

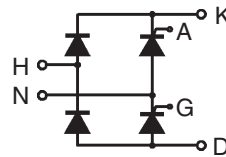
Single Phase Rectifier Bridge

$$I_{dAV} = 36 \text{ A}$$

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

Preliminary data

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1700	1600	VGO 36-16io7



Symbol	Test Conditions	Maximum Ratings
I_{dAV}^*	$T_H = 85^\circ\text{C}$, module	36 A
I_{dAVM}^*	module	40 A
I_{FRMS}^*, I_{TRMS}	per leg	31 A
I_{FSM}^*, I_{TSM}	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine 320 A $t = 8.3 \text{ ms}$ (60 Hz), sine 350 A
	$T_{VJ} = T_{VJM}$ $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine 280 A $t = 8.3 \text{ ms}$ (60 Hz), sine 310 A
I^2t	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine 500 A ² s $t = 8.3 \text{ ms}$ (60 Hz), sine 520 A ² s
	$T_{VJ} = T_{VJM}$ $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine 390 A ² s $t = 8.3 \text{ ms}$ (60 Hz), sine 400 A ² s
$(di/dt)_{cr}$	$T_{VJ} = 125^\circ\text{C}$ $f = 50 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.3 \text{ A}$, $di_G/dt = 0.3 \text{ A}/\mu\text{s}$	repetitive, $I_T = 50 \text{ A}$ 150 A/ μs non repetitive, $I_T = 1/2 \cdot I_{dAV}$ 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}	$T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$	$t_p = 30 \mu\text{s}$ $\leq 10 \text{ W}$ $t_p = 500 \mu\text{s}$ $\leq 5 \text{ W}$ $t_p = 10 \text{ ms}$ $\leq 1 \text{ W}$
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 $I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ min}$ 2500 V~ $t = 1 \text{ s}$ 3000 V~
M_d	Mounting torque (M4)	1.5 - 2 Nm 14 - 18 lb.in.
Weight	typ.	18 g

Features

- Package with DCB ceramic base plate
- Isolation voltage 3000 V~
- Planar passivated chips
- Low forward voltage drop
- Leads suitable for PC board soldering

Applications

- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling capability
- Small and light weight

Data according to IEC 60747 refer to a single diode/thyristor unless otherwise stated

* for resistive load at bridge output. IXYS reserves the right to change limits, test conditions and dimensions.

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Symbol	Test Conditions		Characteristic Values	
I_R, I_D	$V_R = V_{RRM}; V_D = V_{DRM}$	$T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$	≤ 5 mA ≤ 0.3 mA	
V_T, V_F	$I_T, I_F = 45$ A; $T_{VJ} = 25^\circ\text{C}$		≤ 1.45 V	
V_{T0}	For power-loss calculations only ($T_{VJ} = 125^\circ\text{C}$)		0.85 V	
r_T			13 mΩ	
V_{GT}	$V_D = 6$ V;	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	≤ 1.0 V ≤ 1.2 V	
I_{GT}	$V_D = 6$ V;	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	≤ 65 mA ≤ 80 mA ≤ 50 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;	$T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	≤ 150 mA ≤ 200 mA ≤ 100 mA	
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6$ V; $R_{GK} = \infty$		≤ 100 mA	
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.3$ A; $di_G/dt = 0.3$ A/μs		≤ 2 μs	
t_q	$T_{VJ} = 125^\circ\text{C}; I_T = 15$ A; $t_p = 300$ μs; $V_R = 100$ V $di/dt = -10$ A/μs; $dv/dt = 20$ V/μs; $V_D = 2/3 V_{DRM}$	typ.	150 μs	
R_{thJC}	per thyristor (diode); DC current		1.4 K/W	
	per module		0.35 K/W	
R_{thJK}	per thyristor (diode); DC current		2.0 K/W	
	per module		0.5 K/W	
d_s	Creepage distance on surface		12.6 mm	
d_A	Creepage distance in air		6.3 mm	
a	Max. allowable acceleration		50 m/s ²	

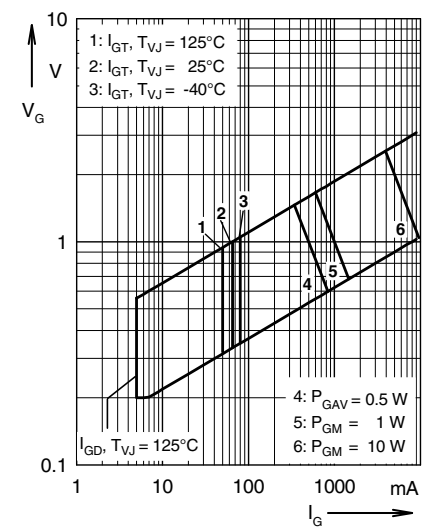


Fig. 1 Gate trigger range

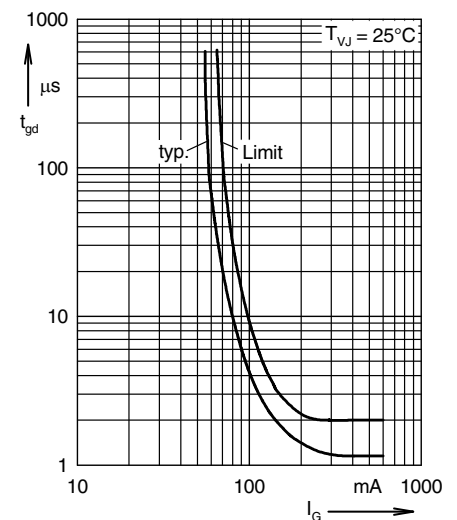
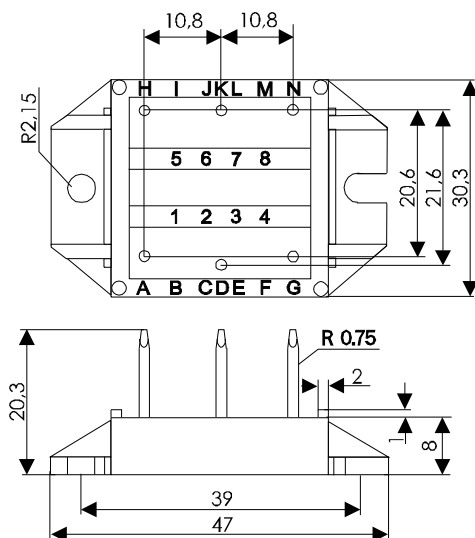


Fig. 2 Gate controlled delay time t_{gd}

Dimensions in mm (1 mm = 0.0394")



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2 - 2

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