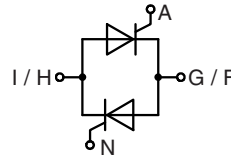


AC Controller Modules

$I_{RMS} = 140 \text{ A}$
 $V_{RRM} = 800-1600 \text{ V}$

Preliminary Data

| V_{RSM} V_{DSM} V | V_{RRM} V_{DRM} V | Type |
|-----------------------------|-----------------------------|---------------|
| 800 | 800 | MMO 140-08io7 |
| 1200 | 1200 | MMO 140-12io7 |
| 1600 | 1600 | MMO 140-16io7 |



| Symbol | Conditions | Maximum Ratings |
|----------------|---|---|
| I_{RMS} | $T_C = 85^\circ\text{C}$, 50 - 400 Hz, (per single controller) | 130 A |
| I_{TRMS} | | 90 A |
| I_{TAVM} | $T_C = 85^\circ\text{C}$; 180° sine, per Thyristor | 58 A |
| I_{TSM} | $T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ | t = 10 ms (50 Hz), sine: 1150 A t = 8.3 ms (60 Hz), sine: 1230 A |
| | $T_{VJ} = 125^\circ\text{C}$ $V_R = 0$ | t = 10 ms (50 Hz), sine: 1000 A t = 8.3 ms (60 Hz), sine: 1070 A |
| I^2t | $T_{VJ} = 45^\circ\text{C}$ $V_R = 0$ | t = 10 ms (50 Hz), sine: 6600 A ² s t = 8.3 ms (60 Hz), sine: 6280 A ² s |
| | $T_{VJ} = 125^\circ\text{C}$ $V_R = 0$ | t = 10 ms (50 Hz), sine: 5000 A ² s t = 8.3 ms (60 Hz), sine: 4750 A ² s |
| $(di/dt)_{cr}$ | $T_{VJ} = 125^\circ\text{C}$ f = 50 Hz, $t_p = 200 \mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$ $I_G = 0.45 \text{ A}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | repetitive, $I_T = 60 \text{ A}$: 150 A/ μs |
| | | non repetitive, $I_T = I_{TAVM}$: 500 A/ μs |
| $(dv/dt)_{cr}$ | $T_{VJ} = 125^\circ\text{C}$; $V_{DR} = \frac{2}{3} V_{DRM}$ $R_{GK} = \infty$; method 1 (linear voltage rise) | 1000 V/ μs |
| P_{GM} | $T_{VJ} = 125^\circ\text{C}$ $I_T = I_{TAVM}$ | $t_p = 30 \mu\text{s}$: 10 W $t_p = 300 \mu\text{s}$: 5 W |
| | | 0.5 W |
| P_{GAVM} | | 0.5 W |
| V_{RGM} | | 10 V |
| T_{VJ} | | -40...+150 °C |
| T_{VJM} | | 150 °C |
| T_{stg} | | -40...+125 °C |
| V_{ISOL} | 50/60 Hz, RMS $I_{ISOL} \leq 1 \text{ mA}$ | t = 1 min: 2500 V~ t = 1 s: 3000 V~ |
| | | |
| M_d | Mounting torque (M4) | 1.5...2.0/14...18 Nm/lb.in. |
| Weight | typ. | 18 g |

Features

- Thyristor controller for AC (circuit W1C acc. to IEC) for mains frequency
- Isolation voltage 3000 V~
- Planar glass passivated chips
- Low forward voltage drop
- Lead suitable for PC board solering

Applications

- Switching and control of single and three phase AC circuits
- Light and temperature control
- Softstart AC motor controller
- Solid state switches

Advantages

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

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

| Symbol | Conditions | Characteristic Values | |
|------------|--|---|--------------------------------|
| I_D, I_R | $T_{VJ} = 125^\circ\text{C}; V_R = V_{RRM}; V_D = V_{DRM}$ | \leq | 5 mA |
| V_T | $I_T = 200 \text{ A}; T_{VJ} = 25^\circ\text{C}$ | \leq | 1.75 V |
| V_{T0} | For power-loss calculations only | | 0.85 V |
| r_T | | | 5.2 m Ω |
| V_{GT} | $V_D = 6 \text{ V}$ | $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ | \leq 1.5 V \leq 1.6 V |
| I_{GT} | $V_D = 6 \text{ V}$ | $T_{VJ} = 25^\circ\text{C}$ $T_{VJ} = -40^\circ\text{C}$ | \leq 100 mA \leq 200 mA |
| V_{GD} | $T_{VJ} = 125^\circ\text{C}; V_D = \frac{2}{3} V_{DRM}$ | \leq | 0.2 V |
| I_{GD} | | \leq | 10 mA |
| I_L | $T_{VJ} = 25^\circ\text{C}; t_p = 10 \mu\text{s}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | \leq | 450 mA |
| I_H | $T_{VJ} = 25^\circ\text{C}; V_D = 6 \text{ V}; R_{GK} = \infty$ | \leq | 200 mA |
| t_{gd} | $T_{VJ} = 25^\circ\text{C}; V_D = \frac{1}{2} V_{DRM}$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$ | \leq | 2 μs |
| R_{thJC} | per thyristor; DC per module | | 0.7 K/W 0.35 K/W |
| R_{thCH} | per thyristor; sine 180° el per module | typ. typ. | 0.12 K/W 0.06 K/W |
| d_s | Creeping distance on surface | | 11.2 mm |
| d_A | Creepage distance in air | | 17.0 mm |
| a | Max. allowable acceleration | | 50 m/s ² |

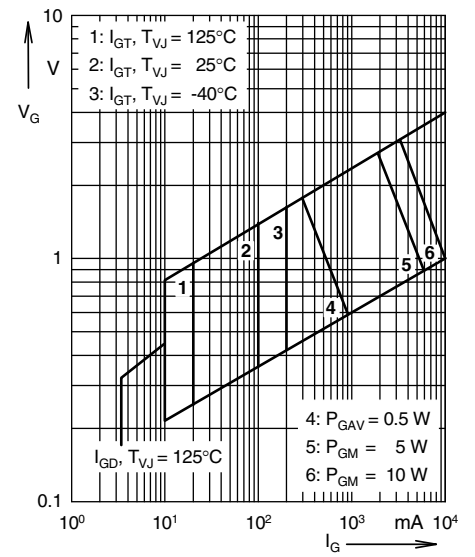


Fig. 1 Gate trigger characteristics

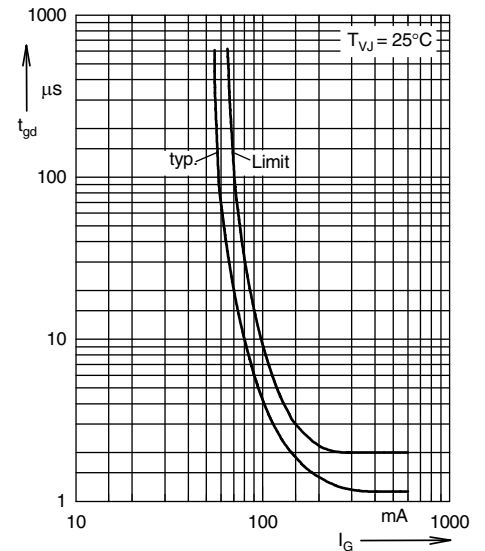


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")
