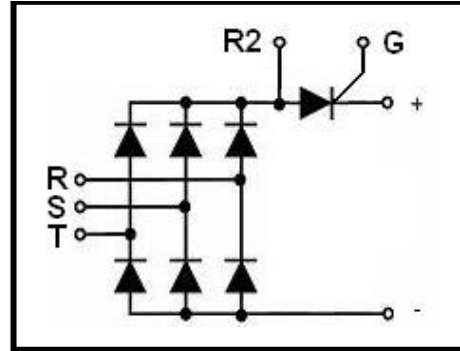


## Features

- 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	200	A
$I_{FSM}$	Non-Repetitive Surge Forward Current	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine	1850	A
		$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine	2000	A
$I^2t$	$I^2t$ (For Fusing)	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ , 50Hz, Sine	17100	$\text{A}^2\text{s}$
		$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ , 60Hz, Sine	20000	$\text{A}^2\text{s}$
$T_J$	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			332	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	$I_F=200\text{A}$	--	1.5	1.8	V
		$I_F=200\text{A}$ , $T_J=125^{\circ}\text{C}$	--	1.4	--	V
$R_{\theta JC}$	Thermal Resistance Junction-to-Case	per diode	--	--	0.72	$^{\circ}\text{C}/\text{W}$
		per module	--	--	0.12	$^{\circ}\text{C}/\text{W}$
$R_{\theta CS}$	Thermal Resistance Case -to-Sink	per diode	--	--	0.36	$^{\circ}\text{C}/\text{W}$
		per module	--	--	0.06	$^{\circ}\text{C}/\text{W}$

## ■ 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;	200	A
$I_{TSM}$	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ (50Hz), sine, $V_R=V_{RRM}$ ;	1850	A
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$ ;	2000	
$I^2t$	$T_J=45^{\circ}\text{C}$ , $t=10\text{ms}$ (50Hz), sine, $V_R=V_{RRM}$ ;	17100	$\text{A}^2\text{s}$
	$T_J=45^{\circ}\text{C}$ , $t=8.3\text{ms}$ (60Hz), sine, $V_R=V_{RRM}$ ;	20000	
$dV/dt$	$T_J=125^{\circ}\text{C}$ , exponential to 67% rated $V_{DRM}$	1000	V/us
$dI/dt$	$T_J=125^{\circ}\text{C}$ , $I_{TM}=500\text{A}$ , rated $V_{DRM}$	200	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
$I_{DRM}/I_{RRM}$	$T_J=125^{\circ}\text{C}$ , $V_D=V_R=1600\text{V}$ ;			50	mA
$V_{TM}$	$I_{TM}=628\text{A}$ , $t_d=10\text{ms}$ , half sine;		1.54		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			0.15	K/W
$R_{THCS}$	Thermal Resistance, Case -to-Sink			0.07	K/W

Characteristic curves

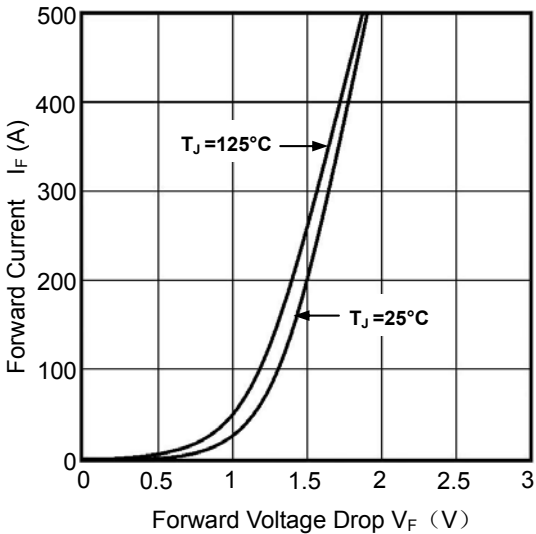


Figure 1. Diode Forward Voltage Drop vs Forward Current

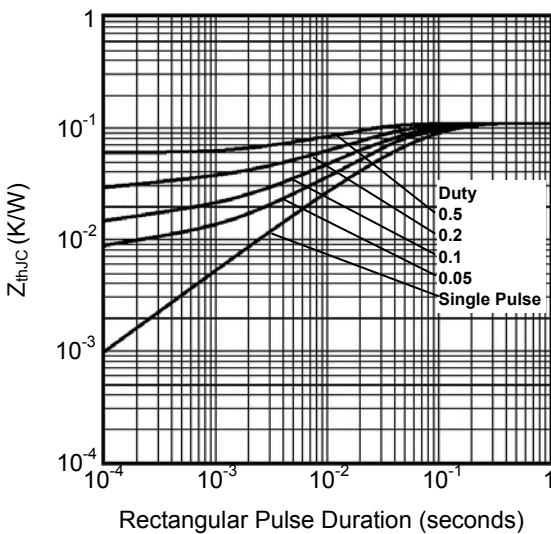


Figure 2. Diode Thermal Impedance  $Z_{thJC}$

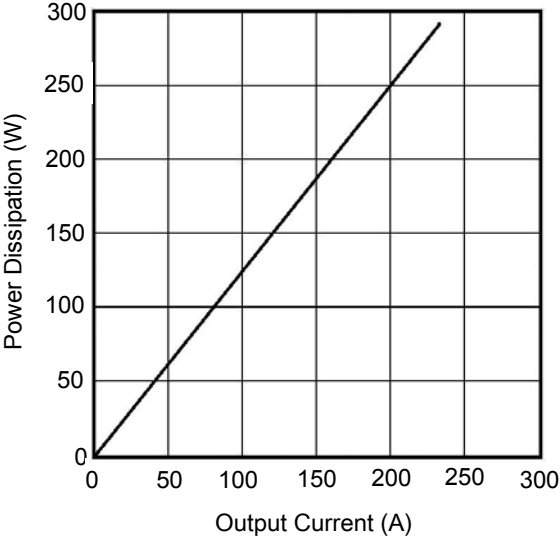


Figure 3. SCR Output Current vs Power Dissipation

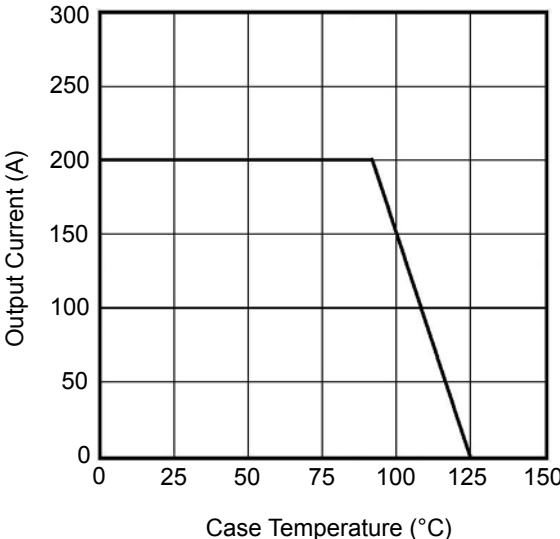


Figure 4. SCR Output Current vs Case Temperature

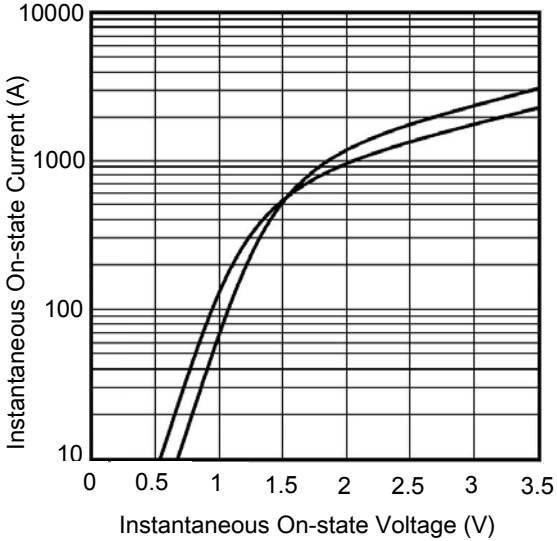


Figure 5. SCR On State Voltage Drop

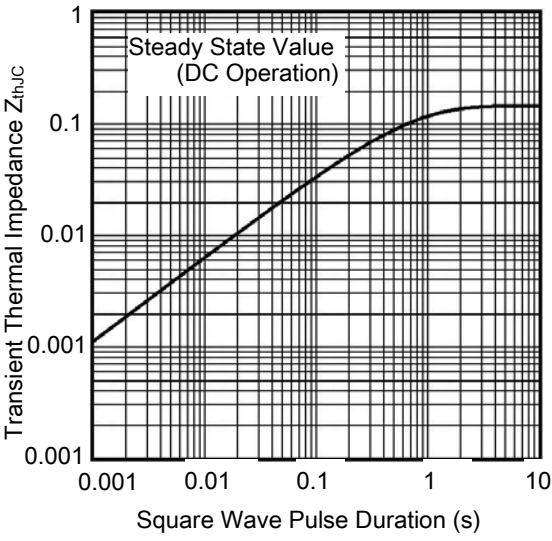


Figure 6. SCR Thermal Impedance  $Z_{thJC}$

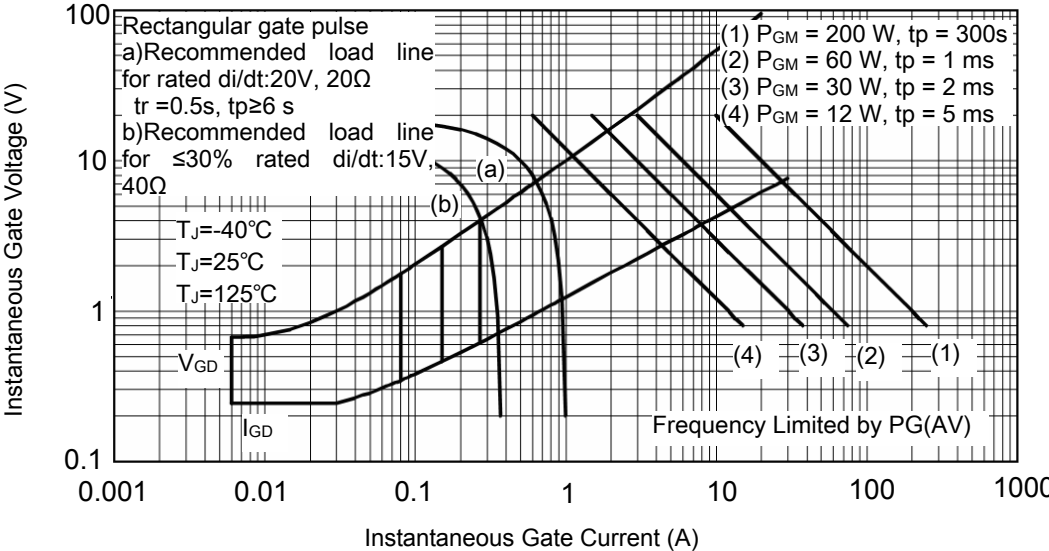


Figure 7. Gate Characteristics

Package Outline (Dimensions in mm)

