

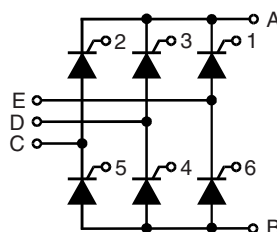
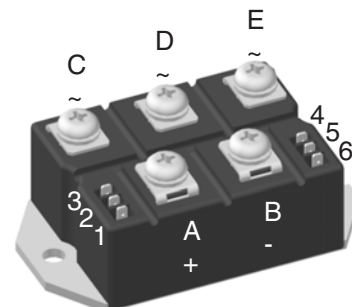
Three Phase Full Controlled Rectifier Bridge, B6C

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

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

Preliminary data

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



Symbol	Test Conditions	Maximum Ratings	
		VTO 110	VTO 175
I_{dAV} I_{FRMS}, I_{TRMS}	$T_C = 85^{\circ}\text{C}$; module per leg	110 58	167 89
I_{FSM}, I_{TSM}	$T_{VJ} = 45^{\circ}\text{C}$; $t = 10\text{ ms}$ (50 Hz), sine	1150	1500
	$V_R = 0$ $t = 8.3\text{ ms}$ (60 Hz), sine	1230	1600
	$T_{VJ} = T_{VJM}$ $t = 10\text{ ms}$ (50 Hz), sine	1000	1350
	$V_R = 0$ $t = 8.3\text{ ms}$ (60 Hz), sine	1070	1450
I^2t	$T_{VJ} = 45^{\circ}\text{C}$ $t = 10\text{ ms}$ (50 Hz), sine	6600	11200
	$V_R = 0$ $t = 8.3\text{ ms}$ (60 Hz), sine	6280	10750
	$T_{VJ} = T_{VJM}$ $t = 10\text{ ms}$ (50 Hz), sine	5000	9100
	$V_R = 0$ $t = 8.3\text{ ms}$ (60 Hz), sine	4750	8830
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ repetitive, $I_T = 50\text{ A}$ $f = 400\text{ Hz}$, $t_p = 200\text{ }\mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.3\text{ A}$, 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}	$T_{VJ} = T_{VJM}$ $t_p = 30\text{ }\mu\text{s}$	≤ 10	W
	$I_T = I_{TAVM}$ $t_p = 500\text{ }\mu\text{s}$	≤ 5	W
	$t_p = 10\text{ ms}$	≤ 1	W
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	lb.in.
Weight	typ.	300	g

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.

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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		
		VTO 110	VTO 175	
I_R, I_D	$V_R = V_{RRM}; V_D = V_{DRM}$ $T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$	≤ 5 ≤ 0.3		mA 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 ($T_{VJ} = 125^\circ\text{C}$)	0.85	0.85	V
r_T		6	3.5	m Ω
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		V
I_{GD}	$T_{VJ} = T_{VJM}; V_D = \frac{2}{3} V_{DRM}$	≤ 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		mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	≤ 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		μs
R_{thJC}	per thyristor (diode); DC current per module	0.65 0.108	0.46 0.077	K/W K/W
R_{thJH}	per thyristor (diode); DC current per module	0.8 0.133	0.55 0.092	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

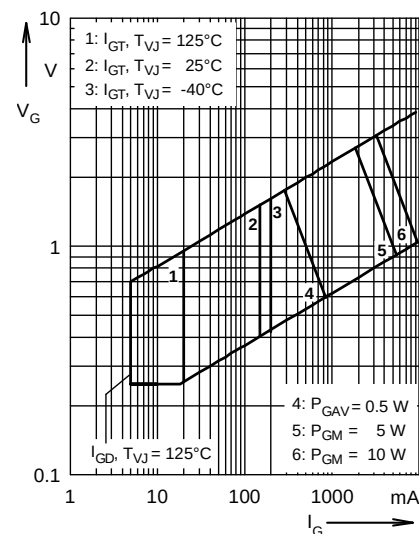


Fig. 1 Gate trigger characteristics

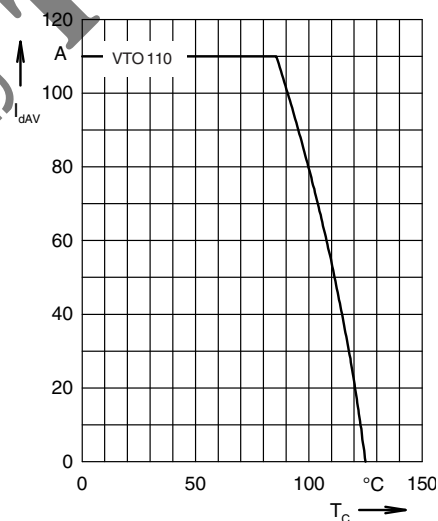


Fig. 2 DC output current at case temperature

Dimensions in mm (1 mm = 0.0394")

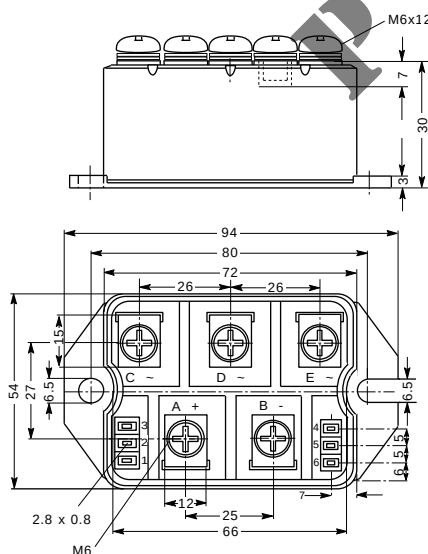
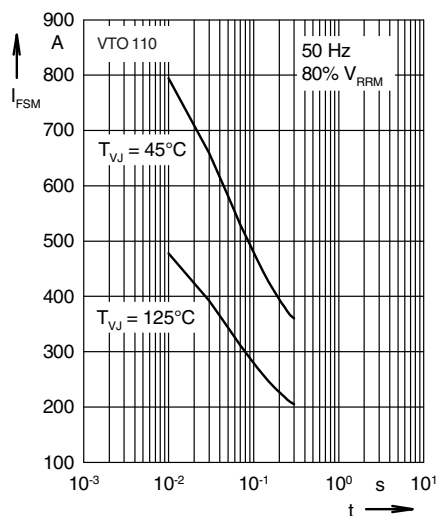


Fig. 3 Surge overload current
 I_{FSM} : Crest value, t : duration

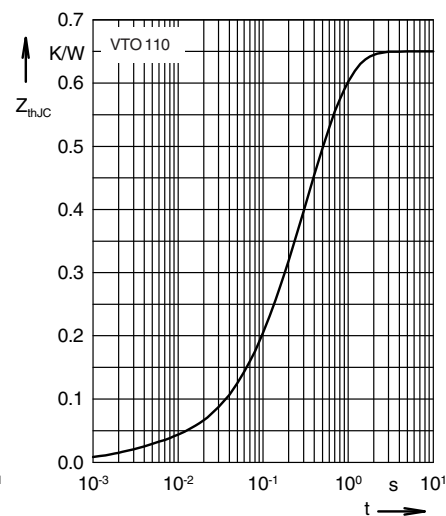


Fig. 4 Transient thermal impedance
junction to case (per leg)