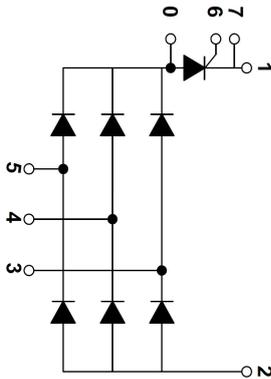


### PRODUCT FEATURES

- Isolated Module Package
- Isolation voltage 3000 V
- Three Phase Bridge and a Thyristor

### APPLICATIONS

- Current Stabilized Power Supply
- Switching Power Supply
- Inverter For AC or DC Motor Control



### ABSOLUTE MAXIMUM RATINGS (Thyristor)

$T_C=25^{\circ}\text{C}$  unless otherwise specified

Symbol	Parameter/Test Conditions		Values	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage		1600	V
$V_{DRM}$	Repetitive Peak Off-State Voltage		1600	
$V_{RSM}$	Non-Repetitive Peak Reverse Voltage		1700	
$I_{T(AV)}$	Average On State Current	Single phase, half wave, 180°conduction, $T_c=85^{\circ}\text{C}$	100	A
$I_{T(RMS)}$	R.M.S. On State Current		157	
$I_{TSM}$	Non-Repetitive Surge On-State Current	1/2 cycle, 50/60HZ, peak value, $T_c =45^{\circ}\text{C}$	2000/2200	
$i^2t$	For Fusing	1/2 cycle, 50/60HZ, peak value, $T_c =45^{\circ}\text{C}$	20/20	KA <sup>2</sup> S
$T_J$	Junction Temperature(Thyristor)		-40 to +125	°C

### ABSOLUTE MAXIMUM RATINGS (Three Phase Diode)

Symbol	Parameter/Test Conditions		Values	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage		1600	V
$V_{RSM}$	Non-Repetitive Peak Reverse Voltage		1700	
$I_D$	Output Current(D.C.)	Three phase, half wave, $T_c= 95^{\circ}\text{C}$	100	A
$I_{FSM}$	Non-Repetitive Surge Forward Current	1/2 cycle, 50/60HZ, peak value, $T_c =45^{\circ}\text{C}$	1260/1380	
$i^2t$	For Fusing	1/2 cycle, 50/60HZ, peak value, $T_c =45^{\circ}\text{C}$	7.9/7.9	KA <sup>2</sup> S
$T_J$	Junction Temperature(Diode)		-40 to +150	°C

**MacMic Science & Technology Co., Ltd.**

Add: #18, Hua Shan Zhong Lu, New District, Changzhou City, Jiangsu Province, P. R .of China  
 Tel.: +86-519-85163708 Fax: +86-519-85162291 Post Code: 213022 Website: www.macmicst.com

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

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
$I_{DRM}$	Maximum Peak Off-State Current	$V_D = V_{DRM}, T_J = 125^\circ\text{C}$			25	mA
$I_{RRM}$	Maximum Peak Reverse Current	$V_R = V_{RRM}, T_J = 125^\circ\text{C}$			25	
$V_{TM}$	Maximum on-state voltage drop	$I_{TM}=315\text{A}, t_d=10\text{ ms, half sine}$			1.65	V
$V_{TO}$	For power-loss calculations only	$T_J = 125^\circ\text{C}$			0.85	V
$r_T$					2.6	m $\Omega$
$V_{GT}$	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,	$V_D = V_{DRM}, T_J = 125^\circ\text{C}$			0.25	V
$I_{GD}$	Max. required DC gate current not to trigger,	$V_D = V_{DRM}, T_J = 125^\circ\text{C}$			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
$P_{G(AV)}$	Maximum average gate power				3.0	
$I_{GM}$	Maximum peak gate current				3.0	A
$-V_{GM}$	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/ $\mu\text{s}$
$di/dt$	Max. Rate of Rise of Turned-on Current, $T_J = 125^\circ\text{C}, I_{TM}=315\text{A}$ , rated $V_{DRM}$				150	A/ $\mu\text{s}$
$R_{th(J-C)}$	Junction-to-Case Thermal Resistance				0.25	K /W

**ELECTRICAL CHARACTERISTICS (Three Phase Diode)**

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
$I_{RM}$	Maximum Reverse Leakage Current	$V_R = V_{RRM}$			0.5	mA
		$V_R = V_{RRM}, T_J = 125^\circ\text{C}$			10	
$V_F$	Forward Voltage Drop	$I_F=100\text{A}$			1.35	V
$V_{TO}$	For power-loss calculations only, $T_J = 125^\circ\text{C}$				0.92	V
$r_T$					4	m $\Omega$
$R_{th(J-C)}$	Junction-to-Case Thermal Resistance	per diode			0.9	K /W
		per module			0.15	

## MODULE CHARACTERISTICS

$T_C=25^\circ\text{C}$  unless otherwise specified

$T_J$	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	to heatsink	Recommended (M6)	3~5	Nm
	to terminal	Recommended (M5)	2.5~5	Nm
Weight			215	g

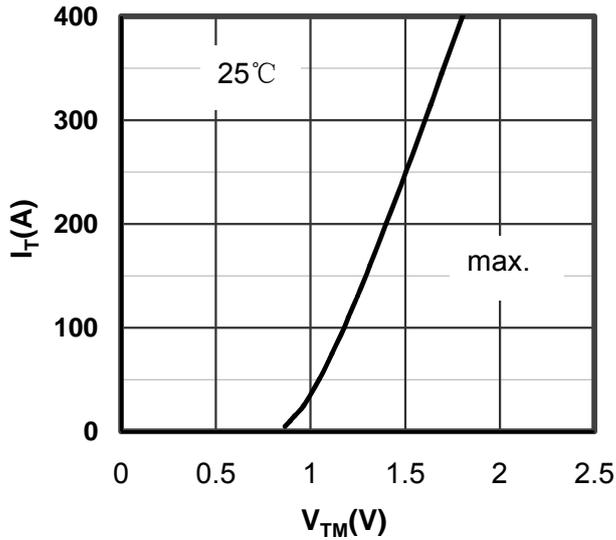


Figure1. Forward Voltage Drop vs Forward Current

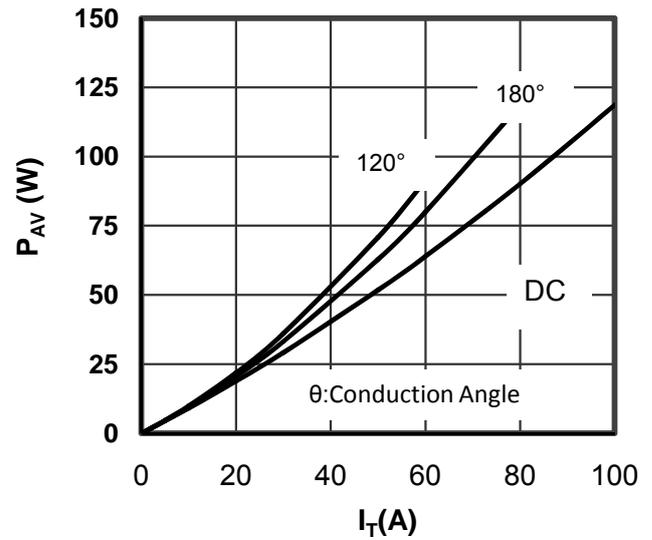


Figure2. Power dissipation vs.  $I_T$

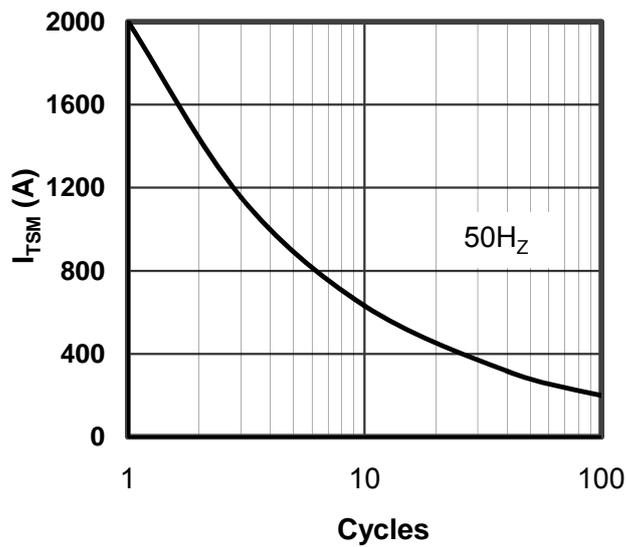


Figure3. SCR Max Non-Repetitive Surge Current

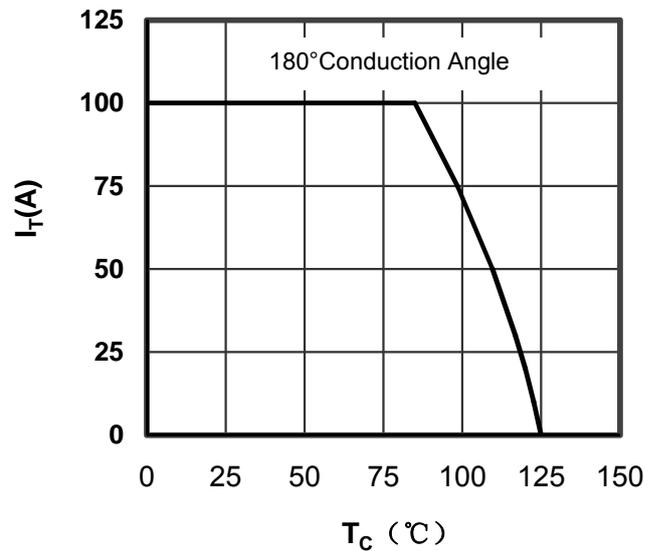


Figure4. SCR  $I_{T(AV)}$  vs.  $T_C$

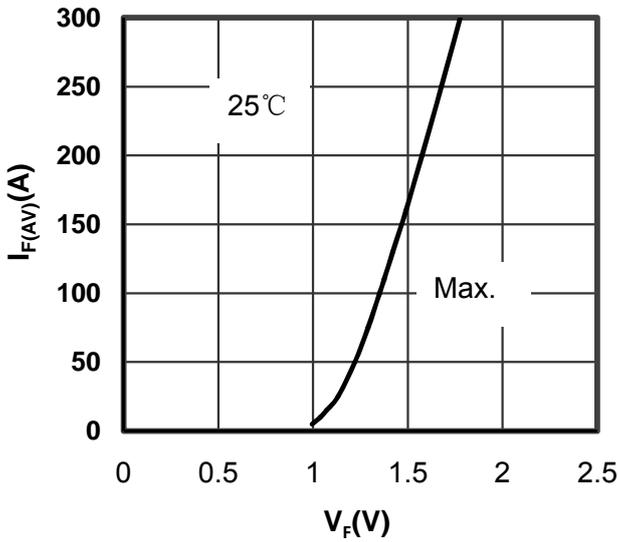


Figure5. Forward Voltage Drop vs Forward Current

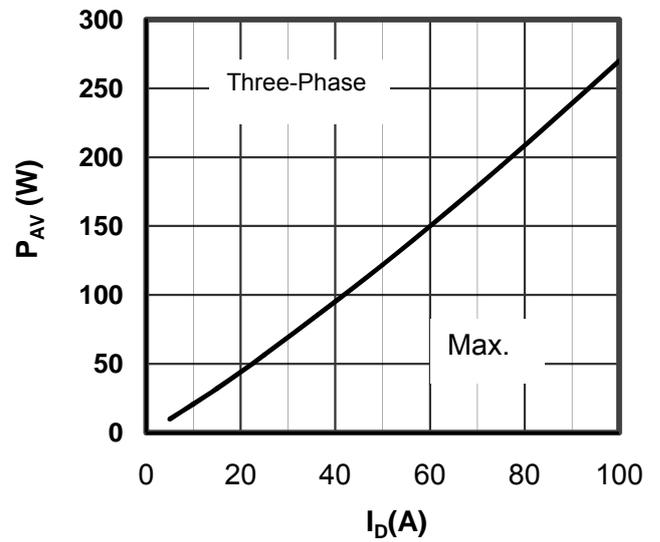


Figure6. Power dissipation vs.  $I_D$

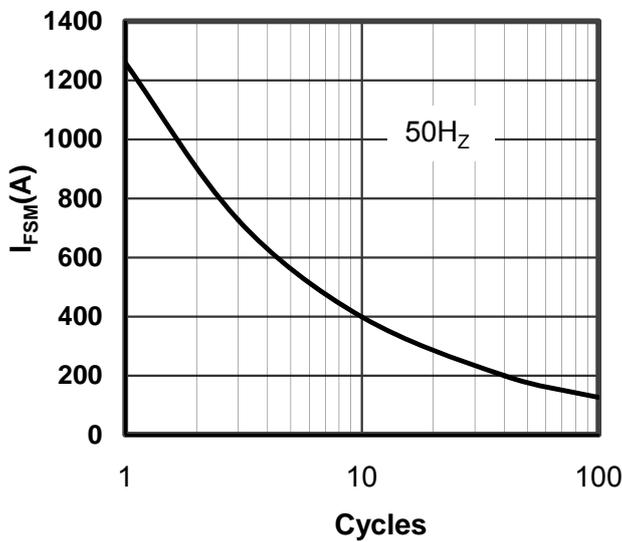


Figure7. Diode Max Non-Repetitive Surge Current

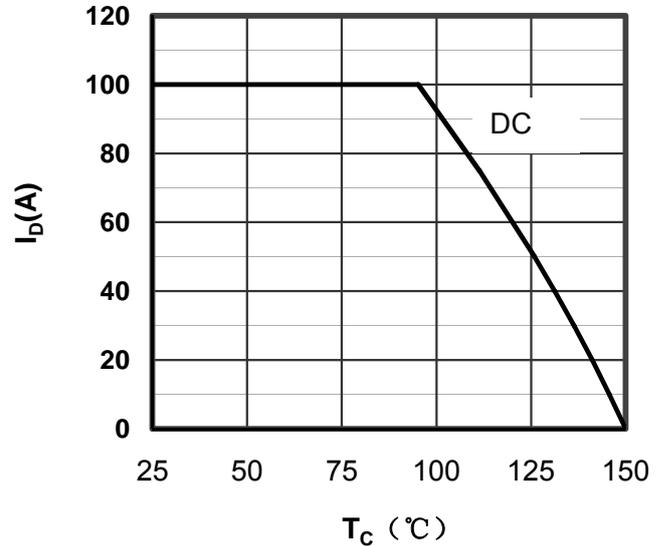


Figure8. Output current vs. Case temperature

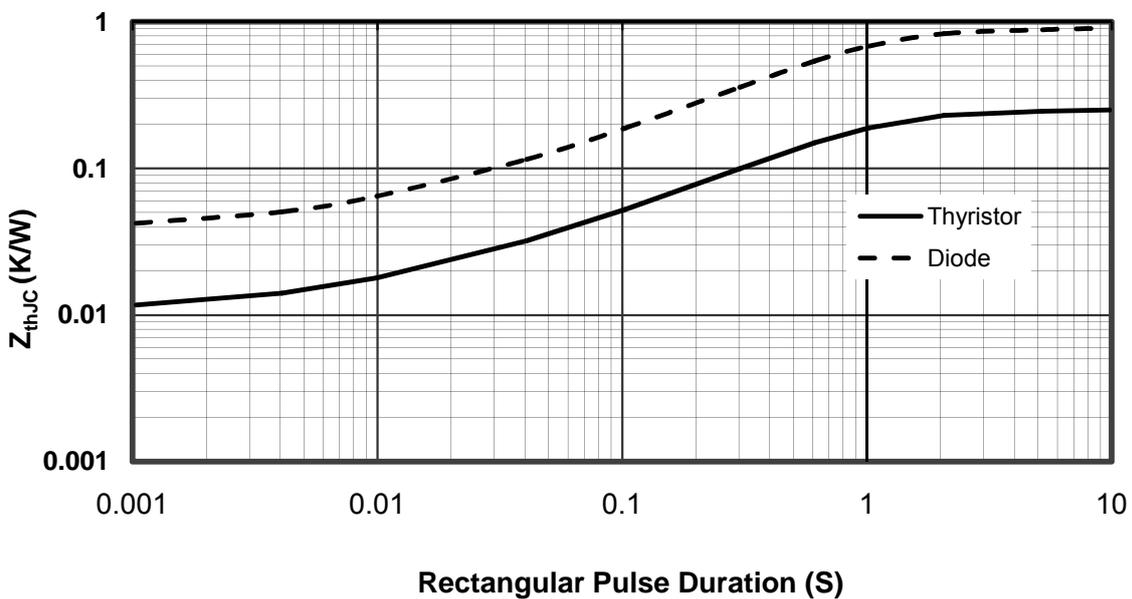


Figure9. Transient Thermal Impedance of Per Diode and SCR

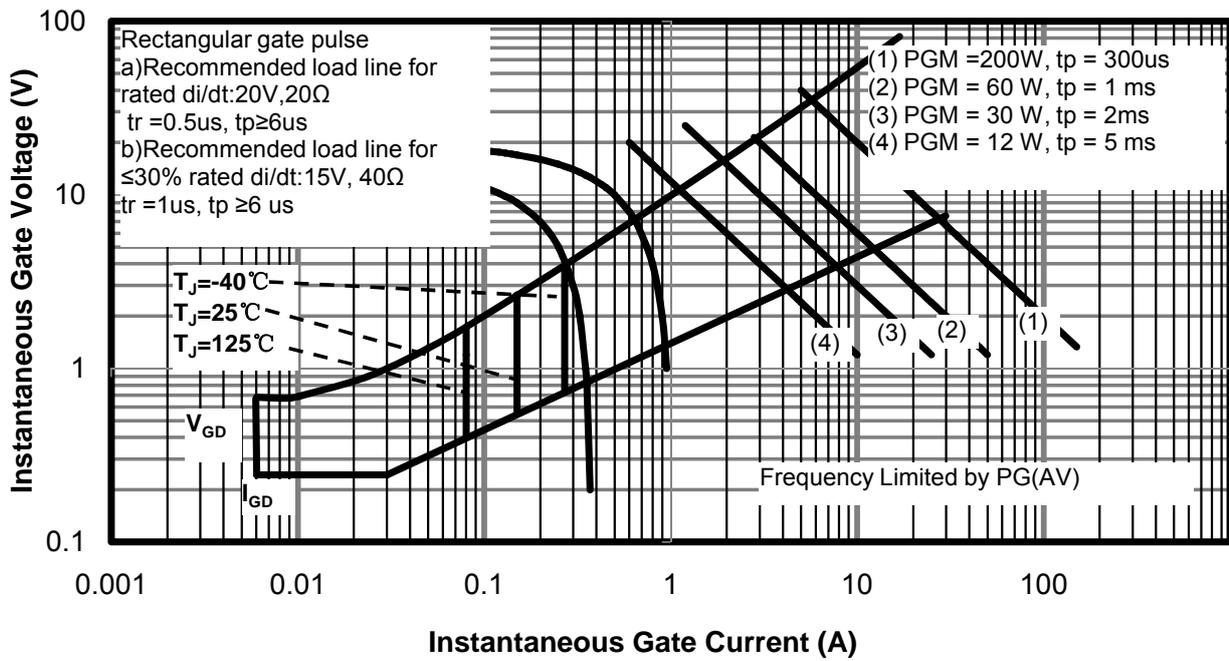
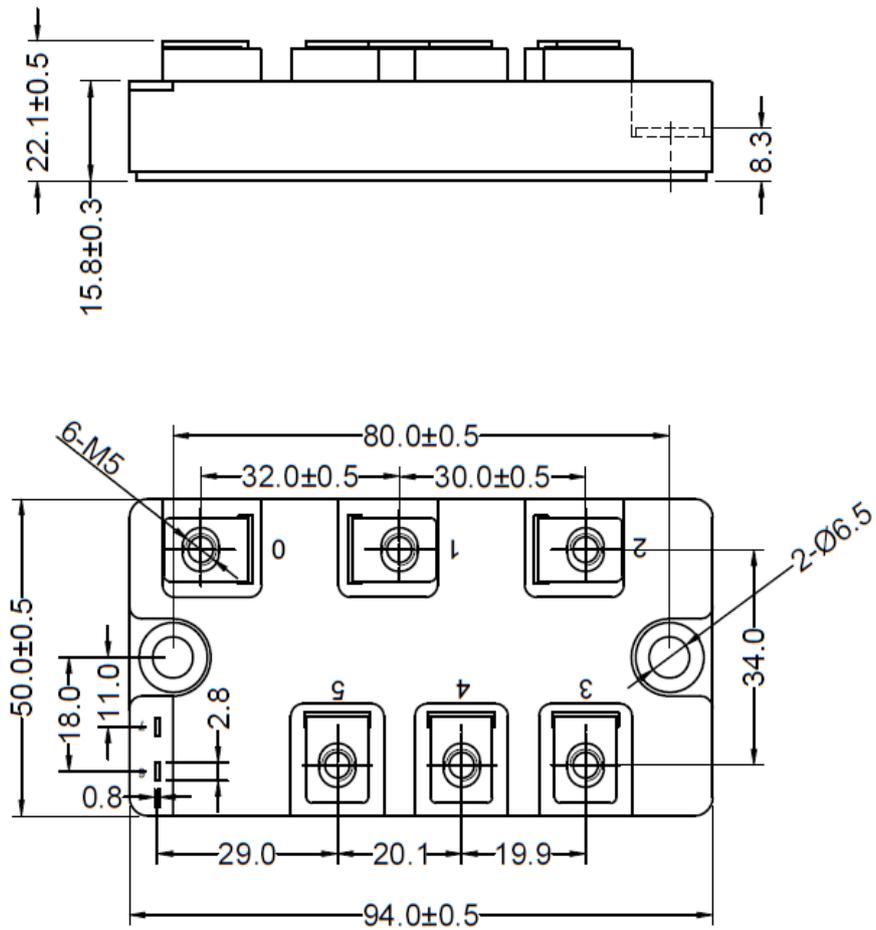


Figure 10. SCR Gate Characteristics



Dimensions in (mm)  
 Figure 11. Package Outline