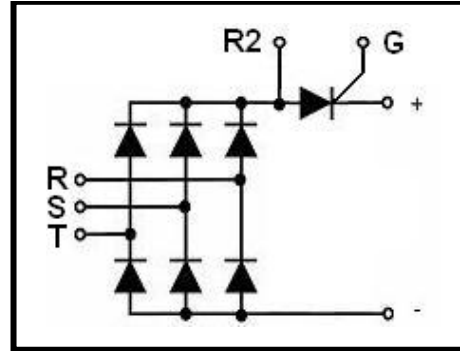


## Features

- 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<sub>C</sub>=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Max.	Unit
V <sub>RRM</sub>	Repetitive Reverse Voltage		1600	V
I <sub>D(AV)</sub>	Average Forward Current	T <sub>C</sub> =90°C, module	75	A
I <sub>FSM</sub>	Non-Repetitive Surge Forward Current	T <sub>J</sub> =45°C, t=10ms, 50Hz, Sine	1050	A
		T <sub>J</sub> =45°C, t=8.3ms, 60Hz, Sine	1150	A
I <sup>2</sup> t	I <sup>2</sup> t (For Fusing)	T <sub>J</sub> =45°C, t=10ms, 50Hz, Sine	5.5	kA <sup>2</sup> s
		T <sub>J</sub> =45°C, t=8.3ms, 60Hz, Sine	5.4	kA <sup>2</sup> s
T <sub>J</sub>	Junction Temperature		-40 to +150	°C
T <sub>STG</sub>	Storage Temperature Range		-40 to +125	°C
V <sub>isol</sub>	Insulation Test Voltage	AC, 50Hz, t=1min	3000	V
Weight			332	g

### ELECTRICAL AND THERMAL CHARACTERISTICS

T<sub>C</sub>=25°C unless otherwise specified

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>RM</sub>	Reverse Leakage Current	V <sub>R</sub> =1600V	--	--	500	μA
		V <sub>R</sub> =1600V, T <sub>J</sub> =125°C	--	--	5	mA
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =75A	--	1.05	--	V
		I <sub>F</sub> =75A, T <sub>J</sub> =125°C	--	1.0	--	V
R <sub>θJC</sub>	Thermal Resistance Junction-to-Case	per diode	--	--	0.9	°C/W
		per module	--	--	0.15	°C/W
R <sub>θCS</sub>	Thermal Resistance Case -to-Sink	per diode	--	--	0.48	°C/W
		per module	--	--	0.08	°C/W

## ■ 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, $V_R=V_{RRM}$ ;	1250	A
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$ ;	1350	
$i^2t$	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ (50Hz), sine, $V_R=V_{RRM}$ ;	7.8	$\text{kA}^2\text{s}$
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$ ;	7.5	
$dV/dt$	$T_J=125^{\circ}\text{C}$ , 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(M6)	3 to 5	N·m
	Terminal connection torque(M4)	1 to 2	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	
$I_{GT}$	$V_A=6\text{V}$ , $R_A=1\Omega$ , $T_J=-40^{\circ}\text{C}$ ;			200	mA
	$V_A=6\text{V}$ , $R_A=1\Omega$ ;			100	
	$V_A=6\text{V}$ , $R_A=1\Omega$ , $T_J=125^{\circ}\text{C}$ ;			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

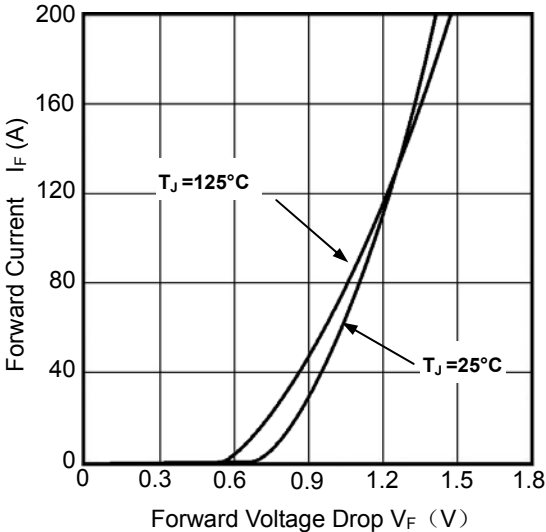


Figure 1. Diode Forward Voltage Drop vs Forward Current

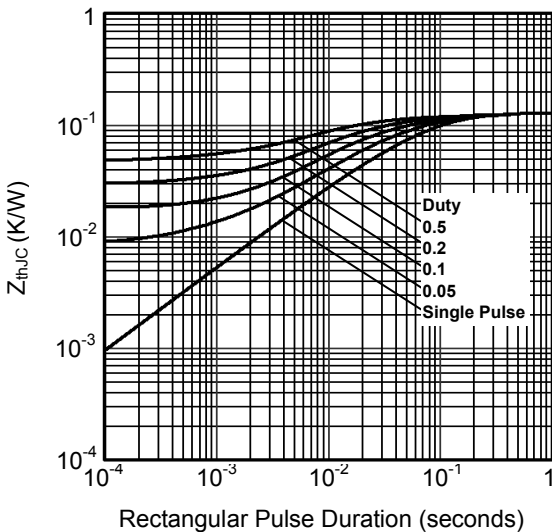


Figure 2. Diode Thermal Impedance  $Z_{thJC}$

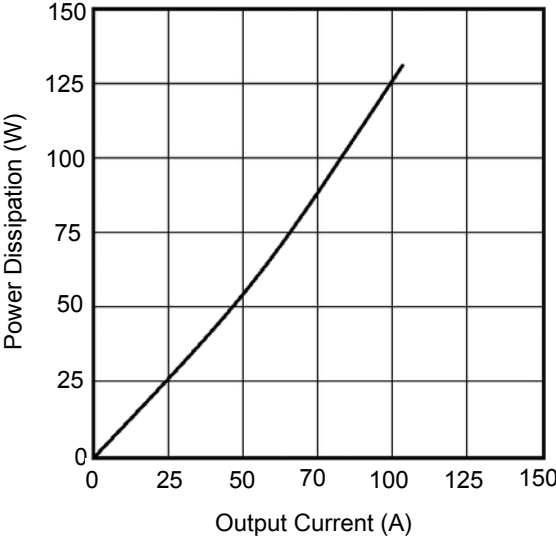


Figure 3. SCR Output Current vs Power Dissipation

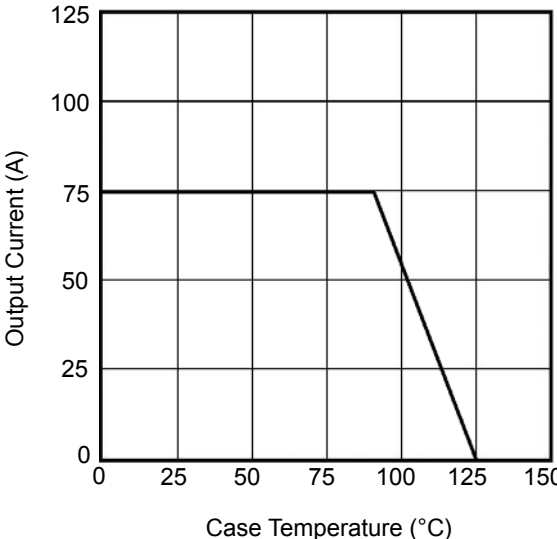


Figure 4. SCR Output Current vs Case Temperature

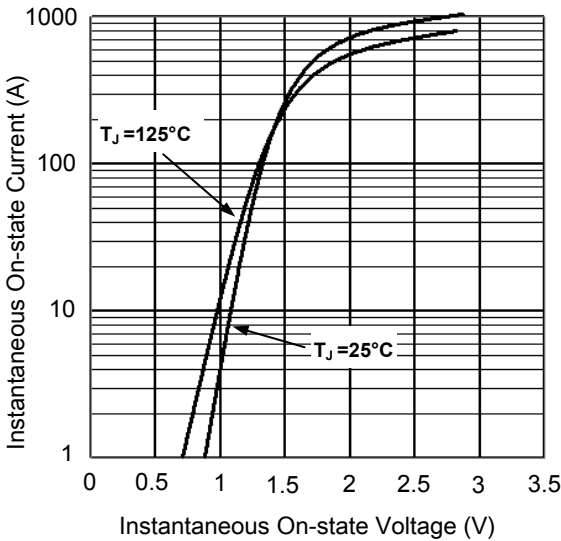


Figure 5. SCR On State Voltage Drop

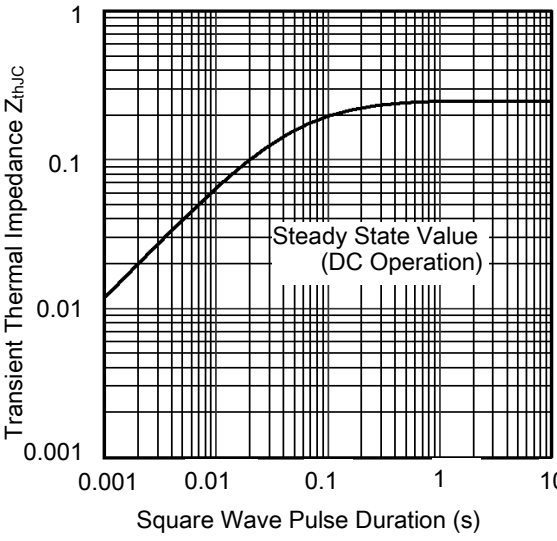


Figure 6. SCR Thermal Impedance  $Z_{thJC}$

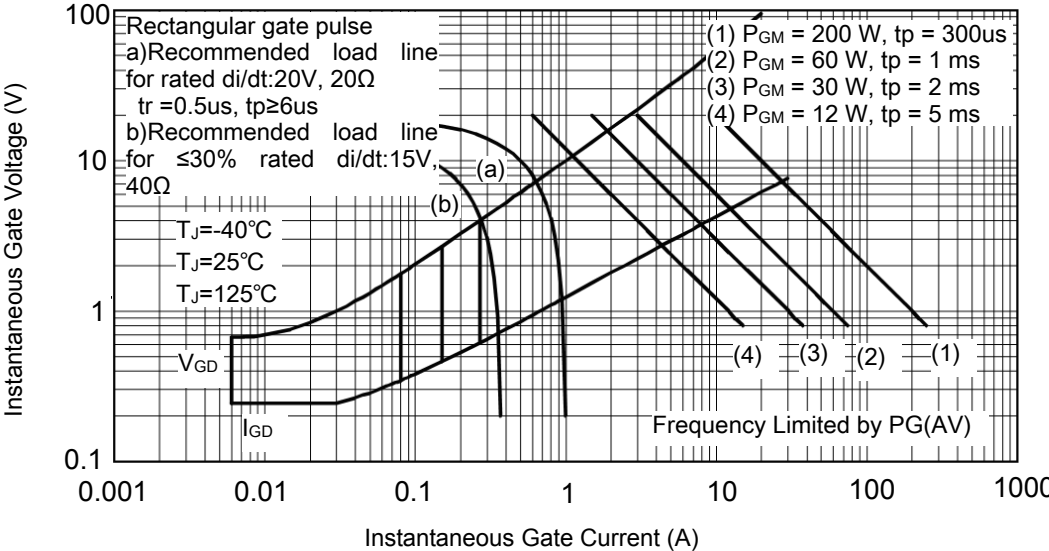


Figure 7. Gate Characteristics

Package Outline (Dimensions in mm)

