

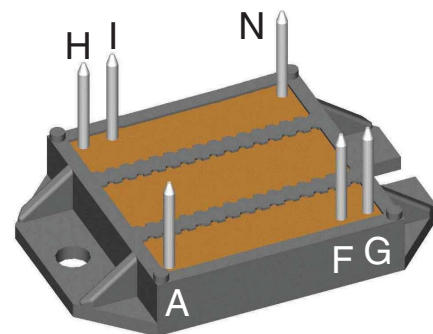
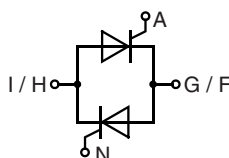
# AC Controller Modules

$$I_{RMS} = 140 \text{ A}$$

$$I_{TAVM} = 58 \text{ A}$$

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

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



## Preliminary Data

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
$I_{TSM}$	$T_{VJ} = 45^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz)	1150	A
	$V_R = 0$ ; $t = 8.3 \text{ ms}$ (60 Hz)	1230	A
$I^2t$	$T_{VJ} = 125^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz)	1000	A
	$V_R = 0$ ; $t = 8.3 \text{ ms}$ (60 Hz)	1070	A
$I^2t$	$T_{VJ} = 45^\circ\text{C}$ ; $t = 10 \text{ ms}$ (50 Hz)	6600	A <sup>2</sup> s
	$V_R = 0$ ; $t = 8.3 \text{ ms}$ (60 Hz)	6280	A <sup>2</sup> s
$(di/dt)_{cr}$	$T_{VJ} = 125^\circ\text{C}$ ; $f = 50 \text{ Hz}$ ; $t_p = 200 \mu\text{s}$ ; repetitive, $I_T = 60 \text{ A}$	150	A/ $\mu\text{s}$
	$V_D = \frac{2}{3} V_{DRM}$ ; $I_G = 0.45 \text{ A}$ ; $di_G/dt = 0.45 \text{ A}/\mu\text{s}$ ; non repetitive, $I_T = I_{TAVM}$	500	A/ $\mu\text{s}$
$(dv/dt)_{cr}$	$T_{VJ} = 125^\circ\text{C}$ ; $V_D = \frac{2}{3} V_{DRM}$ ; $R_{GK} = \infty$ ; method 1 (linear voltage rise)	1000	V/ $\mu\text{s}$
$P_{GM}$	$T_{VJ} = 125^\circ\text{C}$ ; $t_p = 30 \text{ ms}$	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

## 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

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

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20200120c

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
$V_T$	$I_T = 200 \text{ A}$	$T_{VJ} = 25^\circ\text{C}$	1.75 V
$V_{T0}$	For power-loss calculations only		0.85 V
$r_t$			5.20 mΩ
$V_{GT}$	$V_D = 6 \text{ V}$	$T_{VJ} = 25^\circ\text{C}$	1.5 V
		$T_{VJ} = -40^\circ\text{C}$	1.6 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
$I_{GD}$			10 mA
$I_L$	$t_p = 10 \mu\text{s};$ $I_G = 0.45 \text{ A}; di_G/dt = 0.45 \text{ A}/\mu\text{s}$	$T_{VJ} = 25^\circ\text{C}$	450 mA
$I_H$	$V_D = 6 \text{ V}; R_{GK} = \infty;$	$T_{VJ} = 25^\circ\text{C}$	200 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		0.70 K/W
$R_{thCH}$		0.12	K/W
$R_{thJC}$	per module		0.35 K/W
$R_{thCH}$		0.06	K/W
$d_s$	Creeping distance on surface		11.2 mm
$d_A$	Creepage distance in air		17.0 mm
$a$	Maximum allowable acceleration		50 m/s <sup>2</sup>

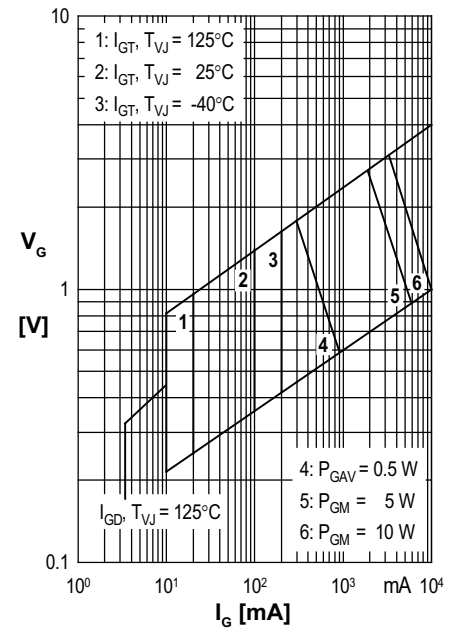


Fig. 1 Gate trigger characteristics

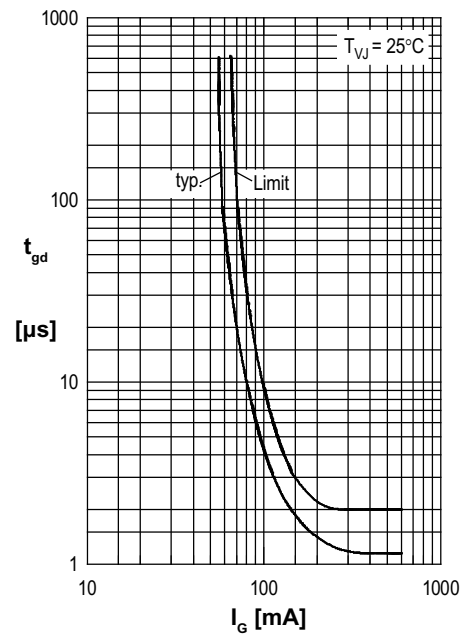
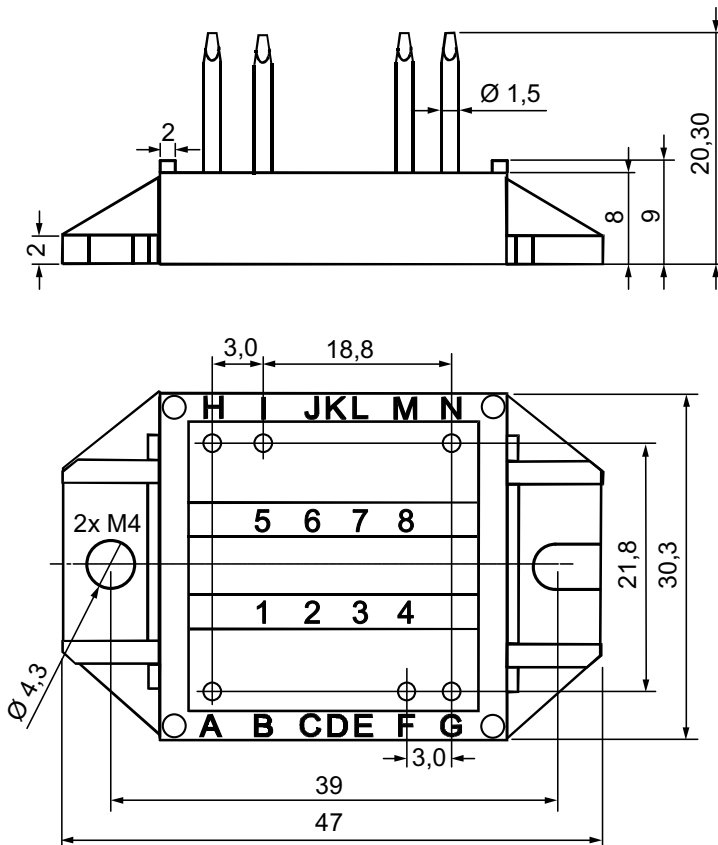
**Dimensions in mm (1 mm = 0.0394")**


Fig. 2 Gate trigger delay time

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