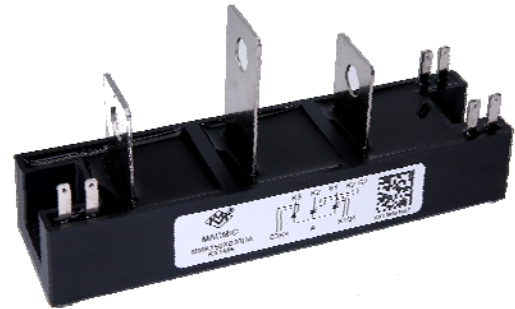
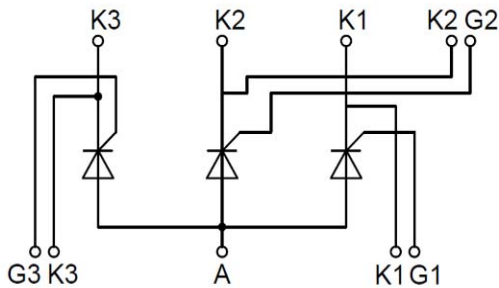


PRODUCT FEATURES

- High Surge Current Capability
- Easy Construction
- Non-isolated (Mounting base as common Anode terminal)
- High $I_{T(AV)}$

APPLICATIONS

- DC Motor Control and Drives
- Welders, Power Converters
- Heat and Temperature Control



ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions	Values	Unit
		MMK150X030DA	
V_{RRM}	Repetitive Peak Reverse Voltage	300	V
V_{DRM}	Repetitive Peak Off State Voltage	300	

Symbol	Parameter/Test Conditions		Values	Unit
$I_{T(AV)}$	Average On State Current	Single phase, half wave, 180° conduction, $T_c = 100^\circ\text{C}$	150	A
$I_{T(RMS)}$	R.M.S. On State Current	Single phase, half wave, 180° conduction, $T_c = 100^\circ\text{C}$	235	
I_{TSM}	Non Repetitive Surge On State Current	1/2 cycle, 50HZ, peak value, $T_J = 25^\circ\text{C}$	3300	
		1/2 cycle, 60HZ, peak value, $T_J = 25^\circ\text{C}$	3630	
I^2t	For Fusing	1/2 cycle, 50HZ, peak value, $T_J = 25^\circ\text{C}$	54.5	KA ² S
		1/2 cycle, 60HZ, peak value, $T_J = 25^\circ\text{C}$	54.7	
T_J	Junction Temperature		-40 to +125	$^\circ\text{C}$
T_{STG}	Storage Temperature Range		-40 to +125	$^\circ\text{C}$
Torque	Module to Sink	Recommended (M6)	3~5	Nm
Torque	Module Electrodes	Recommended (M6)	3~5	Nm
R_{thJC}	Junction to Case Thermal Resistance (Per Thyristor)		0.1	K/W
Weight			205	g

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MMK150X030DA

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
I_{DRM}	Maximum Peak Off-State Current	$V_D = V_{\text{DRM}}, T_J = 125^\circ\text{C}$			25	mA
I_{RRM}	Maximum Peak Reverse Current	$V_R = V_{\text{RRM}}, T_J = 125^\circ\text{C}$			25	
V_{TM}	Maximum on-state voltage drop	$I_{\text{TM}}=450\text{A}, t_d=10$ ms, half sine	$T_J = 25^\circ\text{C}$	1.15	1.5	V
			$T_J = 125^\circ\text{C}$	1.1	1.4	
V_{TO}	For power-loss calculations only	$T_J = 125^\circ\text{C}$			1.0	m Ω
r_T					9	
V_{GT}	Max. required DC gate voltage to trigger	$V_A=6\text{V}, R_A=1\Omega, T_J = 25^\circ\text{C}$		1.1	1.5	V
		$V_A=6\text{V}, R_A=1\Omega, T_J = 125^\circ\text{C}$		0.9	1.3	
I_{GT}	Max. required DC gate current to trigger	$V_A=6\text{V}, R_A=1\Omega, T_J = 25^\circ\text{C}$		75	120	mA
		$V_A=6\text{V}, R_A=1\Omega, T_J = 125^\circ\text{C}$		50	80	
V_{GD}	Max. required DC gate voltage not to trigger, $V_D = 1/2V_{\text{DRM}}, T_J = 125^\circ\text{C}$				0.35	V
I_{H}	Maximum holding current			70		mA
P_{GM}	Maximum peak gate power				12	W
$P_{\text{G(AV)}}$	Maximum average gate power				1.5	
I_{FGM}	Peak Gate Current				3.5	A
V_{FGM}	Peak Gate Voltage (Forward)				12	V
V_{RGM}	Peak Gate Voltage (Reverse)				6	
dv/dt	Critical Rate of Rise of Off-State Voltage, $T_J=125^\circ\text{C}$, exponential to 67% rated V_{DRM}				1000	V/ μs
di/dt	Max. Rate of Rise of Turned-on Current, $I_G=200\text{mA}, T_J = 25^\circ\text{C}$, $V_D = 1/2V_{\text{DRM}}, di_G=1\text{A}/\mu\text{S}$				100	A/ μs

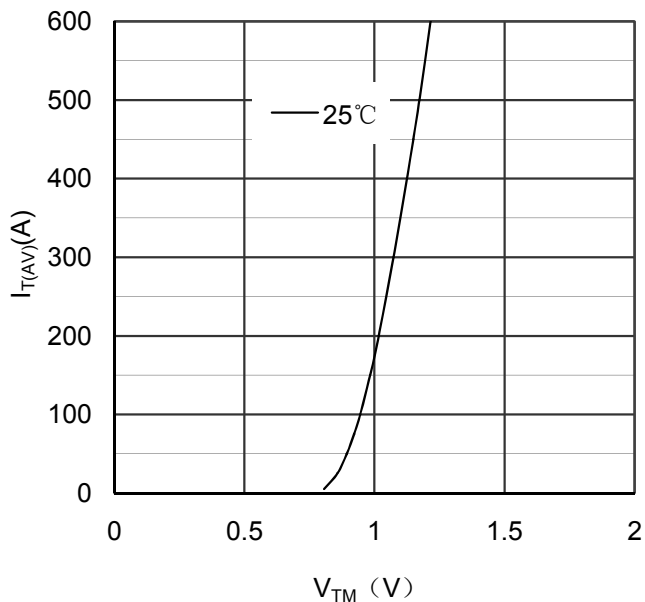


Figure 1. SCR Average On State Current vs Forward Voltage

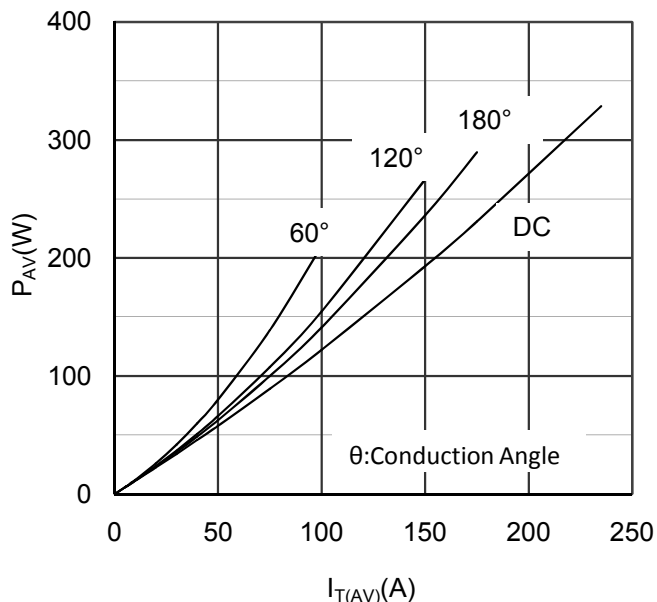


Figure 2. SCR Power dissipation vs $I_{T(AV)}$

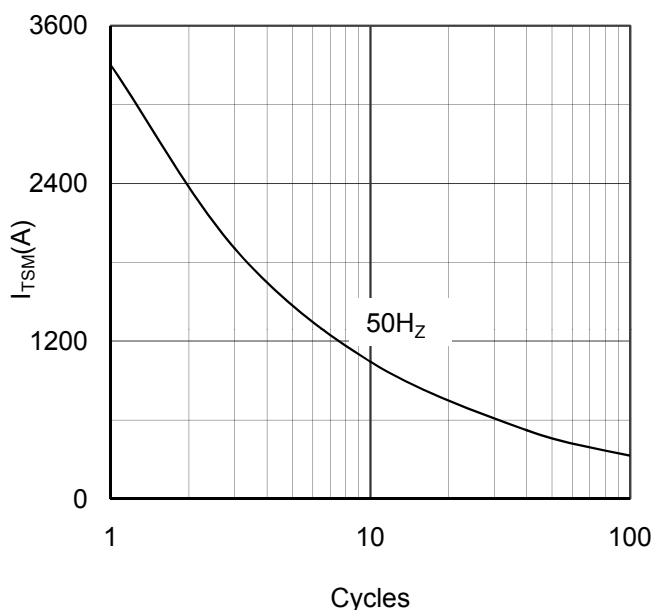


Figure 3. Max Non Repetitive Surge On State Current

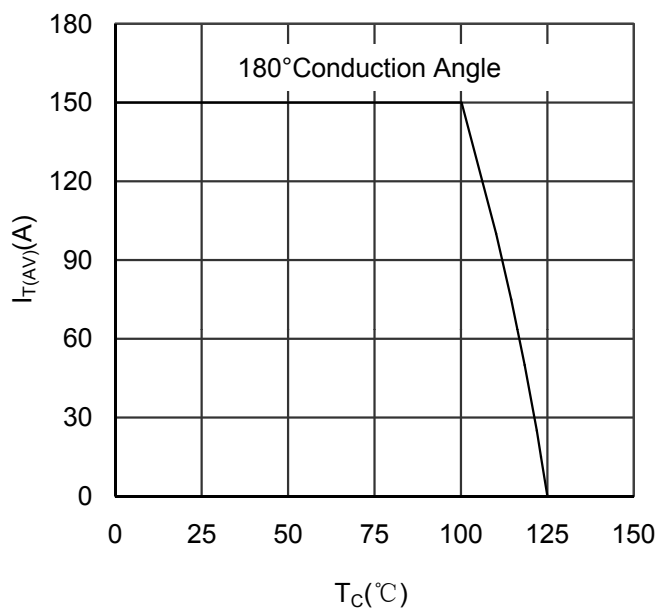


Figure 4. On State current vs Case temperature

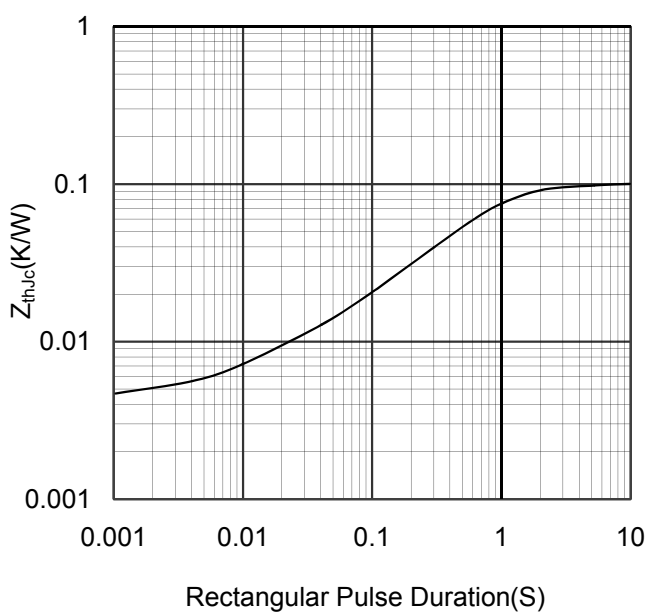
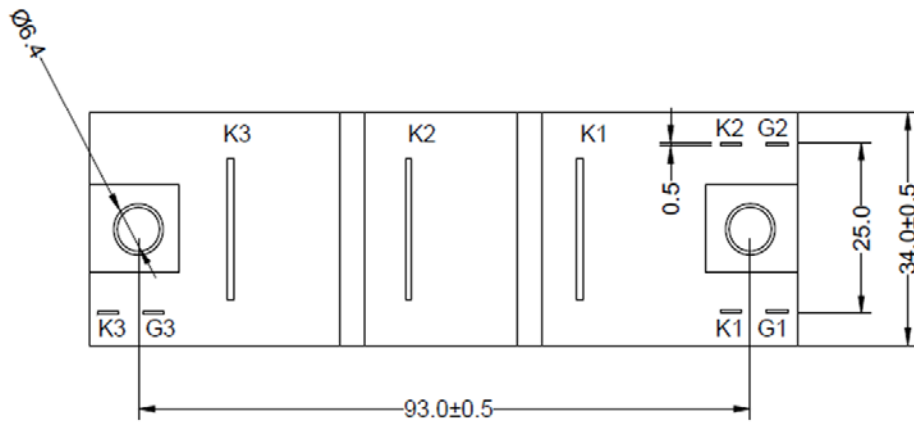
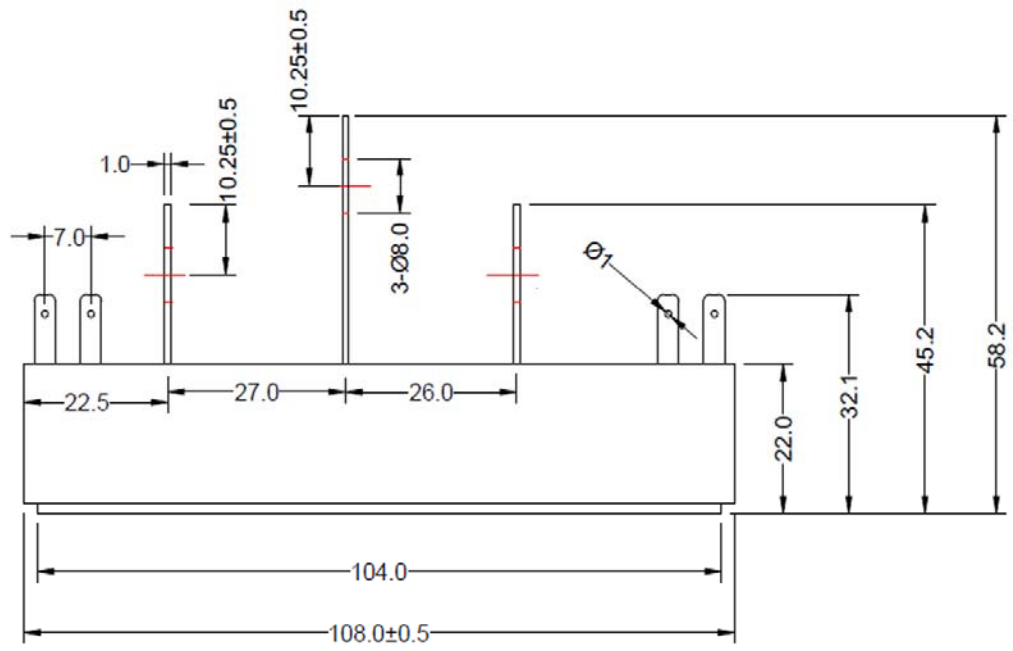


Figure 5. Transient Thermal Impedance



Dimensions in (mm)
Figure 6. Package Outline