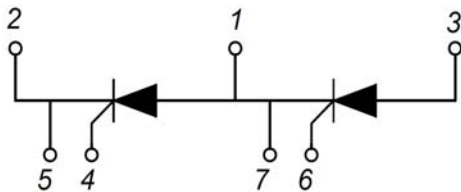


PRODUCT FEATURES

- Electrically Isolated by DBC Ceramic
- High Surge Current Capability
- Low Inductance Package

APPLICATIONS

- DC Motor Control and Drives
- Battery Charges ,Heater controls,Light dimmers
- Static switches



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

Symbol	Parameter/Test Conditions	Values			Unit
		MMK110A120B	MMK110A140B	MMK110A160B	
V_{RRM}	Repetitive Peak Reverse Voltage	1200	1400	1600	V
V_{DRM}	Repetitive Peak Off State Voltage	1200	1400	1600	
V_{RSM}	Non-Repetitive Peak Reverse Voltage	1300	1500	1700	

Symbol	Parameter/Test Conditions		Values	Unit
$I_{T(AV)}$	Average On State Current	Single phase, half wave, 180° conduction, $T_c=80^{\circ}\text{C}$	110	A
$I_{T(RMS)}$	R.M.S. On State Current	Single phase, half wave, 180° conduction, $T_c=80^{\circ}\text{C}$	170	
I_{TSM}	Non Repetitive Surge On State Current	1/2 cycle, 50HZ, peak value, $T_J=45^{\circ}\text{C}$	2000	
		1/2 cycle, 60HZ, peak value, $T_J=45^{\circ}\text{C}$	2200	
I^2t	For Fusing	1/2 cycle, 50HZ, peak value, $T_J=45^{\circ}\text{C}$	20.0	KA ² S
		1/2 cycle, 60HZ, peak value, $T_J=45^{\circ}\text{C}$	20.0	
T_J	Junction Temperature		-40 to +125	$^{\circ}\text{C}$
T_{STG}	Storage Temperature Range		-40 to +125	$^{\circ}\text{C}$
V_{ISO}	Isolation Breakdown Voltage	AC, 50Hz(R.M.S), t=1minute	3000	V
Torque	Module to Sink	Recommended (M6)	3~5	Nm
Torque	Module Electrodes	Recommended (M5)	2.5~5	Nm
R_{thJC}	Junction to Case Thermal Resistance		0.25	K/W
Weight			110	g

MMK110A160B

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 $I_{\text{TM}}=280\text{A}, t_d=10\text{ ms, half sine}$			1.65	V	
V_{TO}	For power-loss calculations only $T_J = 125^\circ\text{C}$			0.9	V	
r_T				2.8	m Ω	
V_{GT}	Max. required DC gate voltage to trigger	$V_A=6\text{V}, R_A=1\Omega, T_J = -40^\circ\text{C}$		4.0	V	
		$V_A=6\text{V}, R_A=1\Omega$		1.0		2.5
		$V_A=6\text{V}, R_A=1\Omega, T_J = 125^\circ\text{C}$				1.7
I_{GT}	Max. required DC gate current to trigger	$V_A=6\text{V}, R_A=1\Omega, T_J = -40^\circ\text{C}$		270	mA	
		$V_A=6\text{V}, R_A=1\Omega$		75		150
		$V_A=6\text{V}, R_A=1\Omega, T_J = 125^\circ\text{C}$				80
V_{GD}	Max. required DC gate voltage not to trigger, $V_D = V_{\text{DRM}}, T_J = 125^\circ\text{C}$			0.25	V	
I_{GD}	Max. required DC gate current not to trigger, $V_D = V_{\text{DRM}}, T_J = 125^\circ\text{C}$			6	mA	
I_{H}	Maximum holding current		100	200	mA	
I_{L}	Maximum latching current		200	400	mA	
P_{GM}	Maximum peak gate power			12	W	
$P_{\text{G(AV)}}$	Maximum average gate power			3.0		
I_{GM}	Maximum peak gate current			3.0	A	
$-V_{\text{GM}}$	Maximum peak negative gate voltage			10	V	
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, $T_J = 125^\circ\text{C}, I_{\text{TM}}=280\text{A}$, rated V_{DRM}			150	A/ μs	

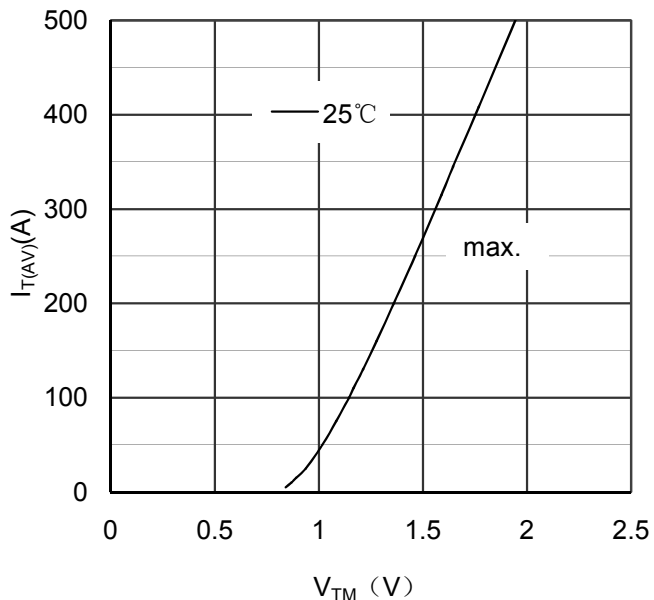


Figure 1. SCR Average On State Current vs Forward Voltage

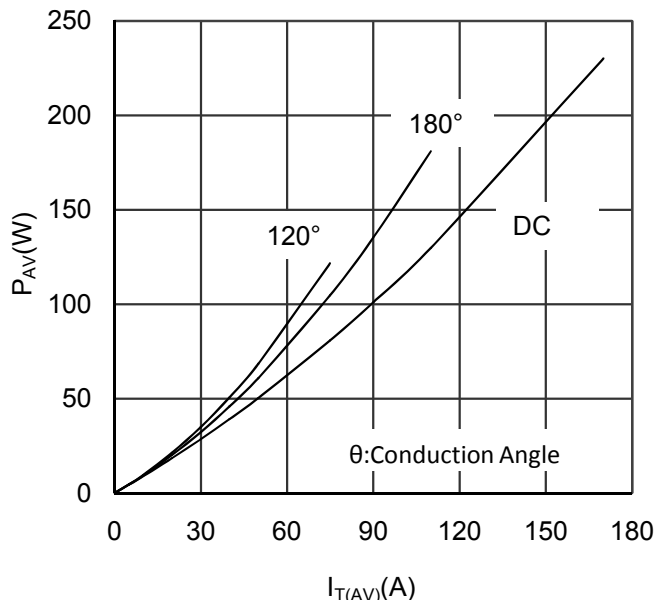


Figure 2. SCR Power dissipation vs $I_{T(AV)}$

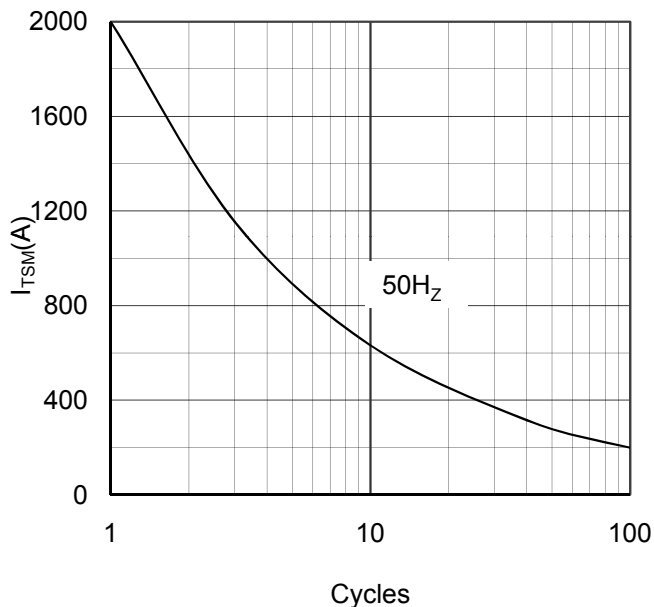


Figure 3. Max Non Repetitive Surge On State Current

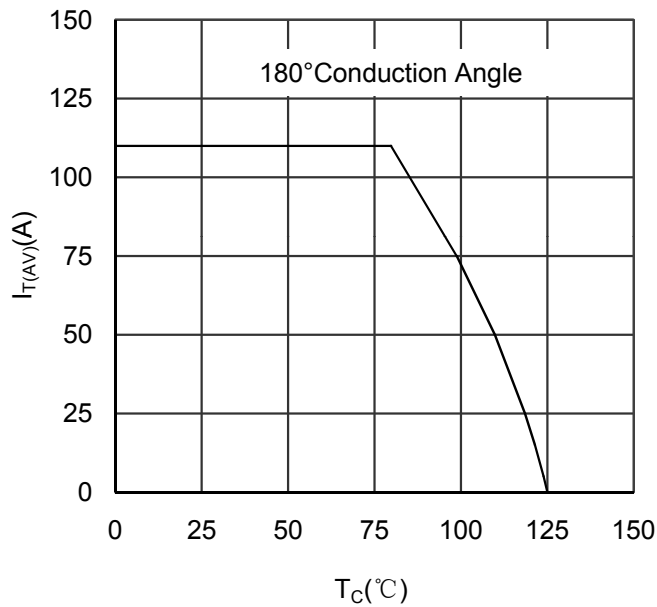


Figure 4. On State current vs Case temperature

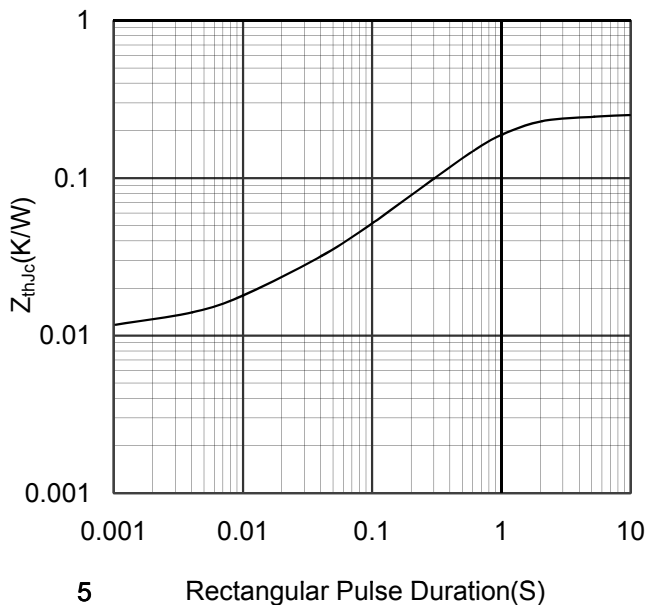


Figure 5. Transient Thermal Impedance

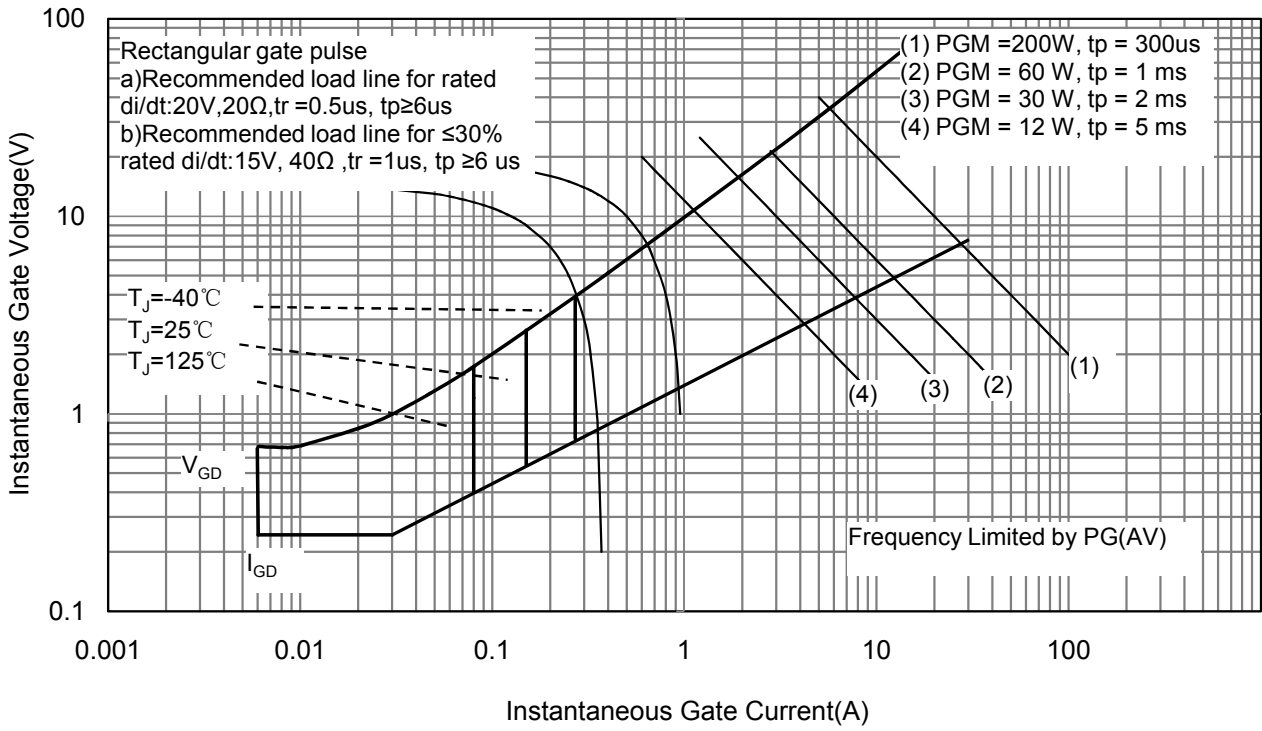
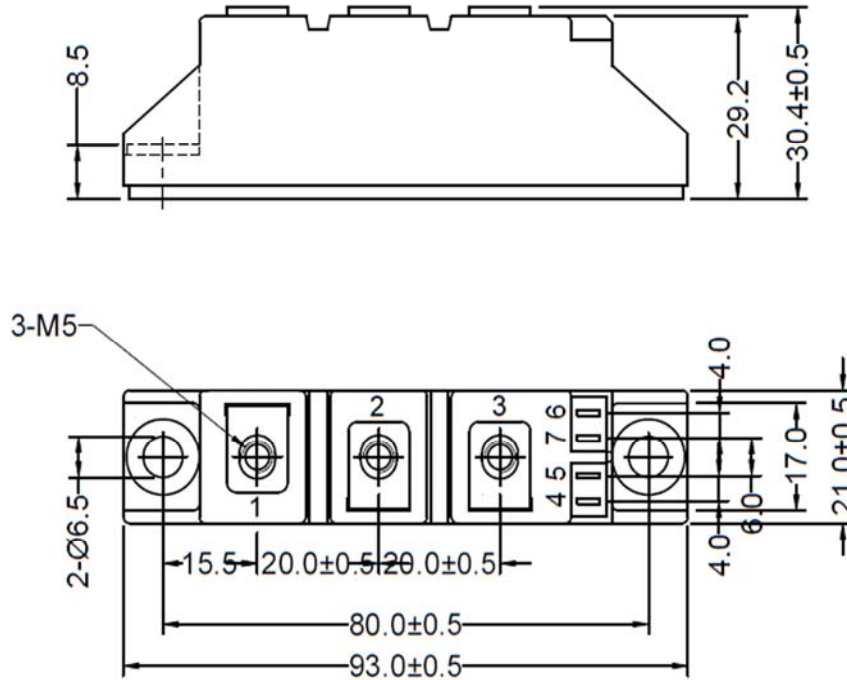


Figure 6. Gate Characteristics



Dimensions in (mm)
 Figure 7. Package Outline