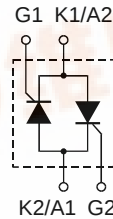


AC Controller Modules

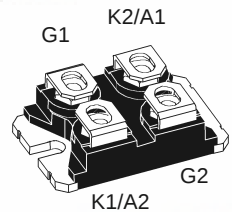
$$I_{\text{RMS}} = 74 \text{ A}$$

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

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1200	1200	MMO 74-12io6
1600	1600	MMO 74-16io6



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Symbol	Test Conditions	Maximum Ratings
I_{RMS}	$T_{\text{C}} = 110^{\circ}\text{C}$, 50 - 400 Hz, module	74 A
I_{TRMS}	$T_{\text{VJ}} = T_{\text{VJM}}$	53 A
I_{TAVM}	$T_{\text{C}} = 110^{\circ}\text{C}$; (180° sine)	34 A
I_{TSM}	$T_{\text{VJ}} = 45^{\circ}\text{C}$; $V_{\text{R}} = 0$	$t = 10 \text{ ms}$ (50 Hz), sine 600 A $t = 8.3 \text{ ms}$ (60 Hz), sine 640 A
	$T_{\text{VJ}} = T_{\text{VJM}}$ $V_{\text{R}} = 0$	$t = 10 \text{ ms}$ (50 Hz), sine 520 A $t = 8.3 \text{ ms}$ (60 Hz), sine 560 A
I^2t	$T_{\text{VJ}} = 45^{\circ}\text{C}$ $V_{\text{R}} = 0$	$t = 10 \text{ ms}$ (50 Hz), sine 1800 A ² s $t = 8.3 \text{ ms}$ (60 Hz), sine 1720 A ² s
	$T_{\text{VJ}} = T_{\text{VJM}}$ $V_{\text{R}} = 0$	$t = 10 \text{ ms}$ (50 Hz), sine 1350 A ² s $t = 8.3 \text{ ms}$ (60 Hz), sine 1320 A ² s
$(di/dt)_{\text{cr}}$	$T_{\text{VJ}} = T_{\text{VJM}}$ $f = 50 \text{ Hz}$, $t_{\text{p}} = 200 \mu\text{s}$ $V_{\text{D}} = 2/3 V_{\text{DRM}}$ $I_{\text{G}} = 0.3 \text{ A}$ $di_{\text{G}}/dt = 0.3 \text{ A}/\mu\text{s}$	repetitive, $I_{\text{T}} = 150 \text{ A}$ 100 A/ μs non repetitive, $I_{\text{T}} = I_{\text{TAVM}}$ 500 A/ μs
$(dv/dt)_{\text{cr}}$	$T_{\text{VJ}} = T_{\text{VJM}}$; $R_{\text{GK}} = \infty$; method 1 (linear voltage rise)	$V_{\text{DR}} = 2/3 V_{\text{DRM}}$ 1000 V/ μs
P_{GM}	$T_{\text{VJ}} = T_{\text{VJM}}$ $I_{\text{T}} = I_{\text{TAVM}}$	$t_{\text{p}} = 30 \mu\text{s}$ 10 W $t_{\text{p}} = 300 \mu\text{s}$ 5 W
P_{GAVM}		0.5 W
V_{RGM}		10 V
T_{VJ}		-40...+150 °C
T_{VJM}		150 °C
T_{stg}		-40...+150 °C
V_{ISOL}	50/60 Hz, RMS $I_{\text{ISOL}} \leq 1 \text{ mA}$	2500 V~
M_{d}	Mounting torque (M4) Terminal connection torque (M4)	1.1 - 1.5 / 9 - 13 Nm/lb.in.
Weight	typ.	30 g

Features

- Thyristor controller for AC (circuit W1C acc.to IEC) for mains frequency
- International standard package miniBLOC (ISOTOP compatible)
- Isolation voltage 2500 V~
- Planar passivated chips
- UL registered, E 72873

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

Symbol	Test Conditions	Characteristic Values
I_R, I_D	$T_{VJ} = T_{VJM}; V_R = V_{RRM}; V_D = V_{DRM}$	≤ 12 mA
V_T	$I_T = 80$ A; $T_{VJ} = 25^\circ\text{C}$	≤ 1.64 V
V_{T0}	For power-loss calculations only	0.85 V
r_T		8.4 mΩ
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; $T_{VJ} = 25^\circ\text{C}$	≤ 100 mA
	$T_{VJ} = -40^\circ\text{C}$	≤ 150 mA
V_{GD}	$T_{VJ} = T_{VJM}; V_D = 2/3 V_{DRM}$	≤ 0.2 V
I_{GD}		≤ 5 mA
I_L	$T_{VJ} = 25^\circ\text{C}; t_p = 10$ μs $I_G = 0.3$ A; $di_G/dt = 0.3$ A/μs	≤ 250 mA
I_H	$T_{VJ} = 25^\circ\text{C}; V_D = 6$ V; $R_{GK} = \infty$	≤ 100 mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}; V_D = 1/2 V_{DRM}$ $I_G = 0.3$ A; $di_G/dt = 0.3$ A/μs	≤ 2 μs
t_q	$T_{VJ} = T_{VJM}; I_T = 20$ 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; DC current	0.71 K/W
	per module	0.355 K/W
R_{thCH}	per thyristor; DC current	0.1 K/W
	per module	0.05 K/W
d_s	Creeping distance on surface	8 mm
d_a	Creepage distance in air	4 mm
a	Max. allowable acceleration	50 m/s ²

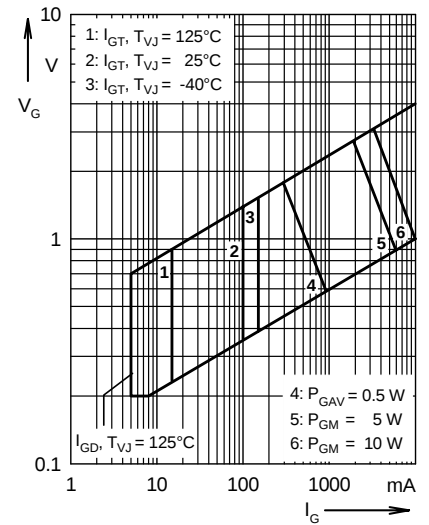


Fig. 1 Gate trigger characteristics

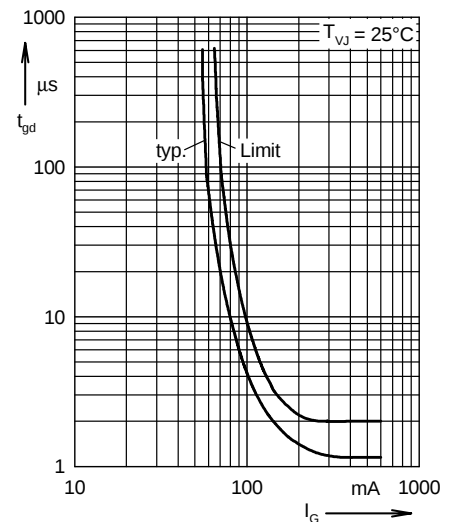
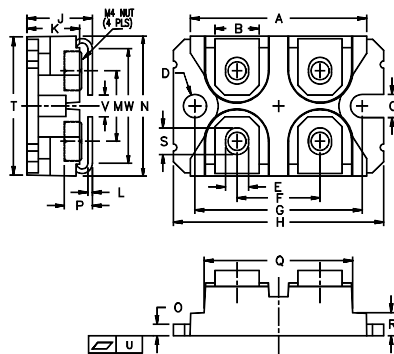


Fig. 2 Gate trigger delay time

miniBLOC, SOT-227 B



M4 screws (4x) supplied

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.20	1.489	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004
V	3.30	4.57	0.130	0.180
W	0.780	0.830	0.031	0.033

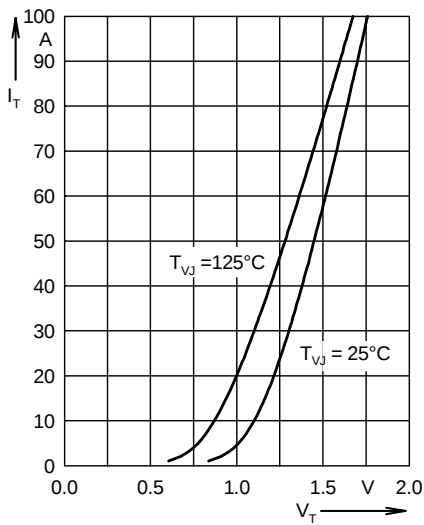


Fig. 3 Forward current versus voltage drop per leg

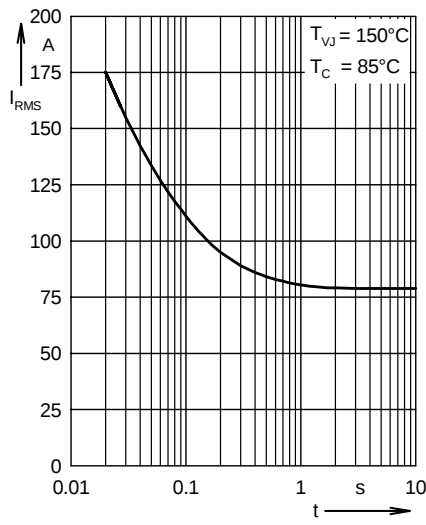


Fig. 4 Rated RMS current versus time (360° conduction)

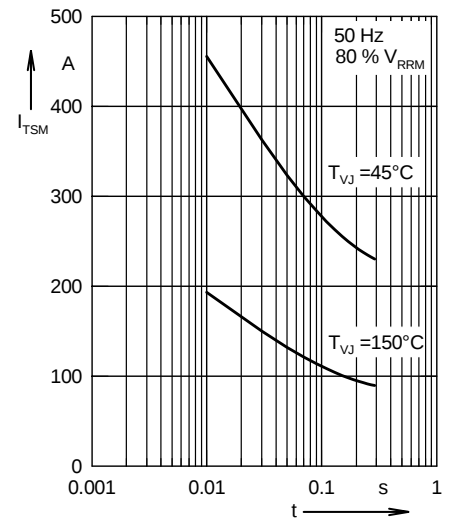


Fig. 5 Surge overload current

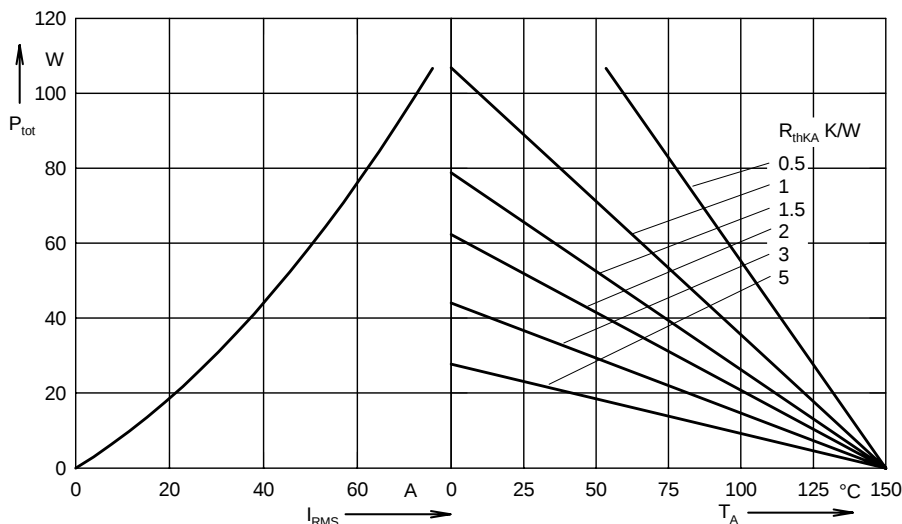


Fig. 6 Load current capability for single AC controller; 1 x MMO74

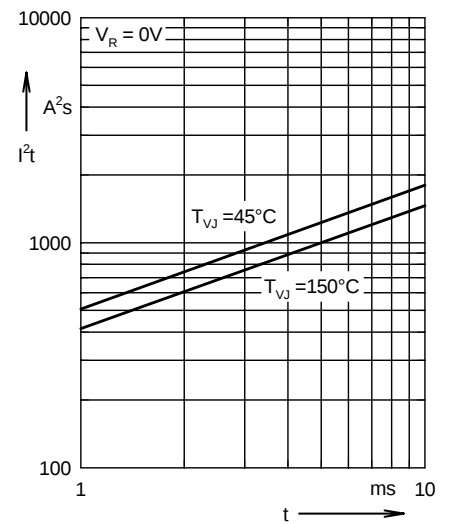


Fig. 7 I^2t versus time (per thyristor)

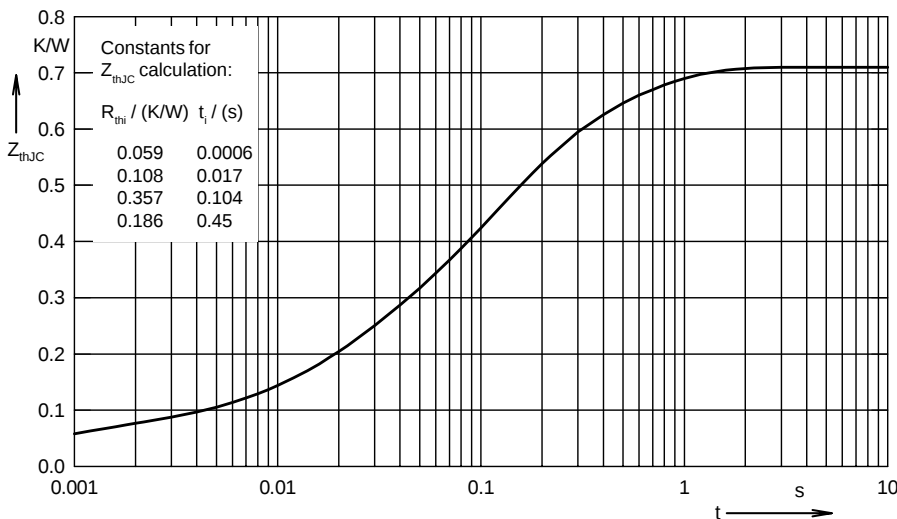


Fig. 8 Transient thermal impedance junction to case (per thyristor)

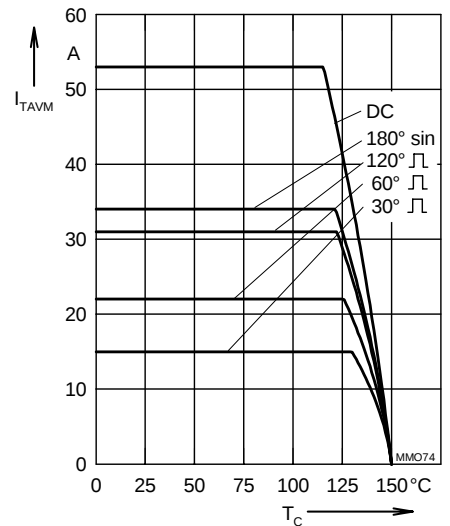


Fig. 9 Maximum forward current at case temperature