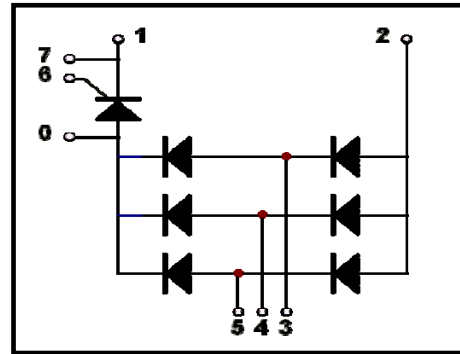


## Features

- 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



## ■ Diode

### ABSOLUTE MAXIMUM RATINGS

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

Symbol	Parameter	Test Conditions	Max.	Unit
$V_{RRM}$	Repetitive Reverse Voltage		1600	V
$I_{D(AV)}$	Average Forward Current	$T_C=90^{\circ}\text{C}$ , module	75	A
$I_{FSM}$	Non-Repetitive Surge Forward Current	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine	1050	A
		$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine	1150	A
$I^2t$	$I^2t$ (For Fusing)	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine	5.5	$\text{kA}^2\text{s}$
		$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine	5.4	$\text{kA}^2\text{s}$
$T_J$	Junction Temperature		-40 to +150	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature Range		-40 to +125	$^{\circ}\text{C}$
$V_{isol}$	Insulation Test Voltage	AC, 50Hz, $t=1\text{min}$	3000	V
Weight			215	g

### ELECTRICAL AND THERMAL CHARACTERISTICS

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{RM}$	Reverse Leakage Current	$V_R=1600\text{V}$	--	--	500	$\mu\text{A}$
		$V_R=1600\text{V}$ , $T_J=125^{\circ}\text{C}$	--	--	5	mA
$V_F$	Forward Voltage	$I_F=75\text{A}$	--	1.05	--	V
		$I_F=75\text{A}$ , $T_J=125^{\circ}\text{C}$	--	1.0	--	V
$R_{\theta JC}$	Thermal Resistance Junction-to-Case	per diode	--	--	0.9	$^{\circ}\text{C}/\text{W}$
		per module	--	--	0.15	$^{\circ}\text{C}/\text{W}$
$R_{\theta CS}$	Thermal Resistance Case -to-Sink	per diode	--	--	0.48	$^{\circ}\text{C}/\text{W}$
		per module	--	--	0.08	$^{\circ}\text{C}/\text{W}$

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](http://www.macmicst.com)

## ■ Thyristor

### ABSOLUTE MAXIMUM RATINGS

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

Symbol	Test Condition	Value	Unit
$V_{RRM}$		1600	V
$I_{T(AV)}$	$T_C=90^{\circ}\text{C}$ , 180° conduction, half sine wave;	75	A
$I_{TSM}$	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ (50Hz), sine, $V_R=V_{RRM}$ ;	1200	A
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$ ;	1300	
$I^2t$	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ (50Hz), sine, $V_R=V_{RRM}$ ;	7.2	$\text{kA}^2\text{s}$
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$ ;	7.0	
$dV/dt$	$T_J=125^{\circ}\text{C}$ , exponential to 67% rated $V_{DRM}$	1000	V/us
$dI/dt$	$T_J=125^{\circ}\text{C}$ , $I_{TM}=200\text{A}$ , rated $V_{DRM}$	150	A/us
$V_{ISOL}$	50Hz, all terminals shorted, $t=1\text{s}$ , $I_{ISOL}\leq 1\text{mA}$ ;	3000	V~
$T_J$	Max. junction operating temperature range	-40~125	$^{\circ}\text{C}$
$T_{STG}$	Max. storage temperature range	-40~125	$^{\circ}\text{C}$
	Mounting torque(M6)	3 to 5	N·m
	Terminal connection torque(M5)	2.5 to 5	N·m

### ELECTRICAL AND THERMAL CHARACTERISTICS

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

Symbol	Test Condition	Min.	Typ.	Max.	Unit
$I_{DRM}/I_{RRM}$	$T_J=125^{\circ}\text{C}$ , $V_D=V_R=1600\text{V}$ ;			20	mA
$V_{TM}$	$I_{TM}=235\text{A}$ , $t_d=10\text{ms}$ , half sine;		1.50		V
$V_{GT}$	$V_A=6\text{V}$ , $R_A=1\Omega$ , $T_J=-40^{\circ}\text{C}$ ;			4	V
	$V_A=6\text{V}$ , $R_A=1\Omega$ ;			2.5	
	$V_A=6\text{V}$ , $R_A=1\Omega$ , $T_J=125^{\circ}\text{C}$ ;			1.7	
$I_{GT}$	$V_A=6\text{V}$ , $R_A=1\Omega$ , $T_J=-40^{\circ}\text{C}$ ;			270	mA
	$V_A=6\text{V}$ , $R_A=1\Omega$ ;			150	
	$V_A=6\text{V}$ , $R_A=1\Omega$ , $T_J=125^{\circ}\text{C}$ ;			80	
$P_{GM}$	$t_p\leq 5\text{ms}$ , $T_J=125^{\circ}\text{C}$ ;			12	W
$P_{GM(AV)}$	$f=50\text{Hz}$ , $T_J=125^{\circ}\text{C}$ ;			3	W
$R_{thjc}$	Thermal Resistance , Junction-to-Case			0.35	K/W
$R_{THCS}$	Thermal Resistance, Case -to-Sink			0.15	K/W

Characteristic curves

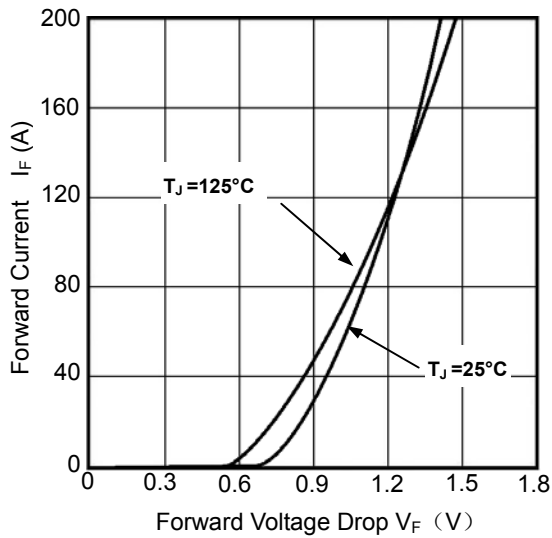


Figure 1. Diode Forward Voltage Drop vs Forward Current

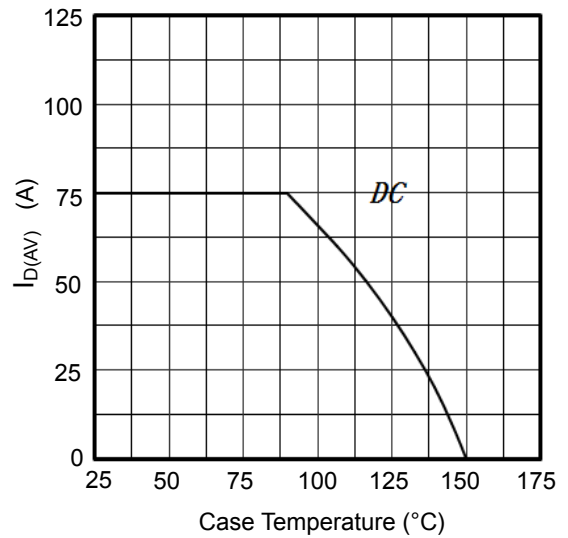


Figure 2. Diode  $I_{D(AV)}$  vs Case Temperature

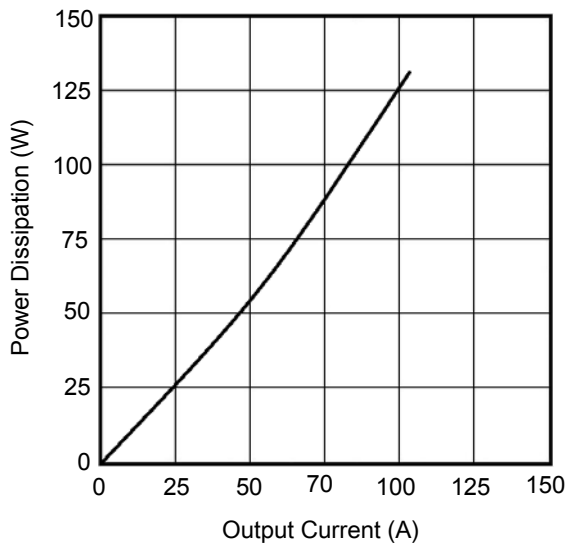


Figure 3. SCR Output Current vs Power Dissipation

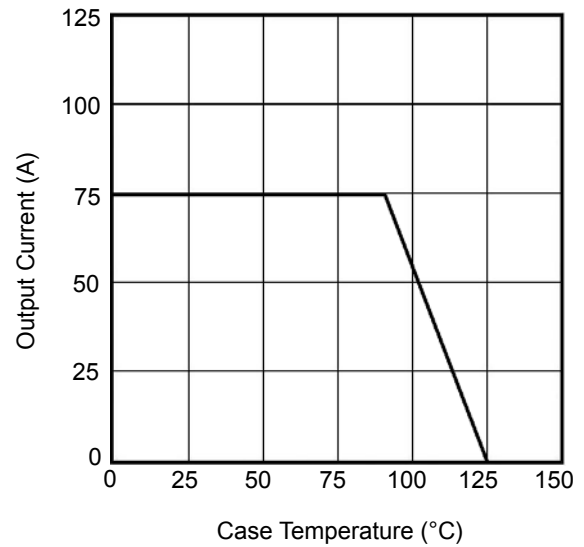


Figure 4. SCR Output Current vs Case Temperature

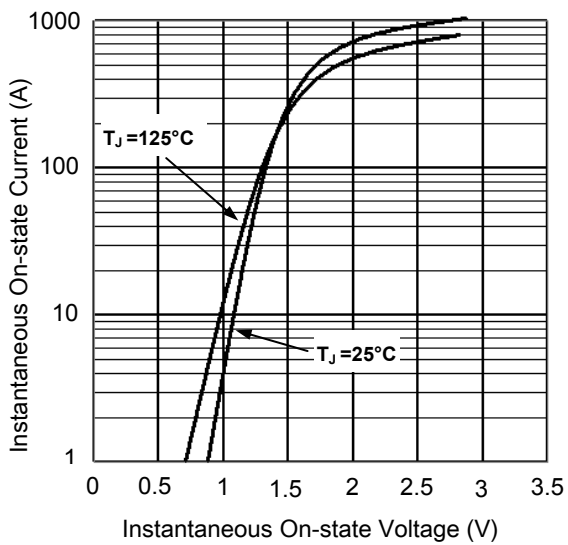


Figure 5. SCR On State Voltage Drop

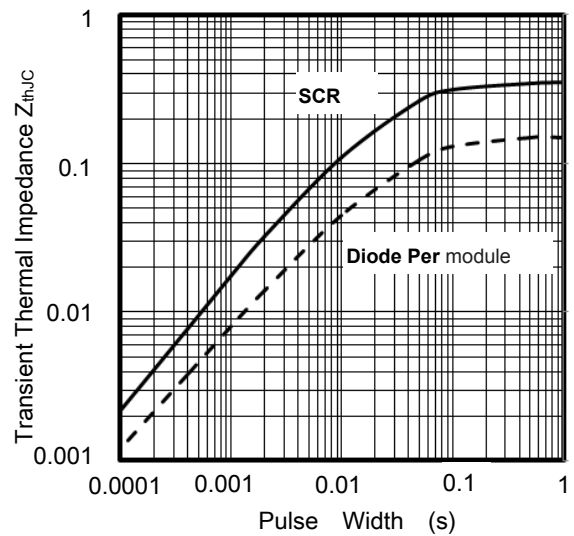


Figure 6. Diode and SCR Thermal Impedance  $Z_{thJC}$

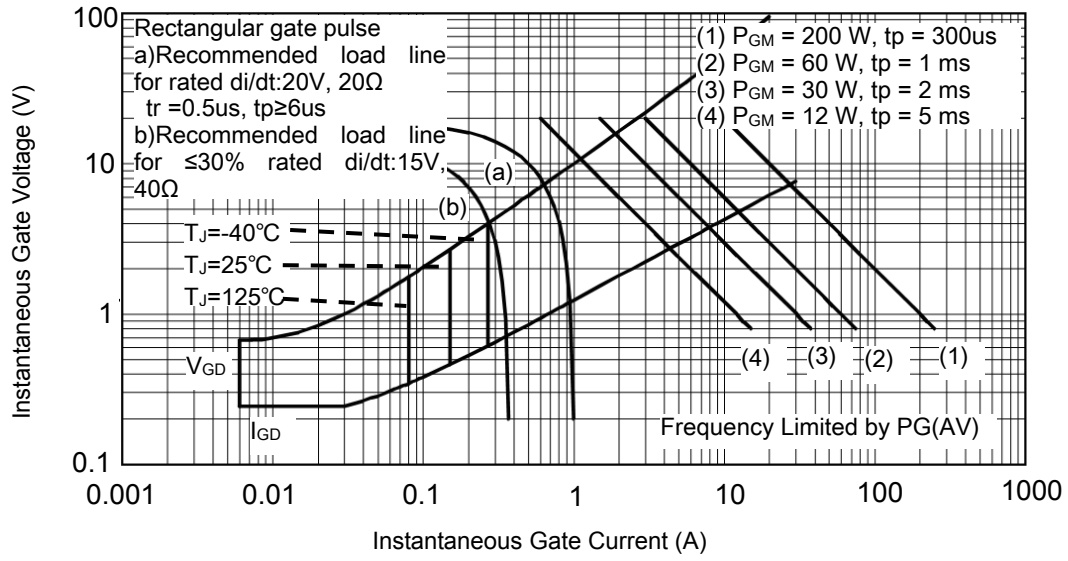


Figure 7. Gate Characteristics

Package Outline (Dimensions in mm)

