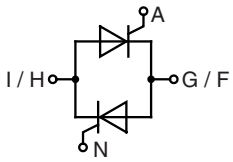
AC Controller Modules

Preliminary Data

I_{RMS} = 175 A
I_{TAVM} = 80 A
V_{RRM} = 1200/1600 V

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Typ
1300	1200	MMO 175-12io7
1700	1600	MMO 175-16io7



Symbol	Conditions		Maximum Ratings	
I_{RMS}	T_C = 85°C; 50-400 Hz (per single controller)		175	A
I_{TRMS}			125	A
I_{TAVM}	T_C = 85°C; 180° sine		80	A
I_{TSM}	T_{VJ} = 45°C; t = 10 ms (50 Hz)		1500	A
	V_R = 0 t = 8.3 ms (60 Hz)		1600	A
	T_{VJ} = 125°C; t = 10 ms (50 Hz)		1350	A
	V_R = 0 t = 8.3 ms (60 Hz)		1450	A
I^2t	T_{VJ} = 45°C; t = 10 ms (50 Hz)		11 200	A^2s
	V_R = 0 t = 8.3 ms (60 Hz)		10 750	A^2s
	T_{VJ} = 125°C; t = 10 ms (50 Hz)		9 100	A^2s
	V_R = 0 t = 8.3 ms (60 Hz)		8 830	A^2s
$(di/dt)_{cr}$	T_{VJ} = 125°C; f = 50 Hz; t_p = 200 µs;	repetitive, I_T = 80 A	150	A/µs
	$V_D = {}^2/_3 V_{DRM}$; I_G = 0.45 A; di_G/dt = 0.45 A/µs	non repetitive, $I_T = I_{TAVM}$	500	A/µs
$(dv/dt)_{cr}$	T_{VJ} = 125°C; $V_D = {}^2/_3 V_{DRM}$; R_{GK} = ∞; method 1 (linear voltage rise)		1000	V/µs
P_{GM}	T_{VJ} = 125°C;	t_p = 30 ms	10	W
	$I_T = I_{T(AV)M}$;	t_p = 300 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 min	2500	V~
	$I_{ISOL} \leq$ 1 mA	t = 1 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

IXYS reserves the right to change limits, test conditions and dimensions.

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Symbol	Conditions		Characteristic Values typ.	max.	
I_D, I_R	V_R / V_D = V_{RRM} / V_{DRM}	T_{VJ} = 125°C		5	mA
V_T	I_T = 200 A	T_{VJ} = 25°C		1.57	V
V_{T0}	For power-loss calculations only			0.85	V
r_t				3.70	mΩ
V_{GT}	V_D = 6 V	T_{VJ} = 25°C		1.5	V
		T_{VJ} = -40°C		1.6	V
I_{GT}	V_D = 6 V	T_{VJ} = 25°C		100	mA
		T_{VJ} = -40°C		200	mA
V_{GD}	V_D = $^2/_3$ V_{DRM};	T_{VJ} = 125°C		0.2	V
I_{GD}				10	mA
I_L	t_p = 10 µs; I_G = 0.45 A; di_G/dt = 0.45 A/µs	T_{VJ} = 25°C		450	mA
I_H	V_D = 6 V; R_{GK} = ∞;	T_{VJ} = 25°C		200	mA
t_{gd}	V_D = ½V_{DRM} I_G = 0.45 A; di_G/dt = 0.45 A/µs	T_{VJ} = 25°C		2	µs
R_{thJC}	per thyristor; DC current			0.50	K/W
R_{thCH}			0.12		K/W
R_{thJC}	per module			0.25	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

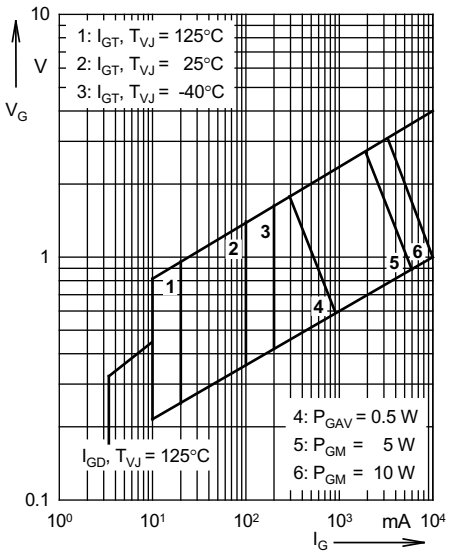


Fig. 1 Gate trigger characteristics

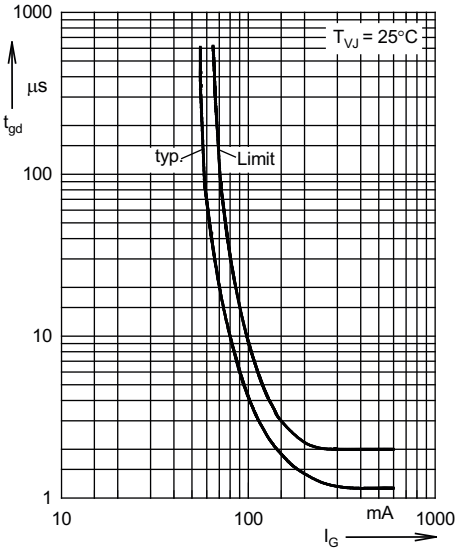
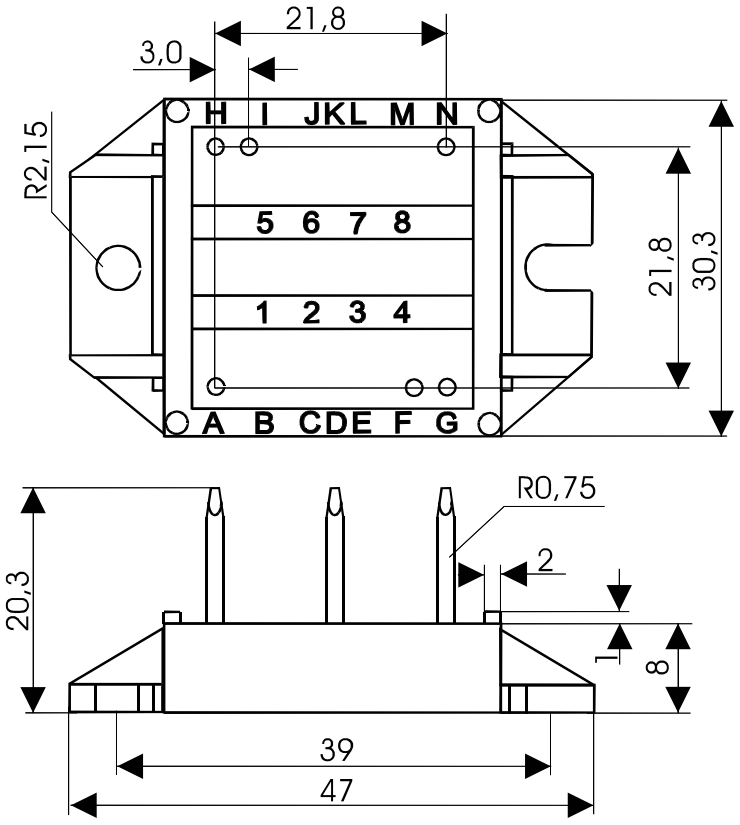


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394")



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