

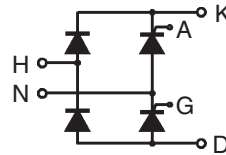
Single Phase Rectifier Bridge

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

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

Preliminary data

| V_{RSM} | V_{RRM} | Type |
|-------------|-------------|---------------------|
| V_{DSM} | V_{DRM} | |
| V | V | |
| 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 $t = 8.3 \text{ ms}$ (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 A^2s 520 A^2s |
| | $T_{VJ} = T_{VJM}$ $V_R = 0 \text{ V}$ | $t = 10 \text{ ms}$ (50 Hz), sine $t = 8.3 \text{ ms}$ (60 Hz), sine | 390 A^2s 400 A^2s |
| $(di/dt)_{cr}$ | $T_{VJ} = 125^\circ\text{C}$ $f = 50 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.3 \text{ A}$, $di_G/dt = 0.3 \text{ A}/\mu\text{s}$ | 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 $\text{A}/\mu\text{s}$ |
| $(dv/dt)_{cr}$ | $T_{VJ} = T_{VJM}$; $V_{DR} = 2/3 V_{DRM}$ $R_{GK} = \infty$; method 1 (linear voltage rise) | | 1000 $\text{V}/\mu\text{s}$ |
| V_{RGM} | | 10 V | |
| P_{GM} | $T_{VJ} = T_{VJM}$ $I_T = I_{TAVM}$ | $t_p = 30 \mu\text{s}$ | $\leq 10 \text{ W}$ |
| | | $t_p = 500 \mu\text{s}$ | $\leq 5 \text{ W}$ |
| | | $t_p = 10 \text{ ms}$ | $\leq 1 \text{ W}$ |
| 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 | $t = 1 \text{ min}$ | 2500 V~ |
| | $I_{ISOL} \leq 1 \text{ mA}$ | $t = 1 \text{ s}$ | 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 m Ω |
| 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 ; $dj_g/dt = 0.3$ 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; $dj_g/dt = 0.3$ A/ μs | ≤ 2 μs |
| t_q | $T_{VJ} = 125^\circ\text{C}; I_T = 15$ A, $t_p = 300$ μs , $V_R = 100$ V $dj/dt = -10$ 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 |

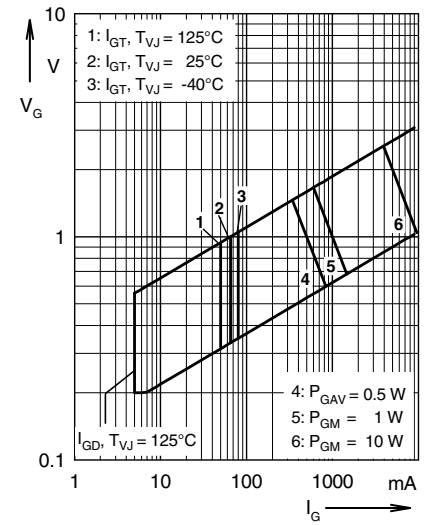


Fig. 1 Gate trigger range

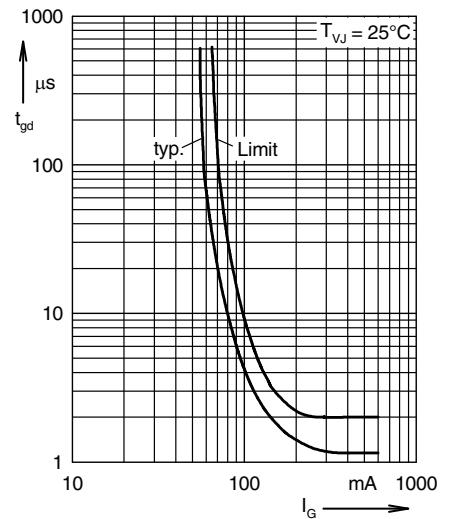


Fig. 2 Gate controlled delay time t_{gd}

Dimensions in mm (1 mm = 0.0394")

