

SiC Diode Power Module



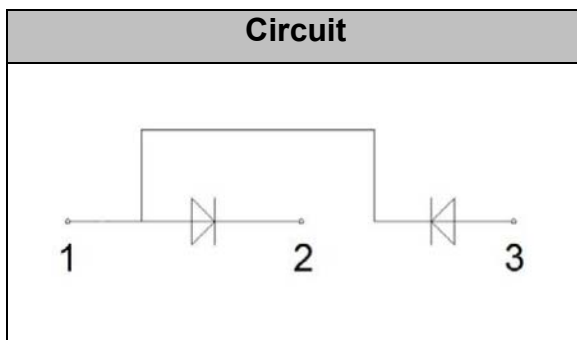
V_{DC}	1700V
I_F	150A
$T_{J,max}$	175°C

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)

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE	UNIT
Peak Repetitive Reverse Voltage	V_{RRM}	$T_J=25^\circ\text{C}$	1700	V
DC Blocking Voltage	V_{DC}	$T_J=25^\circ\text{C}$	1700	V
Continuous Forward Current	I_F	$T_C=25^\circ\text{C}, T_J=175^\circ\text{C}$	185	A
		$T_C=70^\circ\text{C}, T_J=175^\circ\text{C}$	150	
		$T_C=135^\circ\text{C}, T_J=175^\circ\text{C}$	85	
Non-Repetitive Peak Forward Surge Current	I_{FSM}	$T_C=25^\circ\text{C}, T_P=10\text{ms}$, Half Sine Wave	1090	A
I^2t Value	$\int I^2 dt$	$T_C=25^\circ\text{C}, T_P=10\text{ms}$	5940	A^2s
Power Dissipation	P_{Tot}	$T_C=25^\circ\text{C}$	585	W
Operating Junction Temperature	$T_{J,op}$		-40...175	$^\circ\text{C}$
Storage Temperature	T_{STG}		-40...125	$^\circ\text{C}$



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

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Reverse Current	I_R	$V_R=1700\text{V}$, $T_J=25^{\circ}\text{C}$	--	163	2500	μA
		$V_R=1700\text{V}$, $T_J=175^{\circ}\text{C}$	--	289	--	
Forward Voltage	V_F	$I_F=150\text{A}$, $T_J=25^{\circ}\text{C}$	--	1.66	2.0	V
		$I_F=150\text{A}$, $T_J=175^{\circ}\text{C}$	--	2.65	--	
Total Capacitance	C	$V_R=1\text{V}$, $f=1\text{MHz}$	--	8.95	--	nF
		$V_R=800\text{V}$, $f=1\text{MHz}$	--	0.61	--	
		$V_R=1700\text{V}$, $f=1\text{MHz}$	--	0.56	--	
Total Capacitive Charge	Q_C	$V_R=1700\text{V}$	--	1330	--	nC
Capacitance Stored Energy	E_C	$V_R=1700\text{V}$	--	690	--	μJ

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

PARAMETER	SYMBOL	TEST CONDITIONS	VALUE			UNIT
			Min.	Typ.	Max.	
Thermal Resistance, Junction to Case	R_{thJC}	Per leg		0.255		$^{\circ}\text{C/W}$
Isolation Breakdown Voltage	V_{isol}	AC, 50Hz (R.M.S), $t=1\text{minute}$	3000			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

Fig1. Forward Characteristics

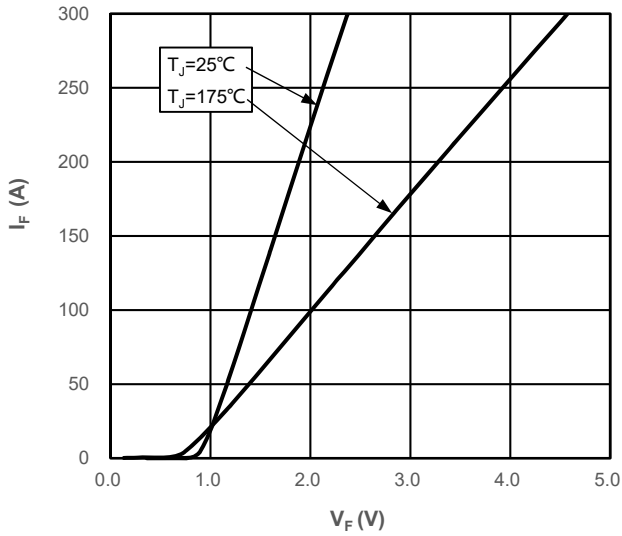


Fig2. Reverse Characteristics

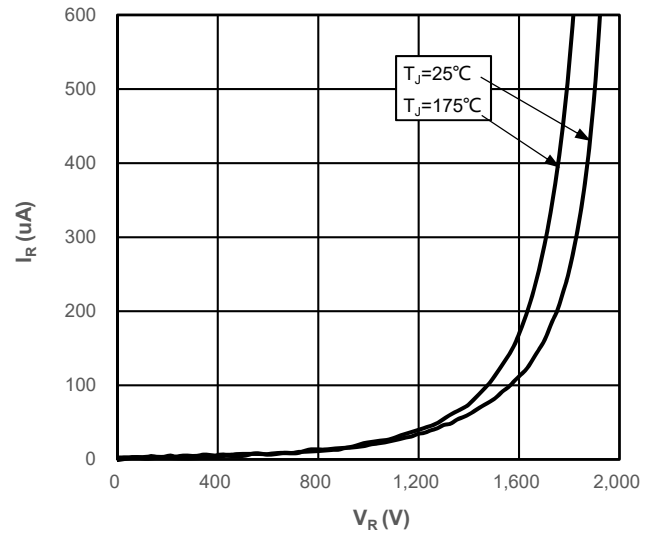


Fig3. Current Derating

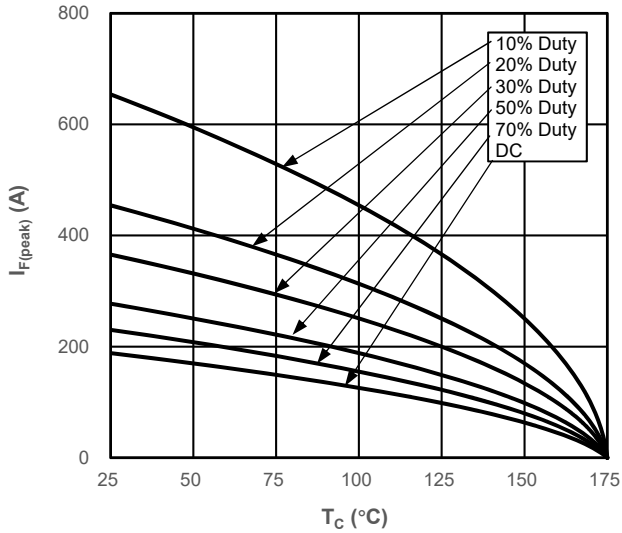


Fig4. Power Derating

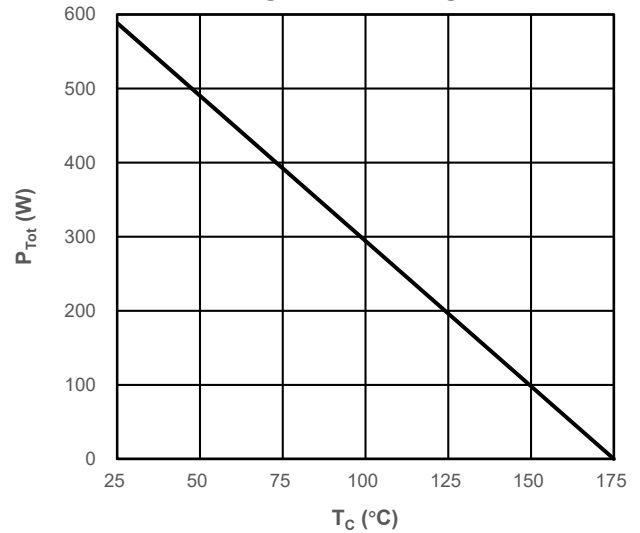


Fig5. Recovery Charge vs. Reverse Voltage

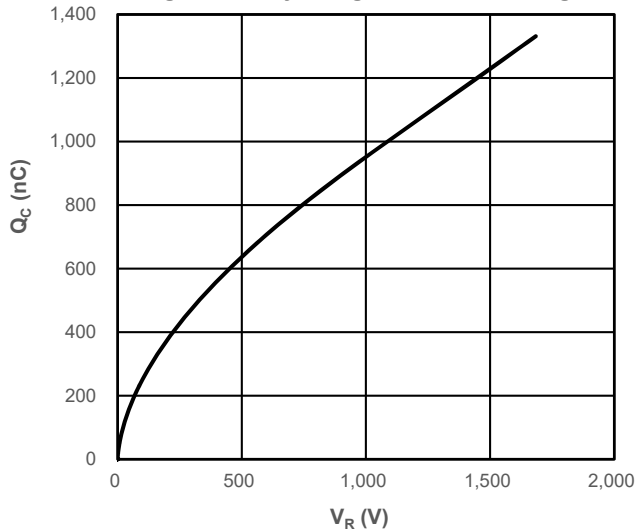
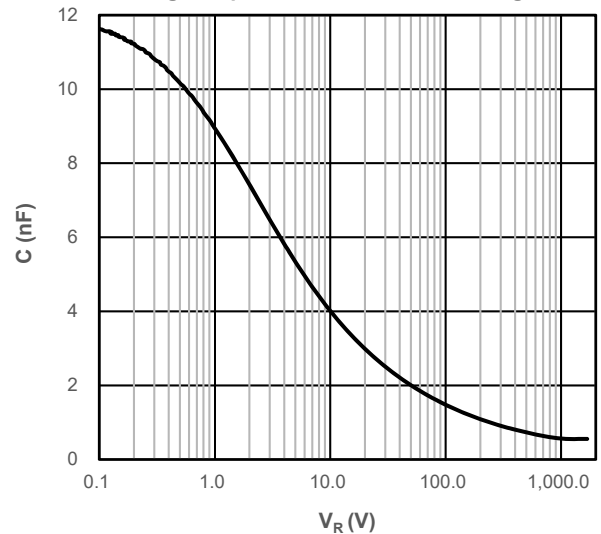


Fig6. Capacitance vs. Reverse Voltage





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Fig7. Typical Capacitance Stored Energy

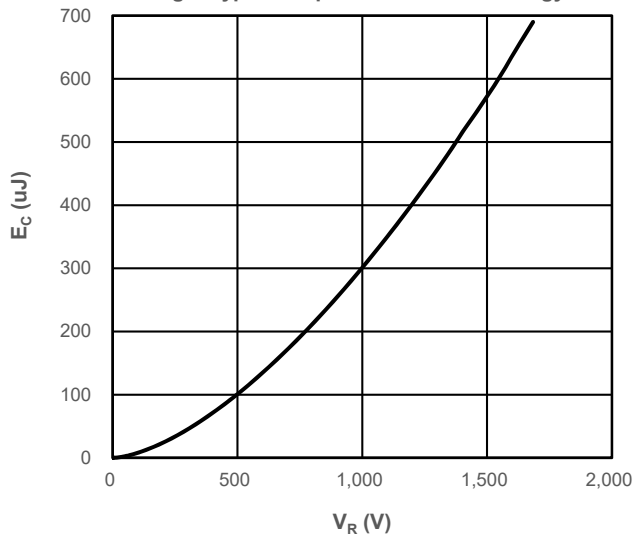
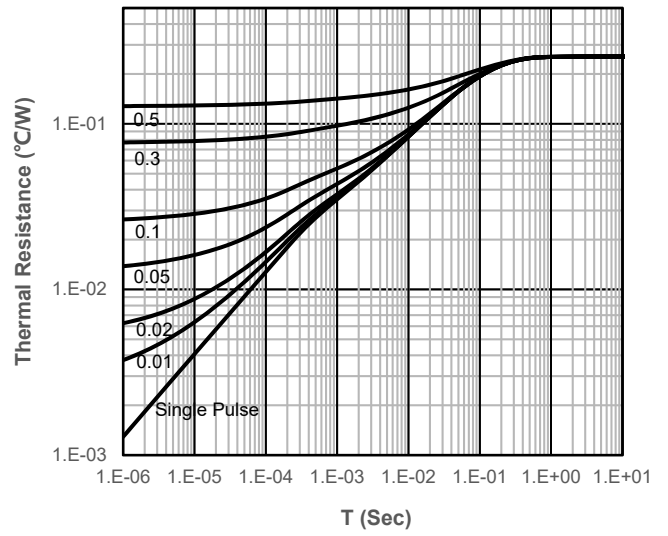


Fig8. Transient Thermal Impedance

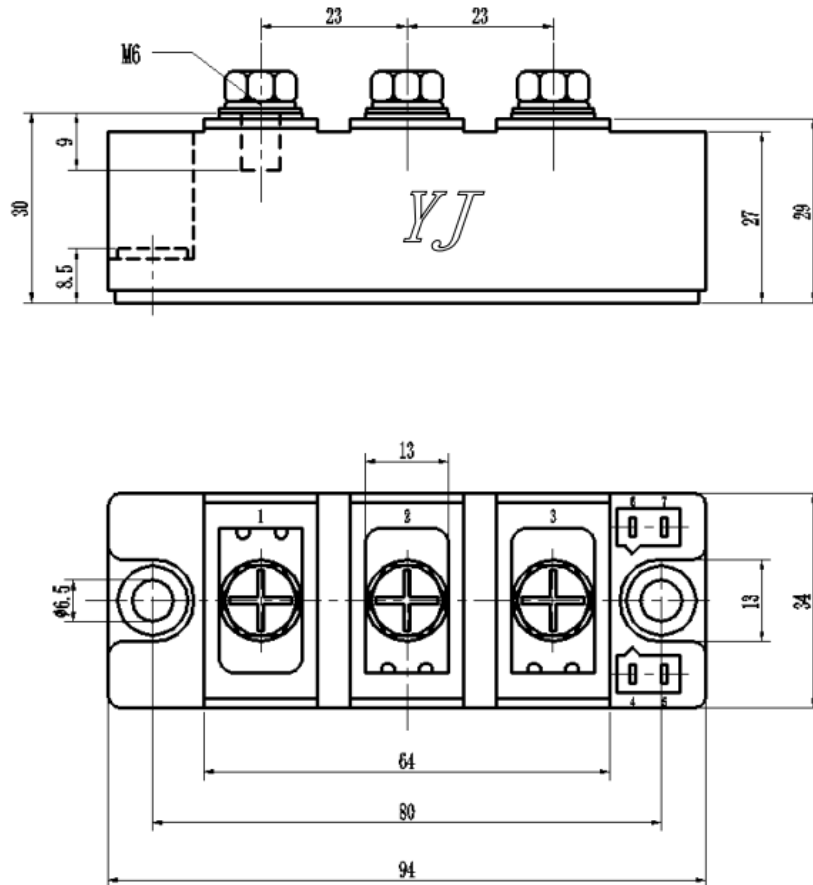




MB150C17F2

■ Package Outline Information

CASE: F2



Dimensions in mm



MB150C17F2

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