

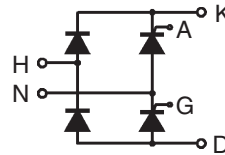
# Single Phase Rectifier Bridge

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

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

Preliminary data

$V_{RSM}$	$V_{RRM}$	Type
$V_{DSM}$	$V_{DRM}$	
V	V	
<b>1700</b>	<b>1600</b>	<b>VGO 36-16io7</b>



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 $t = 8.3 \text{ ms}$ (60 Hz), sine	320 A 350 A
	$T_{VJ} = T_{VJM}$ $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine $t = 8.3 \text{ ms}$ (60 Hz), sine	280 A 310 A
$I^2t$	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine $t = 8.3 \text{ ms}$ (60 Hz), sine	500 $\text{A}^2\text{s}$ 520 $\text{A}^2\text{s}$
	$T_{VJ} = T_{VJM}$ $V_R = 0 \text{ V}$	$t = 10 \text{ ms}$ (50 Hz), sine $t = 8.3 \text{ ms}$ (60 Hz), sine	390 $\text{A}^2\text{s}$ 400 $\text{A}^2\text{s}$
$(di/dt)_{cr}$	$T_{VJ} = 125^\circ\text{C}$ $f = 50 \text{ Hz}$ , $t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.3 \text{ A}$ , $di_G/dt = 0.3 \text{ A}/\mu\text{s}$	repetitive, $I_T = 50 \text{ A}$	150 $\text{A}/\mu\text{s}$
	$T_{VJ} = T_{VJM}$ ; $V_{DR} = 2/3 V_{DRM}$ $R_{GK} = \infty$ ; method 1 (linear voltage rise)	non repetitive, $I_T = 1/2 \cdot I_{dAV}$	500 $\text{A}/\mu\text{s}$
$(dv/dt)_{cr}$			1000 $\text{V}/\mu\text{s}$
$V_{RGM}$			10 V
$P_{GM}$	$T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$	$t_p = 30 \mu\text{s}$ $t_p = 500 \mu\text{s}$ $t_p = 10 \text{ ms}$	$\leq 10 \text{ W}$ $\leq 5 \text{ W}$ $\leq 1 \text{ W}$
$P_{GAVM}$			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 $I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ min}$ $t = 1 \text{ s}$	2500 V~ 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
$I_R, I_D$	$V_R = V_{RRM}; V_D = V_{DRM}$ $T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$	$\leq 5$ mA $\leq 0.3$ mA
$V_T, V_F$	$I_T, I_F = 45$ A; $T_{VJ} = 25^\circ\text{C}$	$\leq 1.45$ V
$V_{T0}$	For power-loss calculations only ( $T_{VJ} = 125^\circ\text{C}$ )	0.85 V
$r_T$		13 m $\Omega$
$V_{GT}$	$V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$	$\leq 1.0$ V $\leq 1.2$ V
$I_{GT}$	$V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	$\leq 65$ mA $\leq 80$ mA $\leq 50$ 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
$I_L$	$I_G = 0.3$ A; $t_g = 30$ $\mu\text{s}$ ; $dj_g/dt = 0.3$ A/ $\mu\text{s}$ ; $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ $T_{VJ} = 125^\circ\text{C}$	$\leq 150$ mA $\leq 200$ mA $\leq 100$ mA
$I_H$	$T_{VJ} = 25^\circ\text{C}; V_D = 6$ V; $R_{GK} = \infty$	$\leq 100$ mA
$t_{gd}$	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.3$ A; $dj_g/dt = 0.3$ A/ $\mu\text{s}$	$\leq 2$ $\mu\text{s}$
$t_q$	$T_{VJ} = 125^\circ\text{C}; I_T = 15$ A, $t_p = 300$ $\mu\text{s}$ , $V_R = 100$ V $dj/dt = -10$ A/ $\mu\text{s}$ , $dv/dt = 20$ V/ $\mu\text{s}$ , $V_D = 2/3 V_{DRM}$	typ. 150 $\mu\text{s}$
$R_{thJC}$	per thyristor (diode); DC current per module	1.4 K/W 0.35 K/W
$R_{thJK}$	per thyristor (diode); DC current per module	2.0 K/W 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 <sup>2</sup>

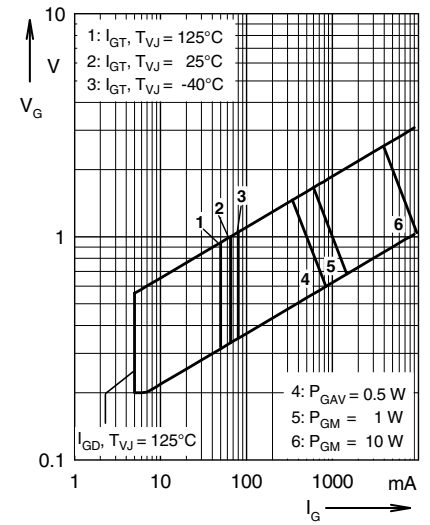


Fig. 1 Gate trigger range

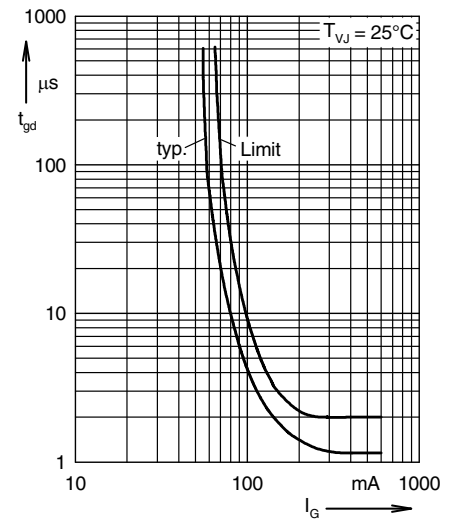


Fig. 2 Gate controlled delay time  $t_{gd}$

### Dimensions in mm (1 mm = 0.0394")

