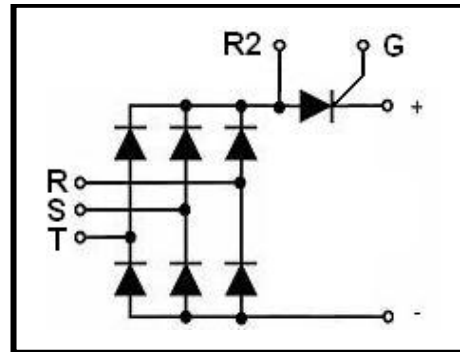
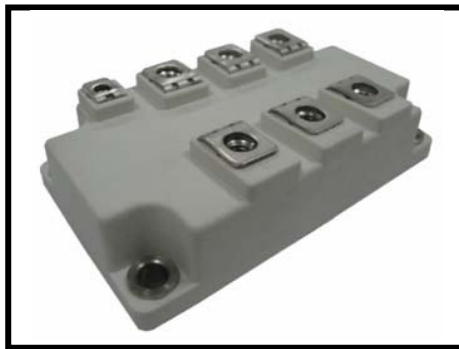


12012Features

- 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	100	A
I_{FSM}	Non-Repetitive Surge Forward Current	$T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine	1250	A
		$T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	1350	A
I^2t	I^2t (For Fusing)	$T_J=45^{\circ}\text{C}$, $t=10\text{ms}$, 50Hz, Sine	7812	A^2s
		$T_J=45^{\circ}\text{C}$, $t=8.3\text{ms}$, 60Hz, Sine	9112	A^2s
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	μA
		$V_R=1600\text{V}$, $T_J=125^{\circ}\text{C}$	--	--	5	mA
V_F	Forward Voltage	$I_F=100\text{A}$	--	1.15	--	V
		$I_F=100\text{A}$, $T_J=125^{\circ}\text{C}$	--	1.1	--	V
$R_{\theta JC}$	Thermal Resistance Junction-to-Case	per diode	--	--	0.84	$^{\circ}\text{C}/\text{W}$
		per module	--	--	0.14	$^{\circ}\text{C}/\text{W}$
$R_{\theta CS}$	Thermal Resistance Case -to-Sink	per diode	--	--	0.39	$^{\circ}\text{C}/\text{W}$
		per module	--	--	0.065	$^{\circ}\text{C}/\text{W}$

■ Thyristor

ABSOLUTE MAXIMUM RATINGS

T_C=25°C unless otherwise specified

Symbol	Test Condition	Value	Unit
V _{RRM}		1600	V
I _{T(AV)}	T _C =90 , 180° conduction, half sine wave;	100	A
I _{TSM}	T _J =45 , t=10ms (50Hz), sine, V _R =V _{RRM} ;	1550	A
	T _J =45 , t=8.3 ms (60Hz), sine, V _R = V _{RRM} ;	1650	
I ² t	T _J =45 , t=10ms (50Hz), sine, V _R =V _{RRM} ;	12012	A ² s
	T _J =45 , t=8.3 ms (60Hz), sine, V _R = V _{RRM} ;	13612	
dV/dt	T _J =125 , exponential to 67% rated V _{DRM}	1000	V/us
dI/dt	T _J =125 , I _{TM} =314A rated V _{DRM}	150	A/us
V _{ISOL}	50Hz, all terminals shorted, t=1s, I _{ISOL} ≤1mA ;	3000	V~
T _J	Max. junction operating temperature range	-40~125	
T _{STG}	Max. storage temperature range	-40~125	°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°C unless otherwise specified

Symbol	Test Condition	Min.	Typ.	Max.	Unit
I _{DRM} /I _{RRM}	T _J =125 , V _D =V _R =1600V;			20	mA
V _{TM}	I _{TM} =314A, t _d =10 ms, half sine;		1.54		V
V _{GT}	V _A =6V, R _A =1Ω, T _J =-40°C;			4	V
	V _A =6V, R _A =1Ω;			2.5	
	V _A =6V, R _A =1Ω, T _J =125°C;			1.7	
I _{GT}	V _A =6V, R _A =1Ω, T _J =-40°C;			200	mA
	V _A =6V, R _A =1Ω;			100	
	V _A =6V, R _A =1Ω, T _J =125°C;			80	
P _{GM}	tp≤5ms, T _J =125°C;			12	W
P _{GM(AV)}	f=50Hz, T _J =125°C;			3	W
R _{thjc}	Thermal Resistance , Junction-to-Case			0.24	K/W
R _{THCS}	Thermal Resistance, Case -to-Sink			0.06	K/W

Characteristic curves

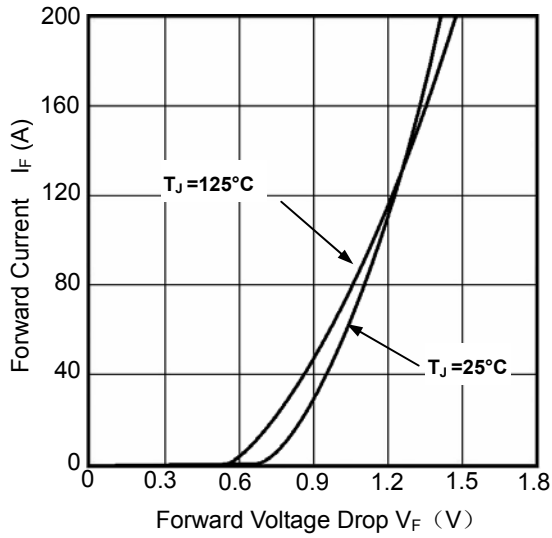


Figure 1. Diode Forward Voltage Drop vs Forward Current

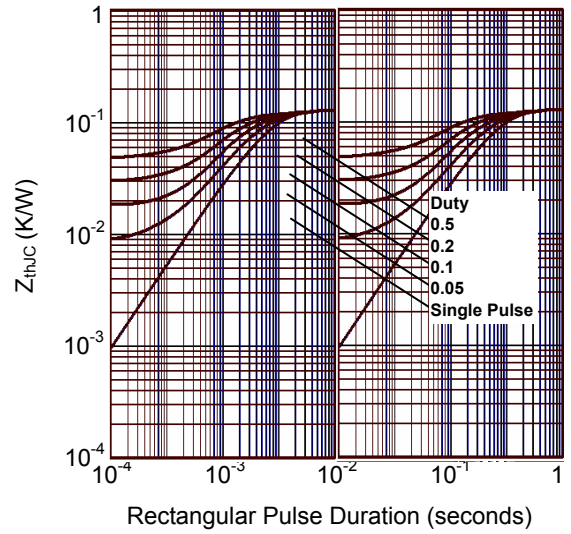


Figure 2. Diode Thermal Impedance Z_{thJC}

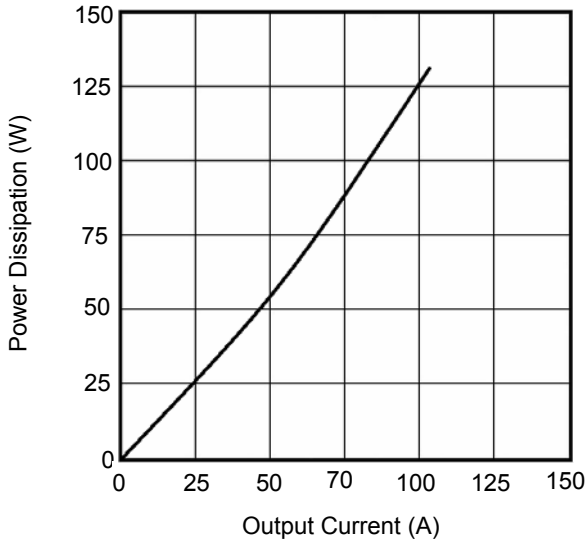


Figure 3. SCR Output Current vs Power Dissipation

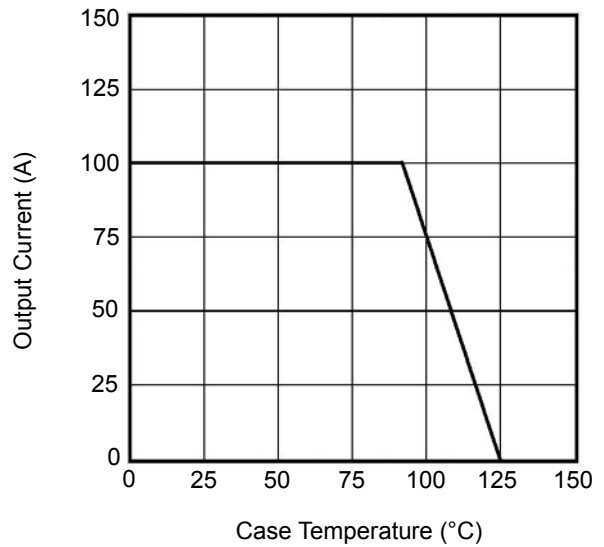


Figure 4. SCR Output Current vs Case Temperature

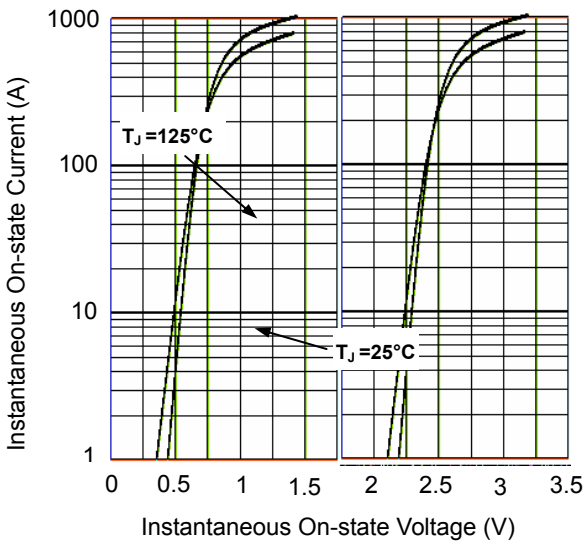


Figure 5. SCR On State Voltage Drop

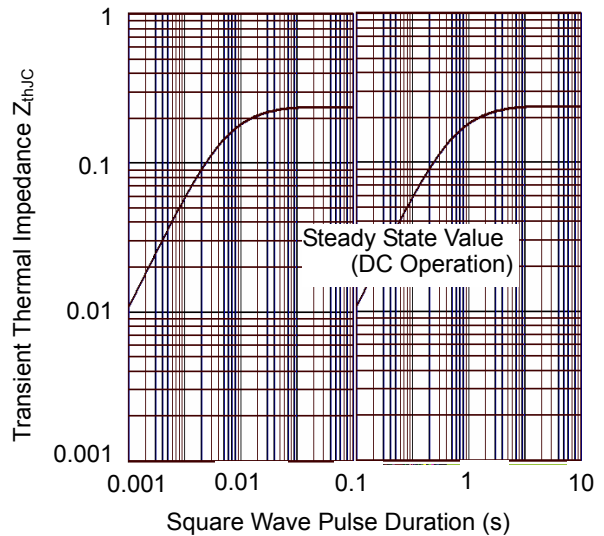


Figure 6. SCR Thermal Impedance Z_{thJC}

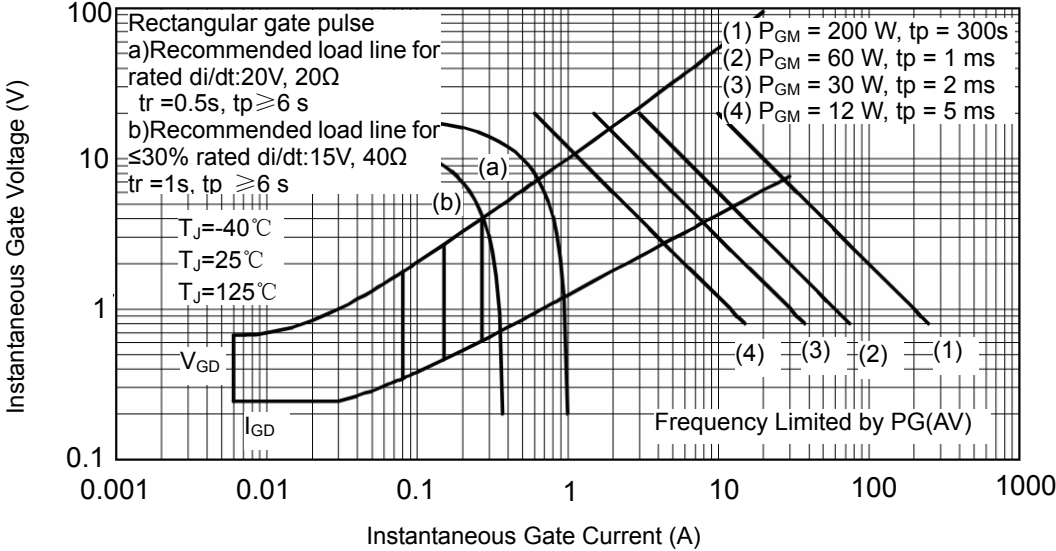


Figure 7. Gate Characteristics

Package Outline (Dimensions in mm)

