

AC Controller Modules

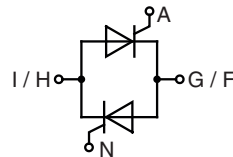
Preliminary Data

$$I_{RMS} = 112 \text{ A}$$

$$I_{TAVM} = 51 \text{ A}$$

$$V_{RRM} = 1200/1600 \text{ V}$$

V_{RSM}	V_{RRM}	Typ
V_{DSM}	V_{DRM}	
V	V	
1300	1200	MMO 140-12io7
1700	1600	MMO 140-16io7



Symbol	Conditions	Maximum Ratings
I_{RMS}	$T_C = 85^\circ\text{C}; 50\text{-}400 \text{ Hz (per single controller)}$	112 A
I_{TRMS}		81 A
I_{TAVM}	$T_C = 85^\circ\text{C}; 180^\circ \text{ sine}$	51 A
I_{TSM}	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms (50 Hz)}$	1000 A
	$V_R = 0; t = 8.3 \text{ ms (60 Hz)}$	1070 A
	$T_{VJ} = 125^\circ\text{C}; t = 10 \text{ ms (50 Hz)}$	870 A
	$V_R = 0; t = 8.3 \text{ ms (60 Hz)}$	930 A
I^2t	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms (50 Hz)}$	5000 A ² s
	$V_R = 0; t = 8.3 \text{ ms (60 Hz)}$	4810 A ² s
	$T_{VJ} = 125^\circ\text{C}; t = 10 \text{ ms (50 Hz)}$	3780 A ² s
	$V_R = 0; t = 8.3 \text{ ms (60 Hz)}$	3630 A ² s
$(di/dt)_{cr}$	$T_{VJ} = 125^\circ\text{C};$ repetitive, $I_T = 50 \text{ A}$ $f = 50 \text{ Hz}; t_p = 200 \mu\text{s};$	100 A/ μs
	$V_D = \frac{2}{3} V_{DRM};$ non repetitive, $I_T = I_{TAVM}$ $I_G = 0.45 \text{ A};$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$	500 A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = 125^\circ\text{C}; V_D = \frac{2}{3} V_{DRM};$ $R_{GK} = \infty;$ method 1 (linear voltage rise)	1000 V/ μs
P_{GM}	$T_{VJ} = 125^\circ\text{C};$ $t_p = 30 \text{ ms}$	10 W
	$I_T = I_{T(AV)M};$ $t_p = 300 \text{ ms}$	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 $t = 1 \text{ min}$	2500 V~
	$I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$	3000 V~
M_d	Mounting torque (M4)	1.5 - 2.0 Nm
		14 - 18 lb.in.
Weight	Typical including screws	18 g

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

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
- Leads suitable for PC board soldering

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

Symbol	Conditions	Characteristic Values	
		typ.	max.
I_D, I_R	$V_R/V_D = V_{RRM}/V_{DRM}$	$T_{VJ} = 125^\circ\text{C}$	5 mA
V_T	$I_T = 150\text{ A}$	$T_{VJ} = 25^\circ\text{C}$	1.57 V
V_{T0}	For power-loss calculations only		0.85 V
r_t			5.60 mΩ
V_{GT}	$V_D = 6\text{ V}$	$T_{VJ} = 25^\circ\text{C}$	1.5 V
		$T_{VJ} = -40^\circ\text{C}$	1.9 V
I_{GT}	$V_D = 6\text{ V}$	$T_{VJ} = 25^\circ\text{C}$	100 mA
		$T_{VJ} = -40^\circ\text{C}$	200 mA
V_{GD}	$V_D = \frac{2}{3} V_{DRM}$	$T_{VJ} = 125^\circ\text{C}$	0.2 V
I_{GD}			1 mA
I_L	$t_p = 10\ \mu\text{s};$ $I_G = 0.45\text{ A}; di_G/dt = 0.45\text{ A}/\mu\text{s}$	$T_{VJ} = 25^\circ\text{C}$	200 mA
I_H	$V_D = 6\text{ V}; R_{GK} = \infty;$	$T_{VJ} = 25^\circ\text{C}$	100 mA
t_{gd}	$V_D = \frac{1}{2} V_{DRM}$ $I_G = 0.45\text{ A}; di_G/dt = 0.45\text{ A}/\mu\text{s}$	$T_{VJ} = 25^\circ\text{C}$	2 μs
R_{thJC}	per thyristor; DC current		0.80 K/W
R_{thCH}		0.12	K/W
R_{thJC}	per module		0.40 K/W
R_{thCH}		0.06	K/W
d_s	Creeping distance on surface		11.2 mm
d_A	Creepage distance in air		5.0 mm
a	Maximum allowable acceleration		50 m/s ²

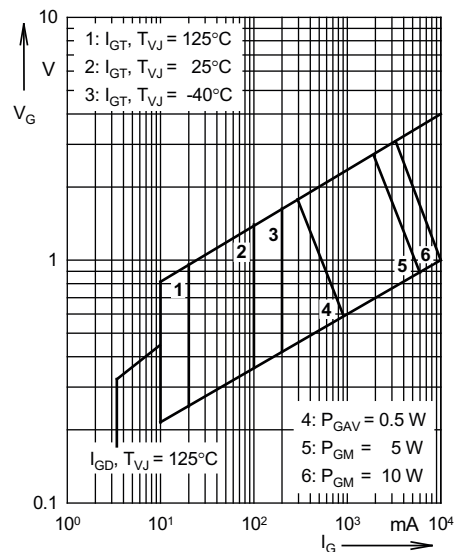


Fig. 1 Gate trigger characteristics

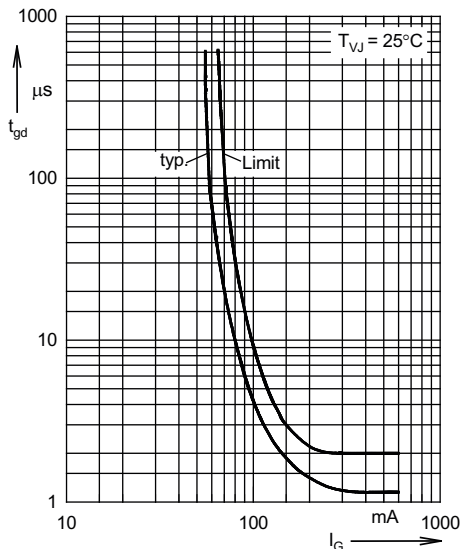
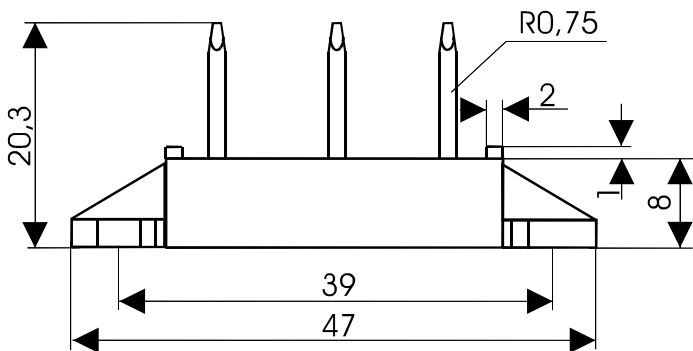
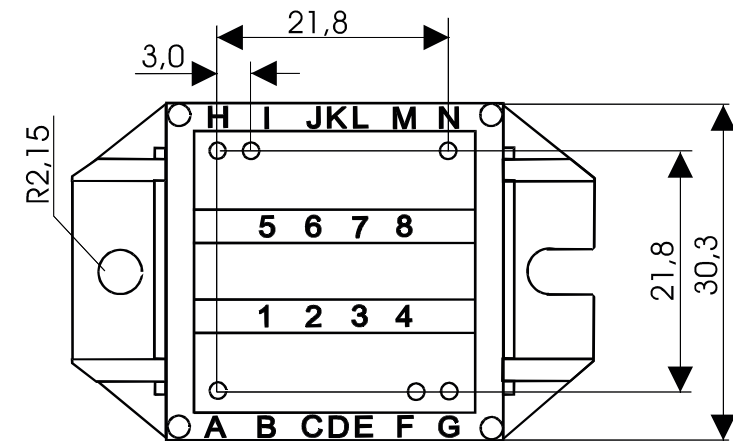


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")



Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[IXYS:](#)

[MMO110-14io7](#)