fig. 1 Gate trigger characteristics

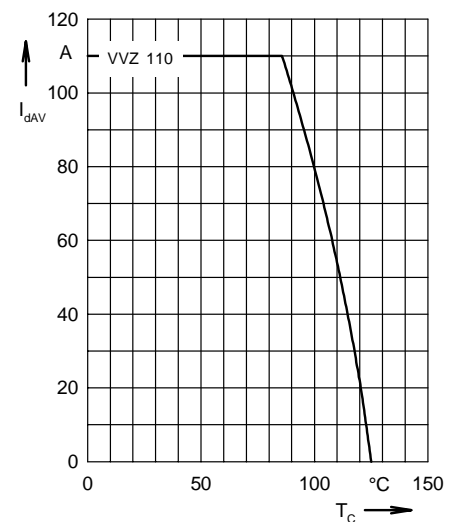


Fig. 2 DC output current at case temperature

Dimensions in mm (1 mm = 0.0394")

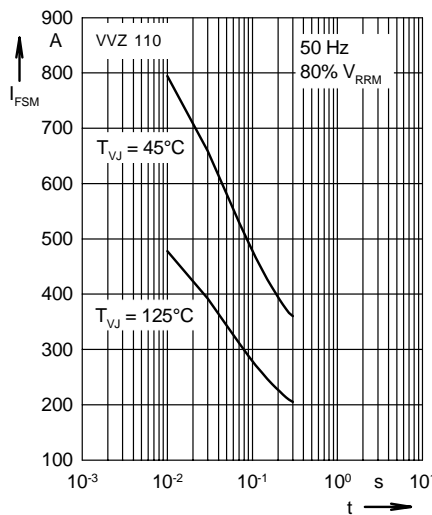
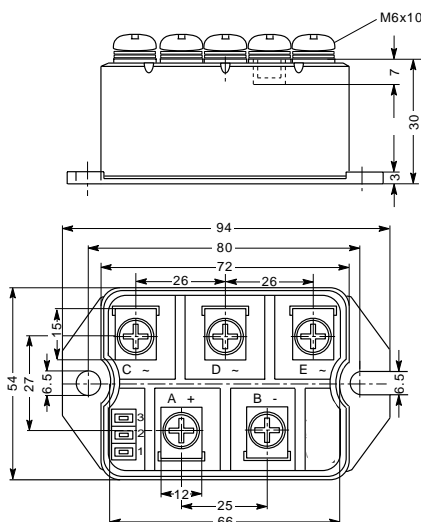


Fig. 3 Surge overload current
 I_{FSM} : Crest value, t : duration

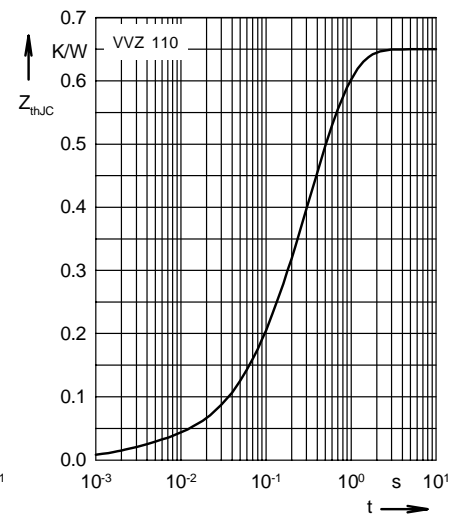


Fig. 4 Transient thermal impedance
junction to case (per leg)