

1200V SiC Diode Power Module



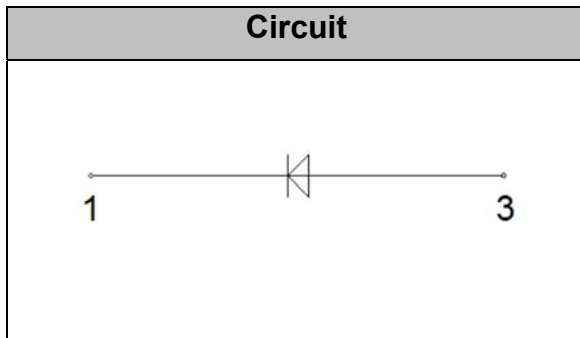
V_{DC}	1200V
I_F	480A
$T_{J,max}$	150°C

Applications

- Welding equipment
- Uninterruptible power supply (UPS)
- High frequency power supply
- Induction heating
- High speed rectifiers

Features

- SiC Schottky Diode
 - Zero reverse recovery
 - Zero forward recovery
 - Temperature independent switching behavior
 - Positive temperature coefficient on V_F
- Very low stray inductance
- Low forward voltage
- Isolated package (F2)
- Low noise switching
- RoHS compliant



Absolute Maximum Ratings ($T_J=25^\circ\text{C}$ unless otherwise specified, per leg)

Parameter	Symbol	Test Conditions	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	$T_J=25^\circ\text{C}$	1200	V
DC Blocking Voltage	V_{DC}	$T_J=25^\circ\text{C}$	1200	V
Continuous Forward Current	I_F	$T_C=25^\circ\text{C}, T_J=150^\circ\text{C}$	711	A
		$T_C=85^\circ\text{C}, T_J=150^\circ\text{C}$	480	
		$T_C=135^\circ\text{C}, T_J=150^\circ\text{C}$	175	
Non-Repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^\circ\text{C}, T_P=10\text{ms}, \text{Half Sine Wave}$	3300	A
I^2t Value	$\int I^2 dt$	$T_C=25^\circ\text{C}, T_P=10\text{ms}$	54450	A^2s
Power Dissipation	P_{Tot}	$T_C=25^\circ\text{C}$	1869	W
Junction Temperature	T_J		-40...150	$^\circ\text{C}$
Storage Temperature	T_{STG}		-40...125	$^\circ\text{C}$



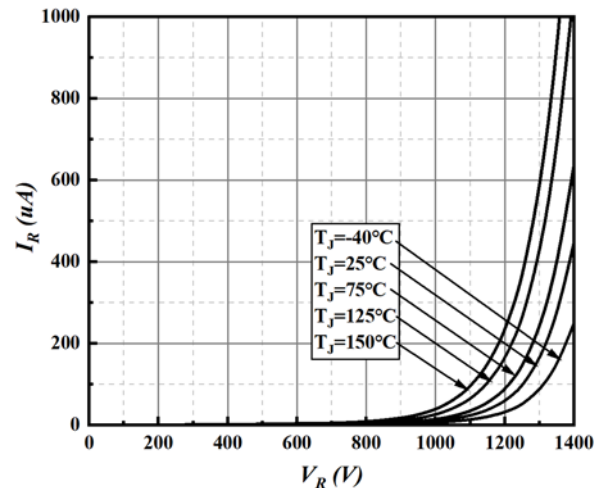
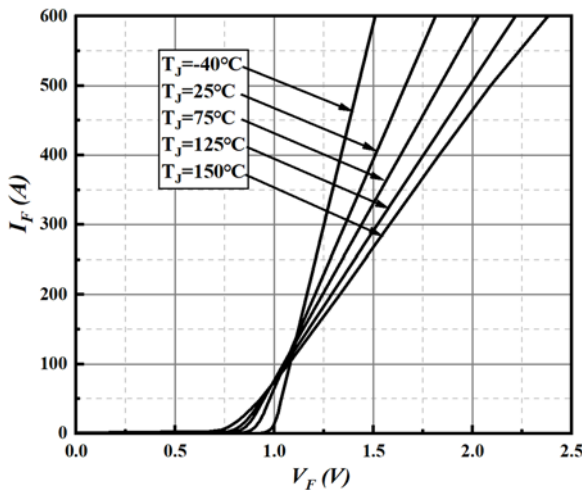
Electrical Characteristics ($T_J=25^\circ\text{C}$ unless otherwise specified, per leg)

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Reverse Current	I_R	$V_R=1200\text{V}, T_J=25^\circ\text{C}$	--	59	200	μA
		$V_R=1200\text{V}, T_J=150^\circ\text{C}$	--	233	--	
Forward Voltage	V_F	$I_F=480\text{A}, T_J=25^\circ\text{C}$	--	1.63	1.8	V
		$I_F=480\text{A}, T_J=150^\circ\text{C}$	--	2.04	--	
Total Capacitance	C	$V_R=0\text{V}, f=1\text{MHz}$	--	34.83	--	nF
		$V_R=400\text{V}, f=1\text{MHz}$	--	2.45	--	
		$V_R=800\text{V}, f=1\text{MHz}$	--	1.87	--	
Total Capacitive Charge	Q_C	$V_R=800\text{V}$	--	2601	--	nC
Capacitance Stored Energy	E_C	$V_R=800\text{V}$	--	669	--	μJ

Thermal and Package Characteristics ($T_J=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Value	Unit
Thermal Resistance, Junction to Case	R_{thJC}	Per leg	67	$^\circ\text{C}/\text{kW}$
Isolation Breakdown Voltage	V_{isol}	AC, 50Hz (R.M.S), T=3s	3600	V
Mounting Torque	M	Recommended (M6 screw)	4.5	Nm
Terminal Connection Torque		Recommended (M6 screw)	4.5	
Weight	W		160	g

Typical Performance Per Leg



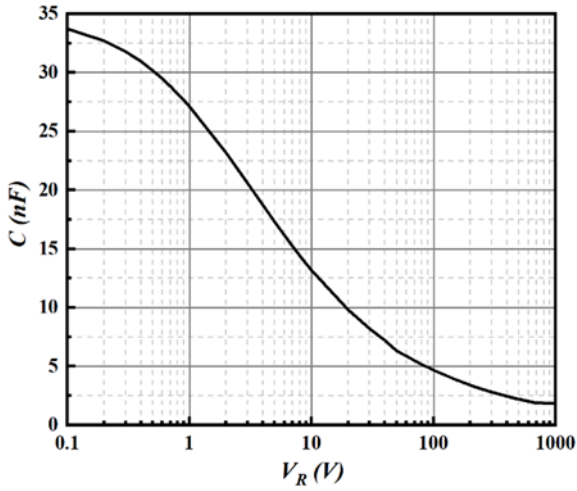


Fig3. Total Capacitance

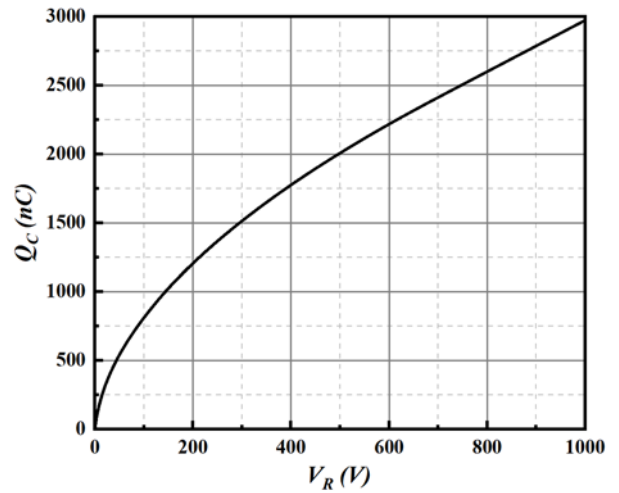


Fig4. Total Capacitive Charge

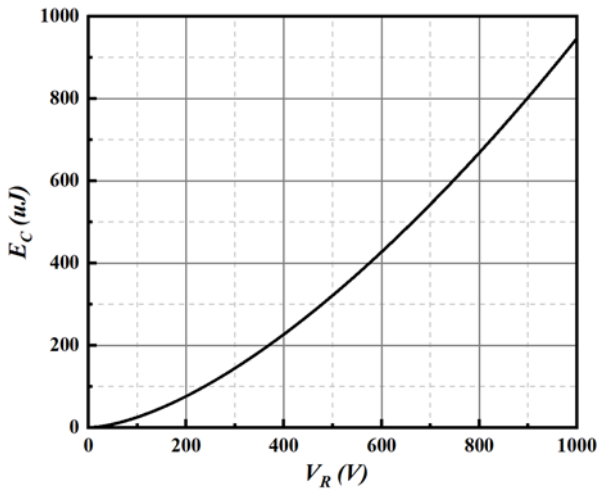


Fig5. Capacitance Stored Energy

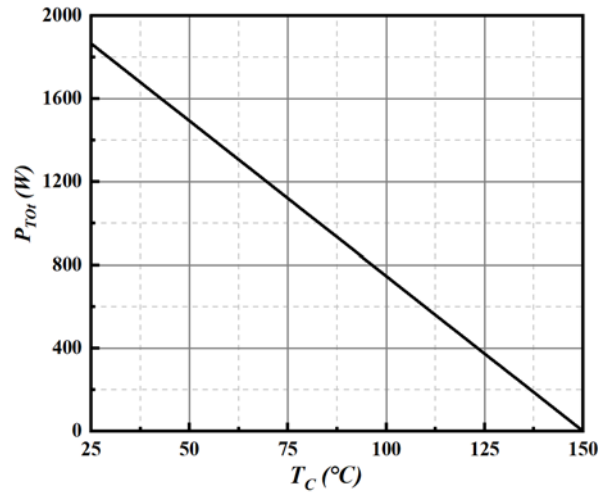


Fig6. Power Derating

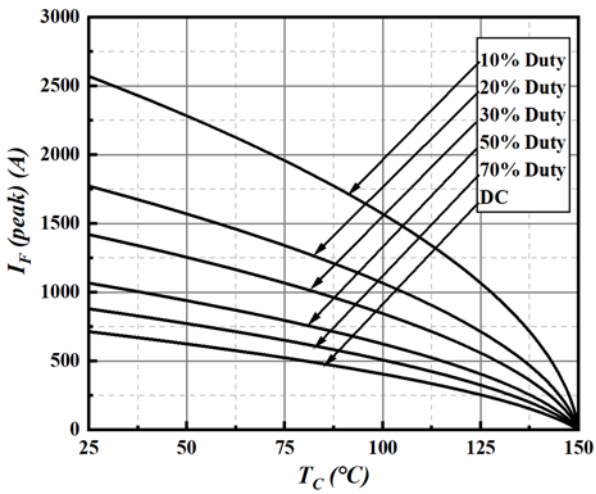


Fig7. Current Derating

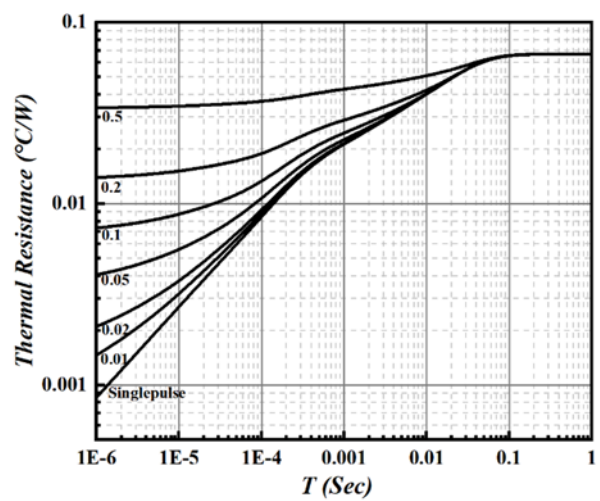
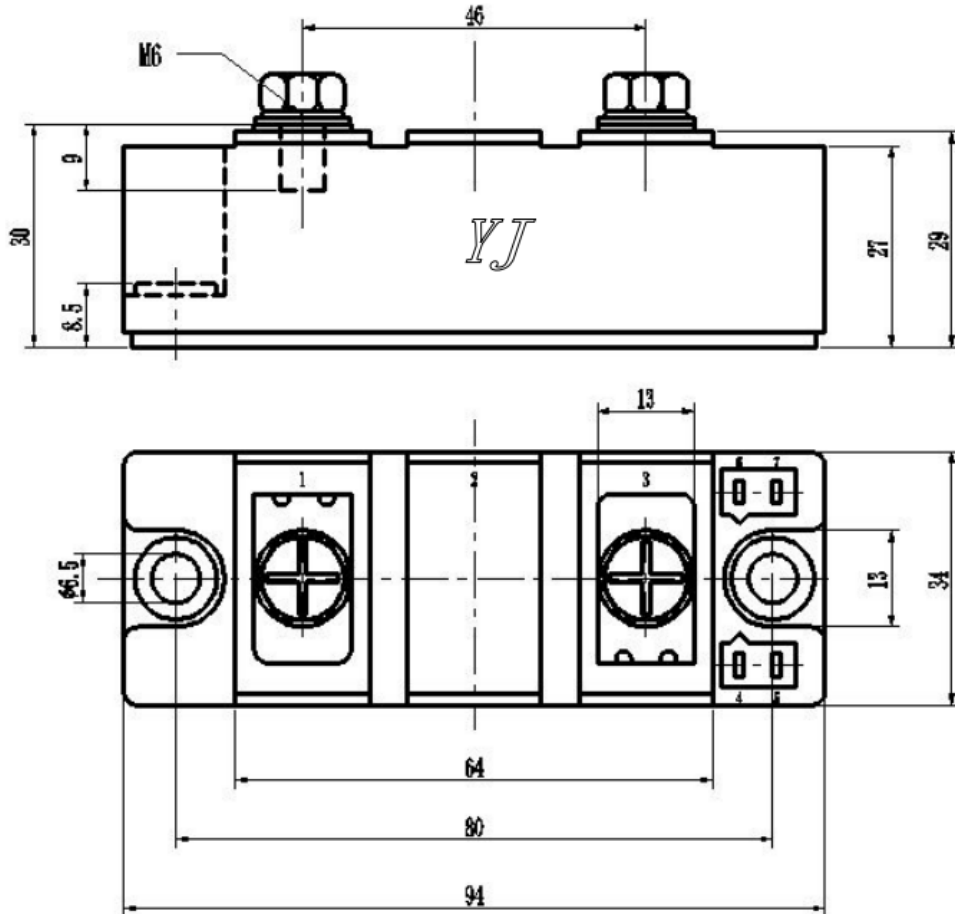


Fig8. Transient Thermal Impedance

Package Outline Information

CASE: F2



Dimensions in mm



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