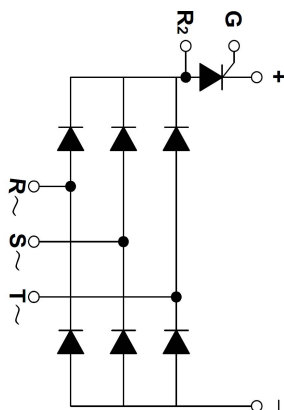


PRODUCT FEATURES

- 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, $T_C = 85^\circ\text{C}$	150	A
$I_{T(RMS)}$	R.M.S. On State Current		235	
I_{TSM}	Non-Repetitive Surge On-State Current	1/2 cycle, 50/60HZ, peak value, $T_C = 45^\circ\text{C}$	2500/2750	KA ² S
I^2t	For Fusing	1/2 cycle, 50/60HZ, peak value, $T_C = 45^\circ\text{C}$	31.2/31.3	
T_J	Junction Temperature(Thyristor)		-40 to +125	$^\circ\text{C}$

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, $T_C = 95^\circ\text{C}$	150	A
I_{FSM}	Non-Repetitive Surge Forward Current	1/2 cycle, 50/60HZ, peak value, $T_C = 45^\circ\text{C}$	1730/1900	
I^2t	For Fusing	1/2 cycle, 50/60HZ, peak value, $T_C = 45^\circ\text{C}$	14.9/14.9	KA ² S
T_J	Junction Temperature(Diode)		-40 to +150	$^\circ\text{C}$

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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	$V_D = V_{\text{DRM}}, T_J = 125^\circ\text{C}$			25	mA
I_{RRM}	Maximum Peak Reverse Current	$V_R = V_{\text{RRM}}, T_J = 125^\circ\text{C}$			25	
V_{TM}	Maximum on-state voltage drop	$I_{\text{TM}}=400\text{A}, t_d=10\text{ ms, half sine}$			1.65	V
V_{TO}	For power-loss calculations only	$T_J = 125^\circ\text{C}$			0.85	V
r_T					2.2	mΩ
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, $V_D = V_{\text{DRM}}, T_J = 125^\circ\text{C}$				0.25	V
I_{GD}	Max. required DC gate current not to trigger, $V_D = V_{\text{DRM}}, T_J = 125^\circ\text{C}$				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
$P_{\text{G(AV)}}$	Maximum average gate power				3.0	
I_{GM}	Maximum peak gate current				3.0	A
$-V_{\text{GM}}$	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/μs
di/dt	Max. Rate of Rise of Turned-on Current, $T_J = 125^\circ\text{C}, I_{\text{TM}}=400\text{A}$, rated V_{DRM}				150	A/μs
$R_{\text{th(J-C)}}$	Junction-to-Case Thermal Resistance				0.16	K /W

ELECTRICAL CHARACTERISTICS (Three Phase Diode)

Symbol	Parameter/Test Conditions		Min.	Typ.	Max.	Unit
I_{RM}	Maximum Reverse Leakage Current	$V_R = V_{\text{RRM}}$			0.5	mA
		$V_R = V_{\text{RRM}}, T_J = 125^\circ\text{C}$			10	
V_{F}	Forward Voltage Drop	$I_{\text{F}}=150\text{A}$			1.35	V
V_{TO}	For power-loss calculations only, $T_J = 125^\circ\text{C}$				0.9	V
r_T					3	mΩ
$R_{\text{th(J-C)}}$	Junction-to-Case Thermal Resistance	per diode			0.72	K /W
		per module			0.12	

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), $t=1\text{minute}$	3000	V
Torque	to heatsink	Recommended (M6)	3~5	Nm
	to terminal	Recommended (M6)	3~5	Nm
	to terminal	Recommended (M4)	1~2	Nm
Weight			350	g

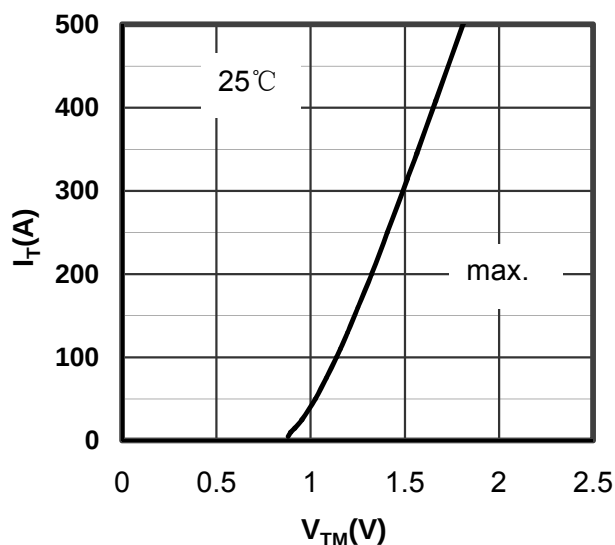


Figure1. Forward Voltage Drop vs Forward Current

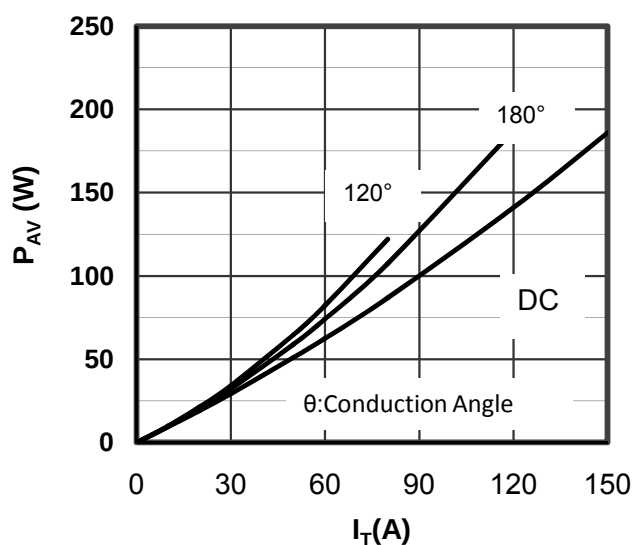


Figure2. Power dissipation vs. I_T

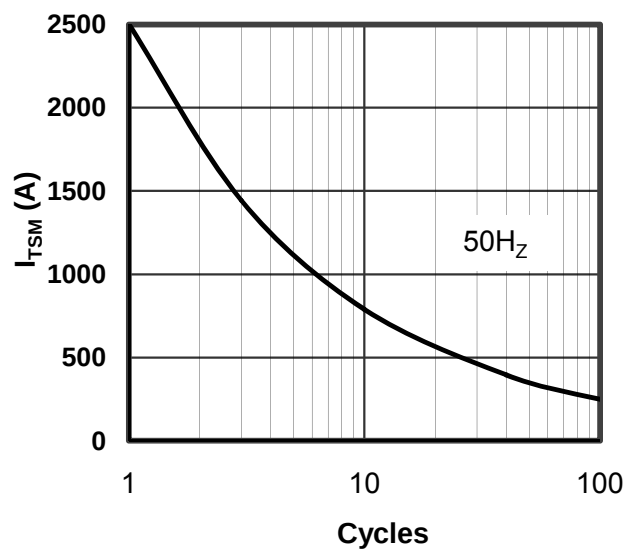


Figure3. SCR Max Non-Repetitive Surge Current

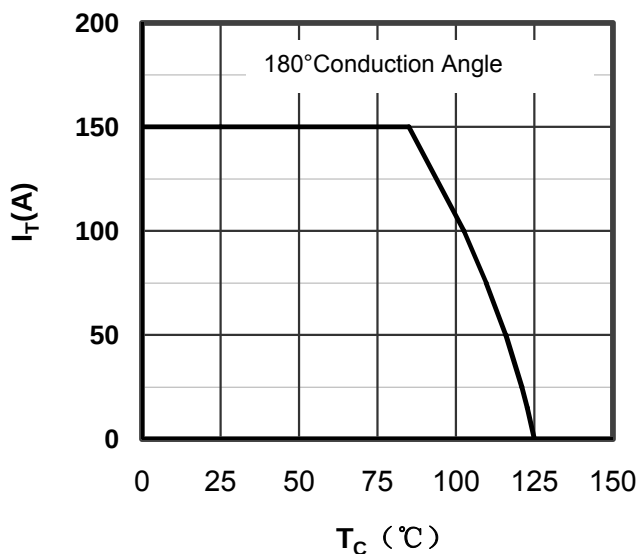


Figure4. SCR $I_{T(AV)}$ vs. T_C

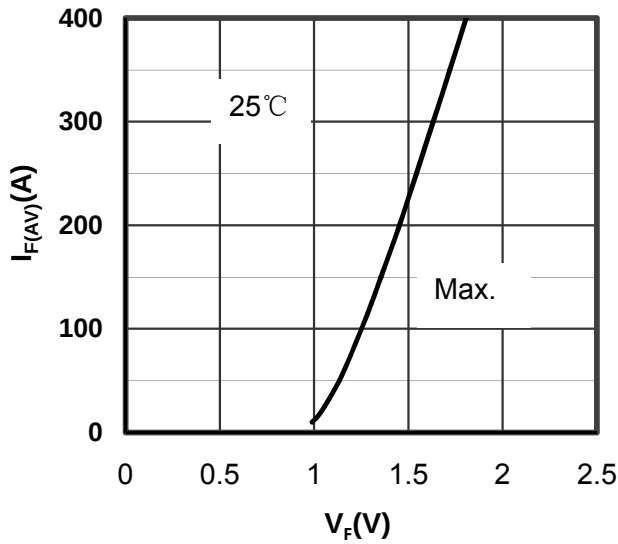


Figure5. Forward Voltage Drop vs Forward Current

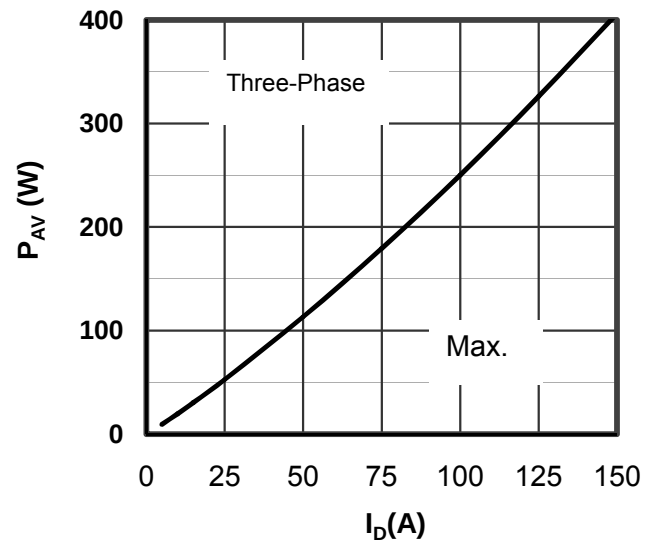


Figure6. Power dissipation vs. I_D

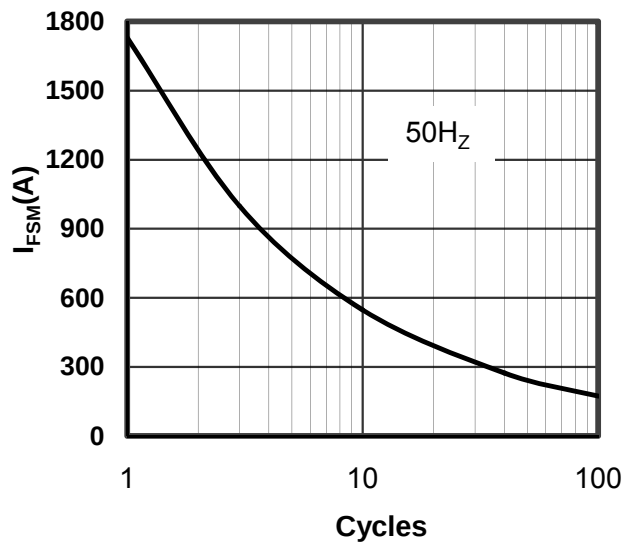


Figure7. Diode Max Non-Repetitive Surge Current

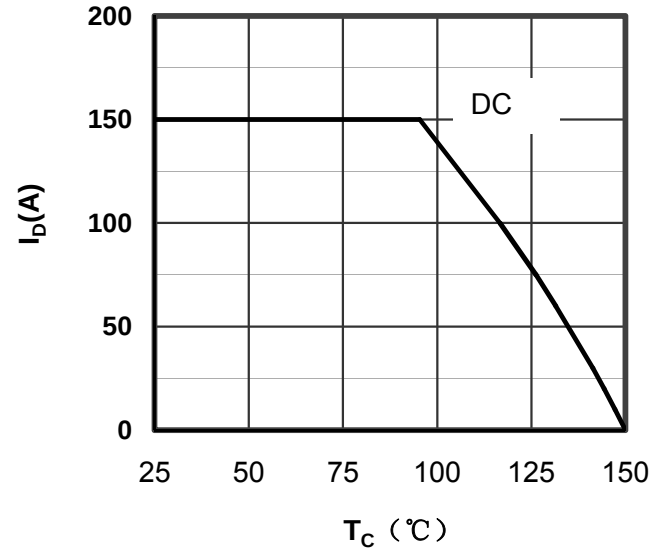


Figure8. Output current vs. Case temperature

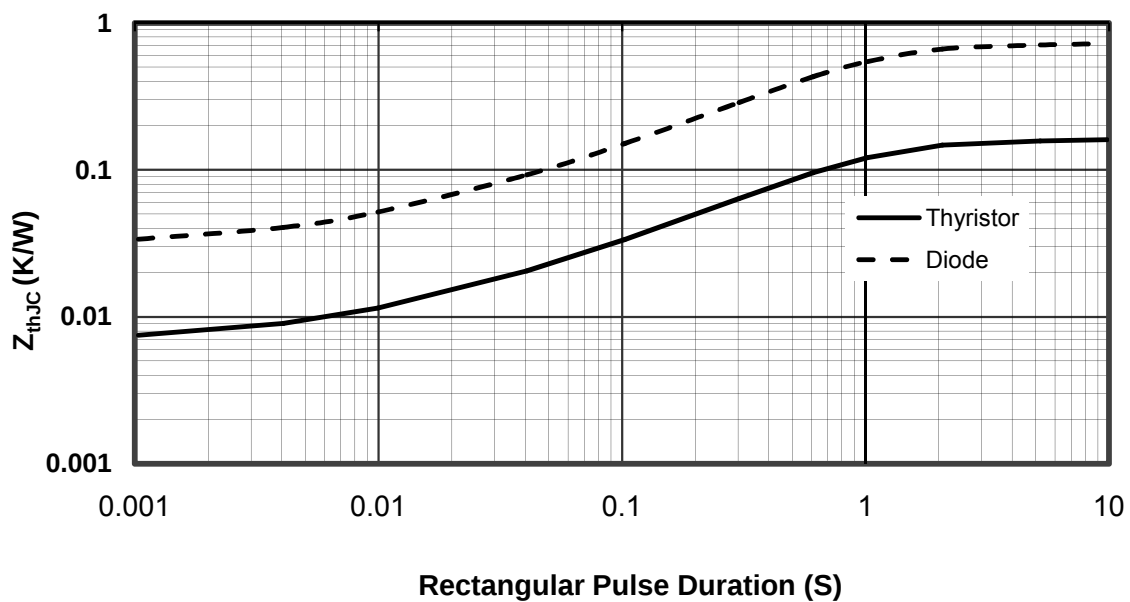


Figure9. Transient Thermal Impedance of Per Diode and SCR

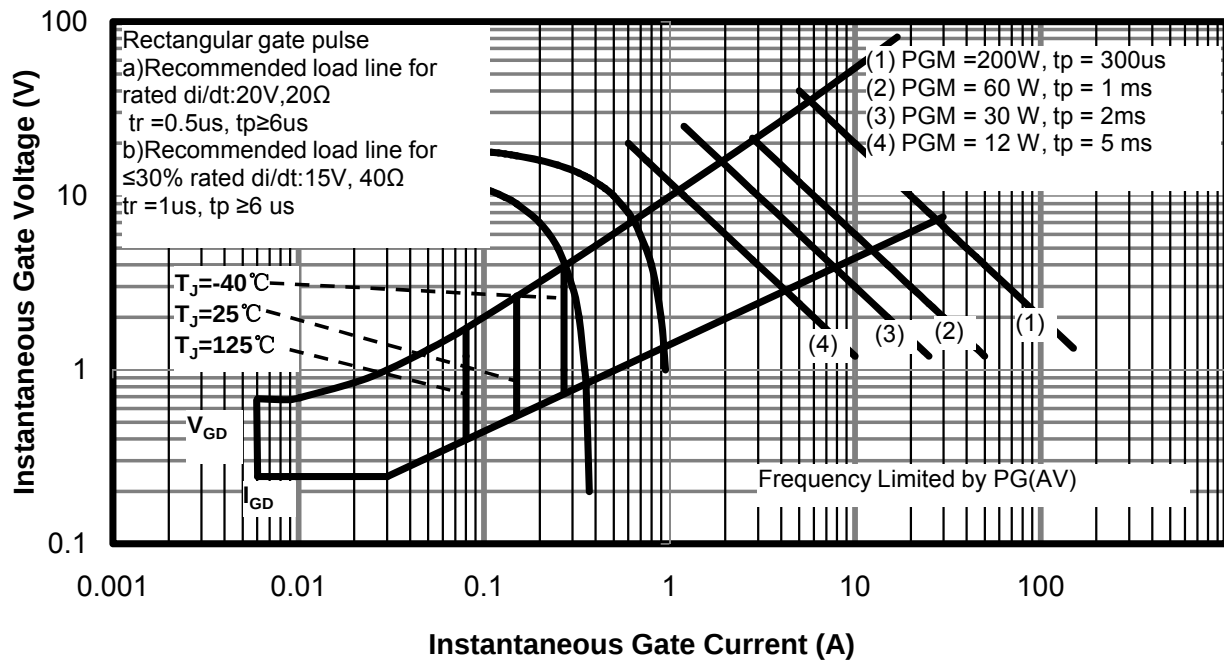
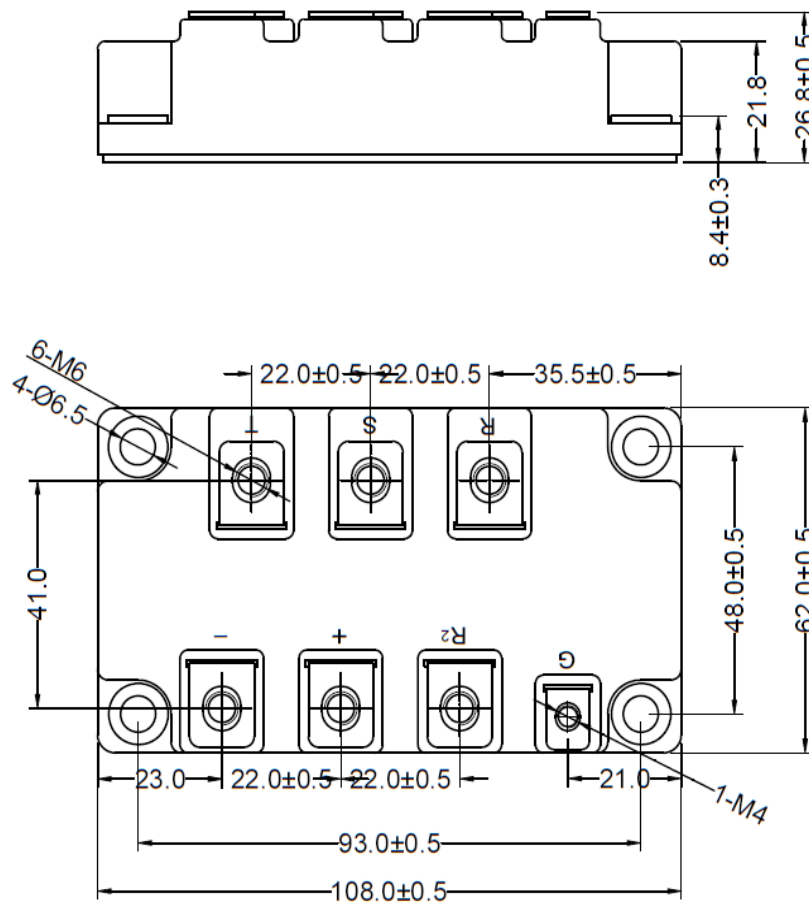


Figure 10. SCR Gate Characteristics



Dimensions in (mm)
Figure 11. Package Outline