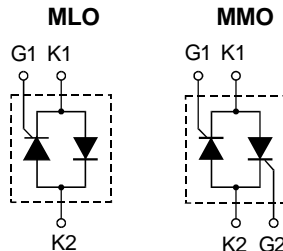
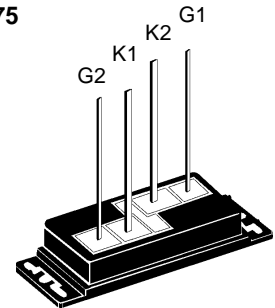


AC Controller Modules

$I_{RMS} = 86 \text{ A}$
 $V_{RRM} = 1200-1600 \text{ V}$

V_{RSM}	V_{RRM}	Type	
V_{DSM}	V_{DRM}		
V	V		
1200	1200	MLO 75-12io1	MMO 75-12io1
1600	1600	MLO 75-16io1	MMO 75-16io1


MMO 75


K1 = Cathode 1, G1 = Gate 1
 K2 = Cathode 2, G2 = Gate 2
 (MLO 36 has no G2 lead)

Symbol	Test Conditions	Maximum Ratings	
I_{RMS}	$T_K = 85^\circ\text{C}$, 50 - 400 Hz (for single controller)	86	A
I_{TRMS}	$T_{VJ} = T_{VJM}$	62	A
I_{TAVM}	$T_K = 85^\circ\text{C}$; (180° sine)	39	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
I_{TSM}	$T_{VJ} = T_{VJM}$; $V_R = 0$	t = 10 ms (50 Hz), sine	1000 A
		t = 8.3 ms (60 Hz), sine	1100 A
I_{Tt}	$T_{VJ} = 45^\circ\text{C}$; $V_R = 0$	t = 10 ms (50 Hz), sine	6600 A ² s
		t = 8.3 ms (60 Hz), sine	6280 A ² s
I_{Tt}	$T_{VJ} = T_{VJM}$; $V_R = 0$	t = 10 ms (50 Hz), sine	5000 A ² s
		t = 8.3 ms (60 Hz), sine	5020 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$; f = 50 Hz, $t_p = 200 \mu\text{s}$ $V_D = 2/3 V_{DRM}$ $I_G = 0.45 \text{ A}$ $di_G/dt = 0.45 \text{ A}/\mu\text{s}$	repetitive, $I_T = 150 \text{ A}$	100 A/ μs
		non repetitive, $I_T = I_{TAVM}$	500 A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $R_{GK} = \infty$; method 1 (linear voltage rise)	$V_{DR} = 2/3 V_{DRM}$	1000 V/ μs
P_{GM}	$T_{VJ} = T_{VJM}$	$t_p = 30 \mu\text{s}$	10 W
	$I_T = I_{TAVM}$	$t_p = 300 \mu\text{s}$	5 W
P_{GAVM}			0.5 W
V_{RGM}			10 V
T_{VJ}		-40...+125	°C
T_{VJM}		125	°C
T_{stg}		-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000 V~
	$I_{ISOL} \leq 1 \text{ mA}$	t = 1 s	3600 V~
M_d	Mounting torque (M3) (UNF 4-32)		0.7 ± 0.1 Nm
			6 ± 0.9 lb.in.
Weight	typ.		15 g

Features

- Thyristor controller for AC (circuit W1C acc. to IEC) for mains frequency
- Direct copper bonded Al_2O_3 -ceramic base plate
- Isolation voltage 3600 V~
- Planar passivated chips
- UL registered, E 72873
- Long wire leads suitable for PC board soldering

Applications

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

Advantages

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

Data according to IEC 60747 and to a single thyristor/diode unless otherwise stated.
 IXYS reserves the right to change limits, test conditions and dimensions.

Symbol	Test Conditions	Characteristic Values
I_R, I_D	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$	≤ 5 mA
V_T	$I_T = 100$ A; $T_{VJ} = 25^\circ\text{C}$	≤ 1.4 V
V_{T0}	For power-loss calculations only	0.85 V
r_T		5.0 m Ω
V_{GT}	$V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$	≤ 1.5 V
	$T_{VJ} = -40^\circ\text{C}$	≤ 1.6 V
I_{GT}	$V_D = 6$ V; $T_{VJ} = 25^\circ\text{C}$	≤ 150 mA
	$T_{VJ} = -40^\circ\text{C}$	≤ 200 mA
I_{GM}	$t_p = 50$ μs , $f = 60$ Hz, $I_T = I_{TAVM}$	6 A
V_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	≤ 0.25 V
I_{GD}		≤ 5 mA
I_L	$T_{VJ} = 25^\circ\text{C}$; $t_p = 10$ μs , $V_D = 6$ V $I_G = 0.45$ A; $di_G/dt = 0.45$ A/ μs	≤ 300 mA
I_H	$T_{VJ} = 25^\circ\text{C}$; $V_D = 6$ V; $R_{GK} = \infty$	≤ 100 mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}$; $V_D = 1/2 V_{DRM}$ $I_G = 0.45$ A; $di_G/dt = 0.45$ A/ μs	≤ 2 μs
t_q	$T_{VJ} = T_{VJM}; I_T = 50$ A, $t_p = 200$ μs ; $-di/dt = 10$ A/ μs $V_R = 100$ V; $dv/dt = 15$ V/ μs ; $V_D = 2/3 V_{DRM}$	typ. 150 μs
R_{thJC}	per thyristor/diode; DC current per module	0.55 K/W 0.275 K/W
R_{thJK}	per thyristor/diode; DC current per module	0.75 K/W 0.375 K/W
d_s	Creeping distance on surface	4.5 mm
d_A	Creepage distance in air	4.5 mm
a	Max. allowable acceleration	50 m/s ²

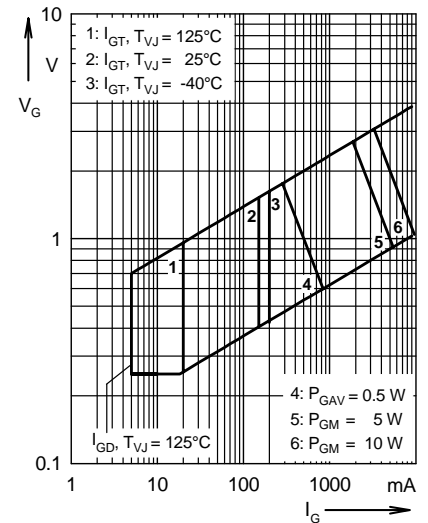


Fig. 1 Gate trigger characteristics

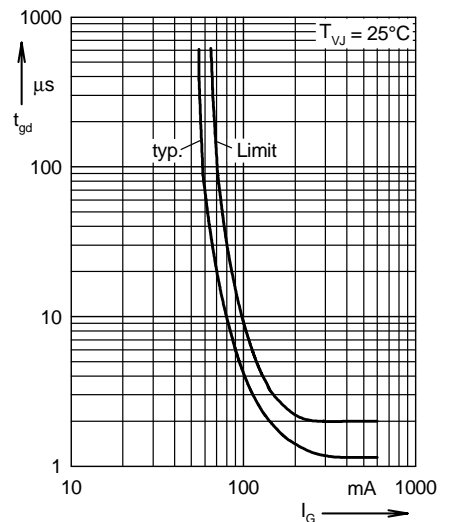
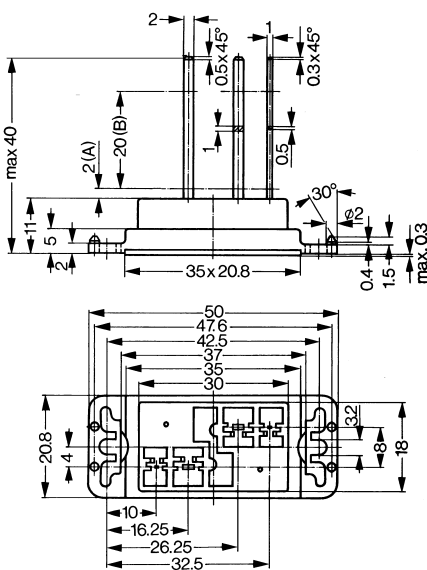


Fig. 2 Gate trigger delay time

Dimensions in mm (1 mm = 0.0394") MLO 75



MMO 75

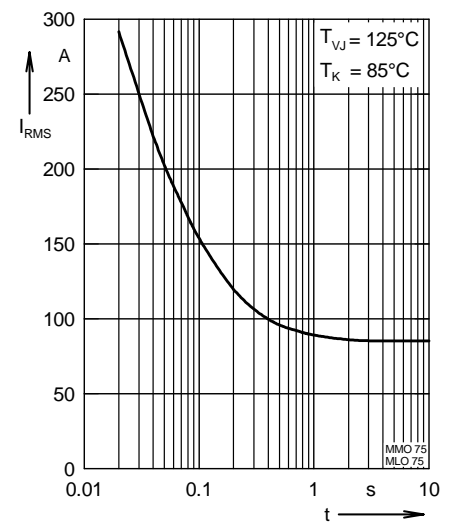
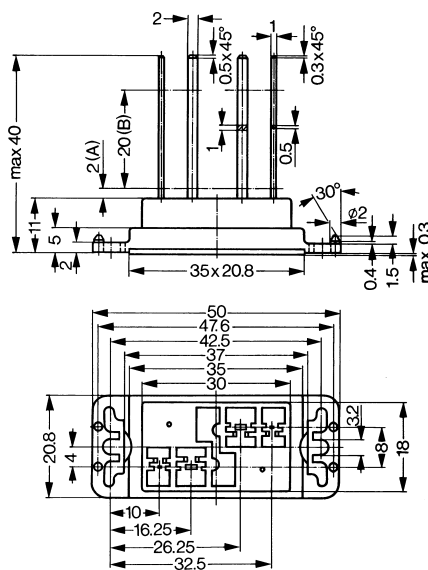


Fig. 3 Rated RMS current versus time (360° conduction)

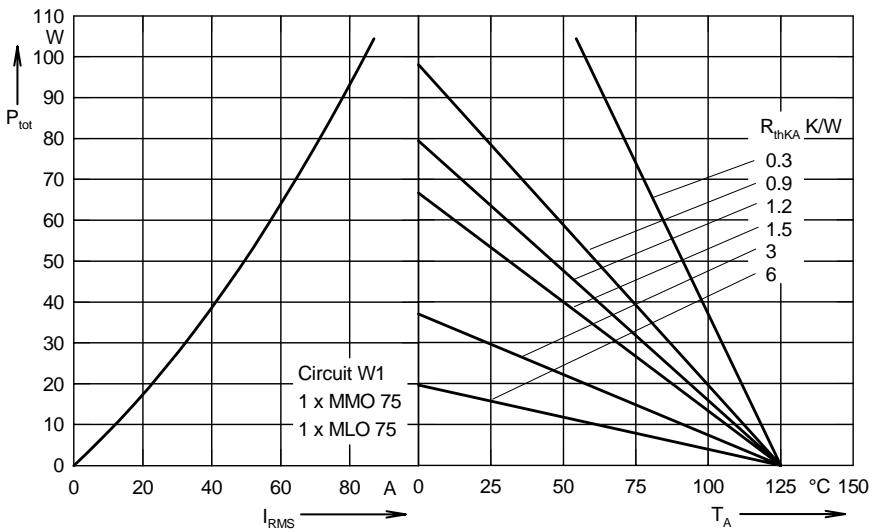


Fig. 4 Load current capability for single phase AC controller

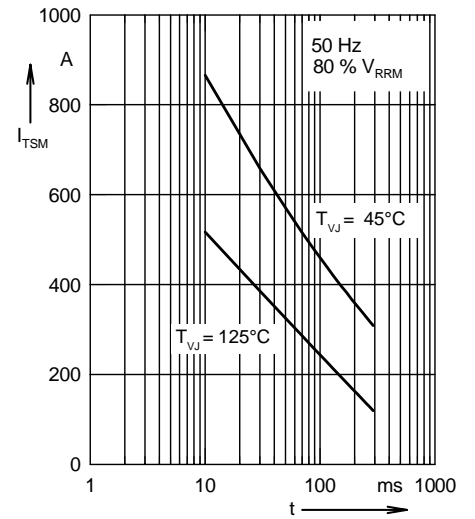


Fig. 5 Surge overload current
 I_{TSM} , I_{FSM} : Crest value, t: duration

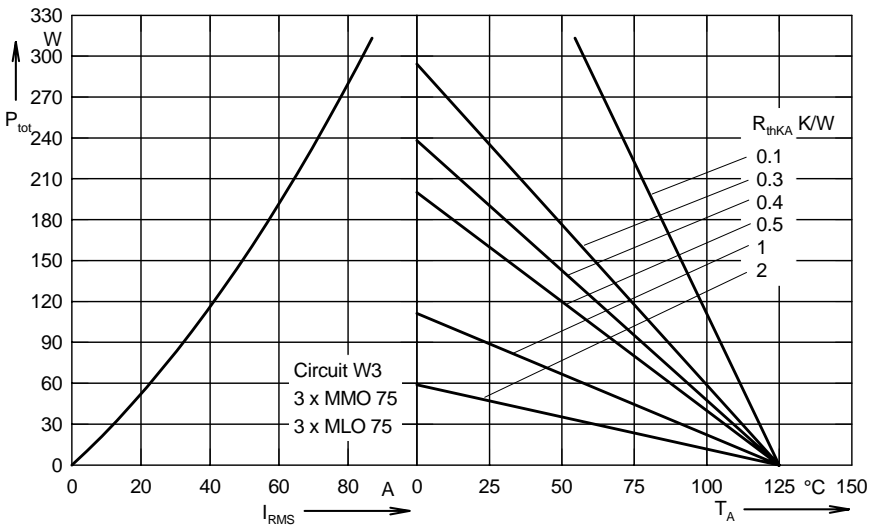


Fig. 6 Load current capability for three phase AC controller: 3xMMO 75/MLO 75

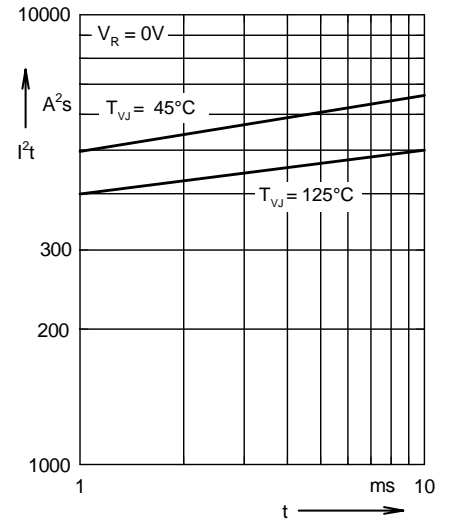


Fig. 7 I^2t versus time (1-10 ms)

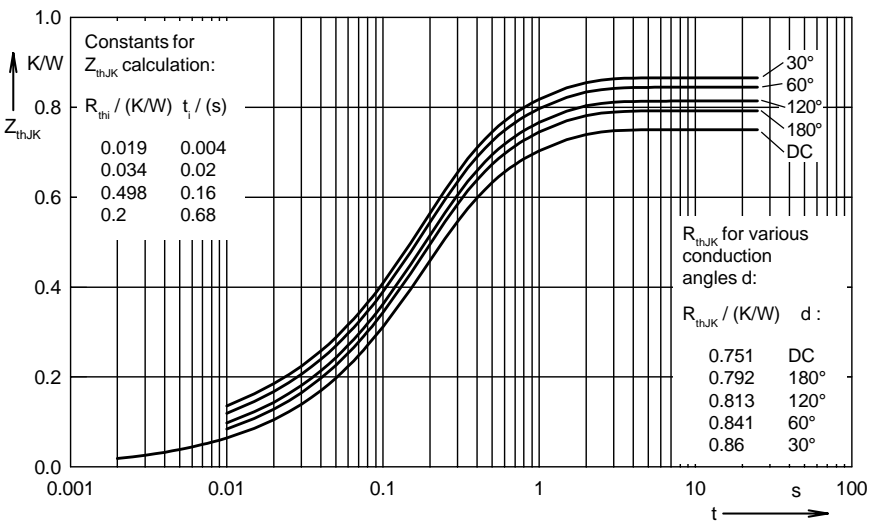


Fig. 8 Transient thermal impedance junction to heatsink (per thyristor or diode)

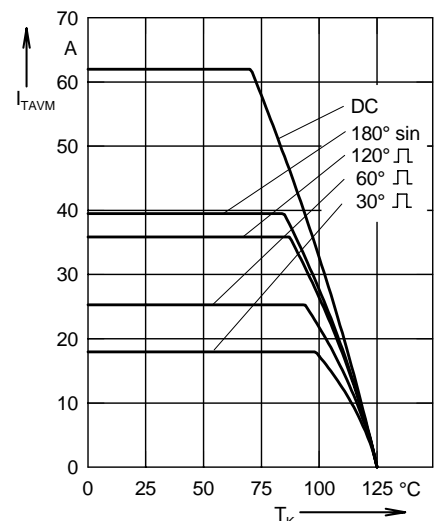


Fig. 9 Maximum on-state current versus heatsink temperature