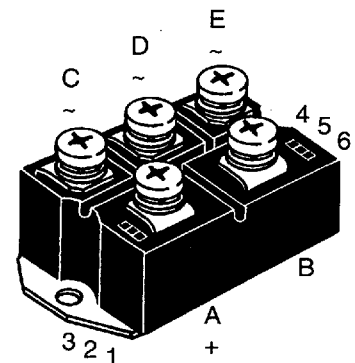
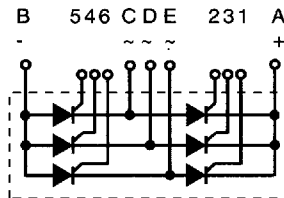


Three-Phase Full Controlled Rectifier Bridges, B6C

VTO 110
VTO 175

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

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



Symbol	Test Conditions	Maximum Ratings		
		VTO 110	VTO 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
	$T_{VJ} = T_{VJM}$; $V_R = 0$			
	$t = 10 \text{ ms}$ (50 Hz), sine	1000	1350	A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	1070	1450	A
$\int i^2 dt$	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0$			
	$t = 10 \text{ ms}$ (50 Hz), sine	6600	11200	A ² s
	$t = 8.3 \text{ ms}$ (60 Hz), sine	6280	10750	A ² s
	$T_{VJ} = T_{VJM}$; $V_R = 0$			
	$t = 10 \text{ ms}$ (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, $I_T = 50 \text{ A}$ $f = 400 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.3 \text{ A}$, non repetitive $di_G/dt = 0.3 \text{ A}/\mu\text{s}$, $I_T = 1/3 \cdot I_{dAV}$	150		A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $V_{DR} = 2/3 V_{DRM}$ $R_{GK} = \infty$; 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
	$t_p = 500 \mu\text{s}$	≤ 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		lb.in.
Weight	typ.	300		g

Features

- Package with screw terminals
- Isolation voltage 3000 V~
- Planar passivated chips
- UL listing applied for

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 DIN/IEC 747 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	
		VTO 110	VTO 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	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_{TO}	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	1.5 V
	$T_{VJ} = -40^\circ\text{C}$	≤ 1.6	1.6 V
I_{GT}	$V_D = 6 \text{ V}; T_{VJ} = 25^\circ\text{C}$	≤ 100	100 mA
	$T_{VJ} = -40^\circ\text{C}$	≤ 200	200 mA
V_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	≤ 0.2	0.2 V
I_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	≤ 5	5 mA
I_L	$I_G = 0.3 \text{ A}; t_G = 30 \mu\text{s}; di_G/dt = 0.3 \text{ A}/\mu\text{s}; T_{VJ} = 25^\circ\text{C}$	≤ 450	450 mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$	≤ 200	200 mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}; I_G = 0.3 \text{ A}; di_G/dt = 0.3 \text{ A}/\mu\text{s}$	≤ 2	2 μs
R_{thJC}	per thyristor (diode); DC current	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	10 mm
d_A	Creepage distance in air	9.4	9.4 mm
a	Max. allowable acceleration	50	50 m/s ²

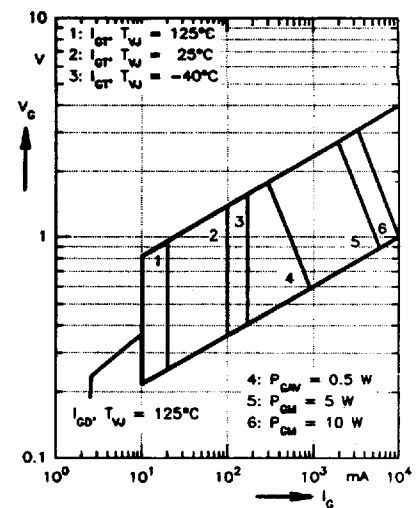


Fig. 1 Gate trigger characteristics

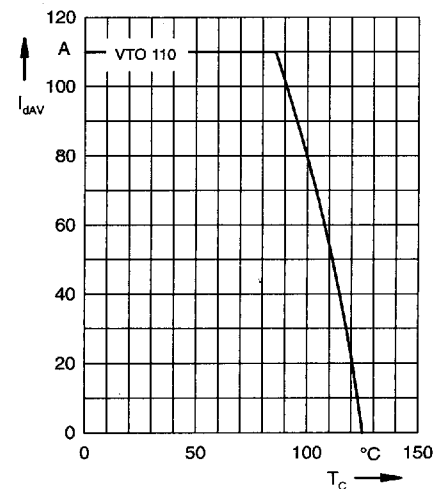


Fig. 2 DC output current at case temperature

Dimensions in mm (1 mm = 0.0394")

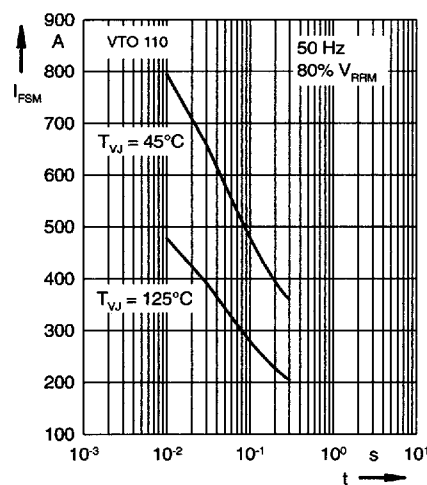
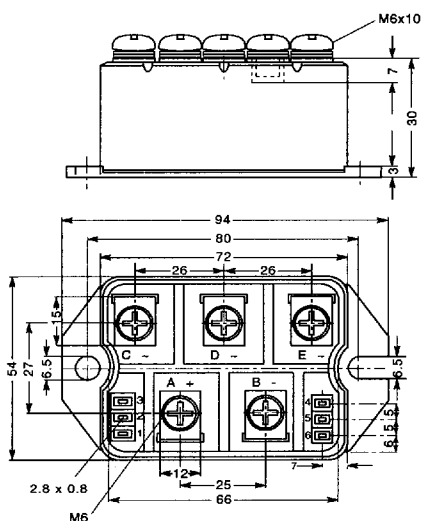


Fig. 3 Surge overload current
 I_{FSM} : Crest value, t : duration

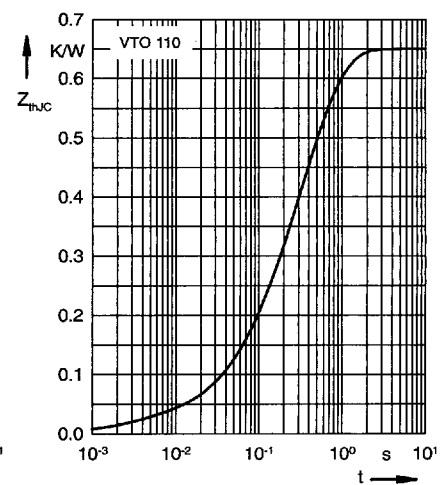


Fig. 4 Transient thermal impedance junction to case (per leg)