MB80DU12FJ

RoHS COMPLIANT

1200V SiC Power Module
Dual Diode Pack

V_{DC}	1200V
I_F	2×40A
$T_{J,max}$	175°C

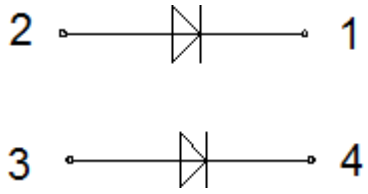
Applications

- 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 (SOT-227)
- Low noise switching
- RoHS compliant

Circuit



Absolute Maximum Ratings (T_J=25°C unless otherwise specified, per leg)

Parameter	Symbol	Test Conditions	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	T_J=25°C	1200	V
DC Blocking Voltage	V_{DC}	T_J=25°C	1200	V
Continuous Forward Current	I_F	T_C=25°C, T_J=175°C	84	A
		T_C=132°C, T_J=175°C	40	
		T_C=135°C, T_J=175°C	38	
Non-Repetitive Peak Forward Surge Current	I_{FSM}	T_C=25°C, T_P=10ms, Half Sine Wave	306	A
I^2t Value	$\int I^2dt$	T_C=25°C, T_P=10ms	468	A^2s
Power Dissipation	P_{Tot}	T_C=25°C	277	W
Junction Temperature	T_J		-55…175	°C
Storage Temperature	T_{STG}		-40…125	°C

Electrical Characteristics (T_J=25°C unless otherwise specified, per leg)

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Reverse Current	I_R	V_R=1200V, T_J=25°C	--	7.1	100	μA
		V_R=1200V, T_J=175°C	--	38	--	
Forward Voltage	V_F	I_F=40A, T_J=25°C	--	1.36	1.7	V
		I_F=40A, T_J=175°C	--	1.94	--	
Total Capacitance	C	V_R=0V, f=1MHz	--	2966	--	pF
		V_R=400V, f=1MHz	--	212	--	
		V_R=800V, f=1MHz	--	164	--	
Total Capacitive Charge	Q_C	V_R=800V	--	224	--	nC
Capacitance Stored Energy	E_C	V_R=800V	--	57	--	μJ

Thermal and Package Characteristics (T_J=25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Value	Unit
Thermal Resistance, Junction to Case	R_{thJC}	Per leg	0.54	°C/W
Isolation Breakdown Voltage	V_{isol}	AC, 50Hz (R.M.S), T=3s	3600	V
Mounting Torque	M	Recommended (M4 screw)	1~1.5	Nm
Terminal Connection Torque		Recommended (M4 screw)	1~1.5	
Weight	W		32	g

Typical Performance Per Leg

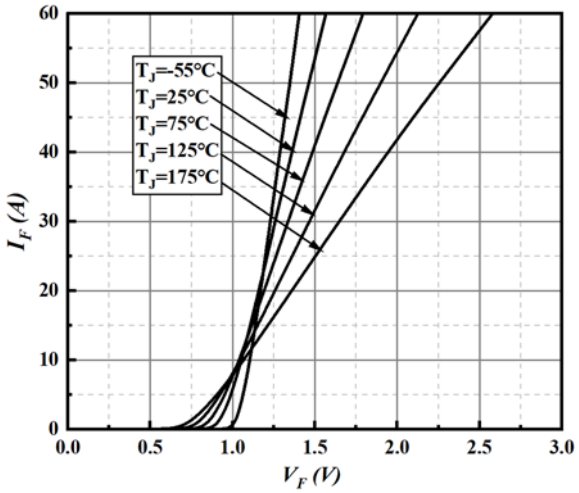


Fig1. Forward Characteristics (parameterized on T_J)

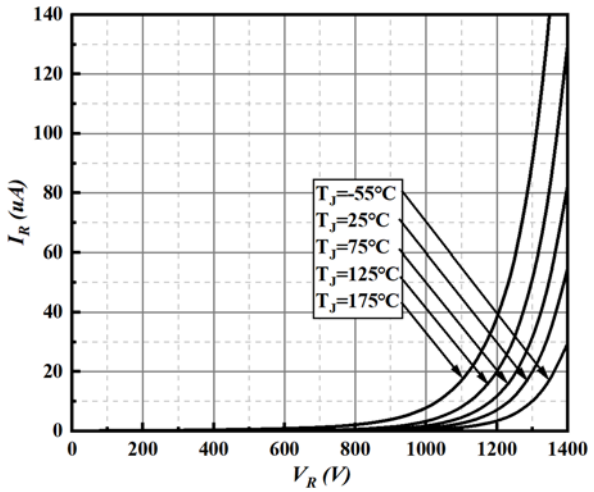


Fig2. Reverse Characteristics (parameterized on T_J)

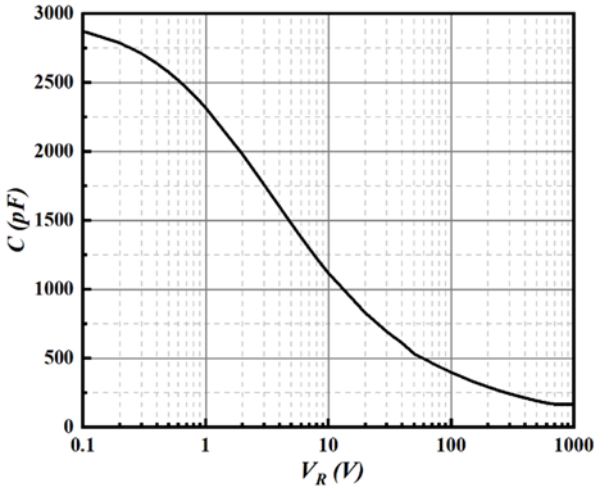


Fig3. Total Capacitance

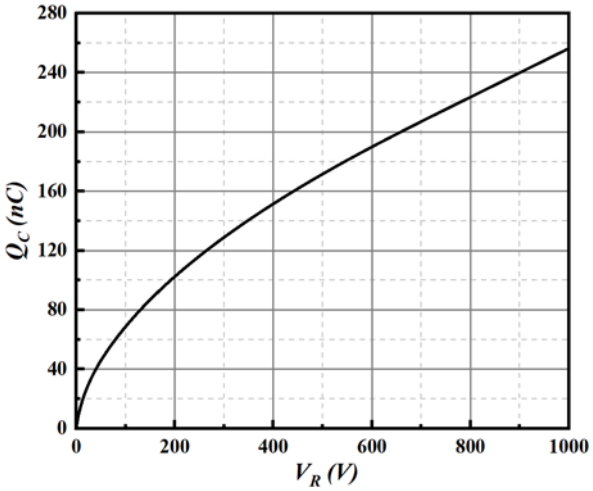


Fig4. Total Capacitive Charge

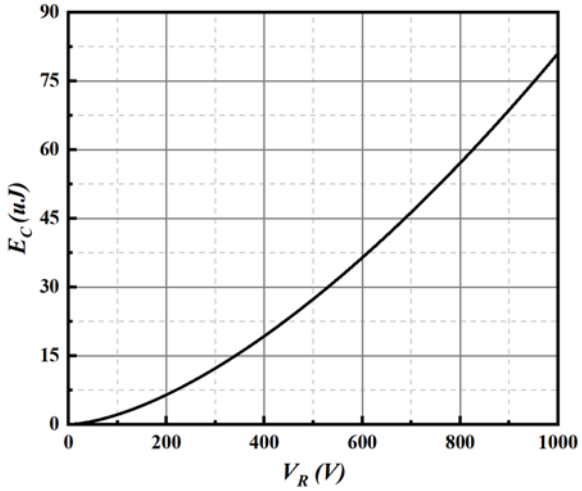


Fig5. Capacitance Stored Energy

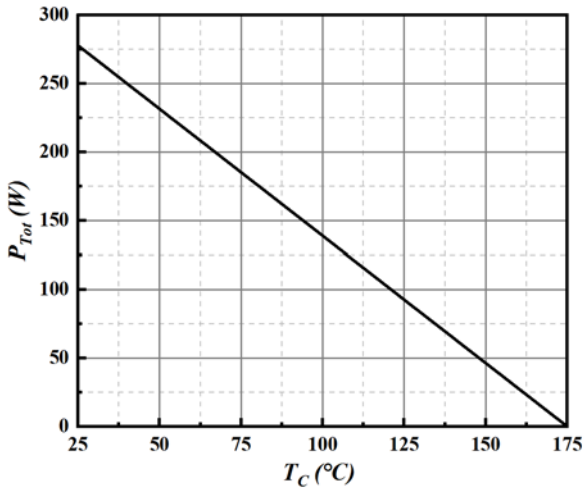


Fig6. Power Derating

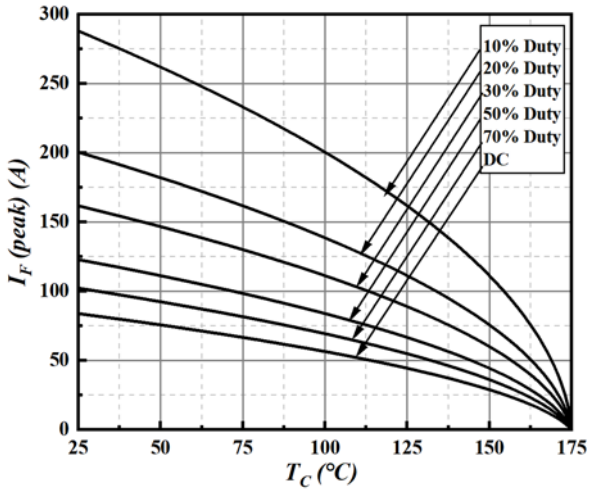


Fig7. Current Derating

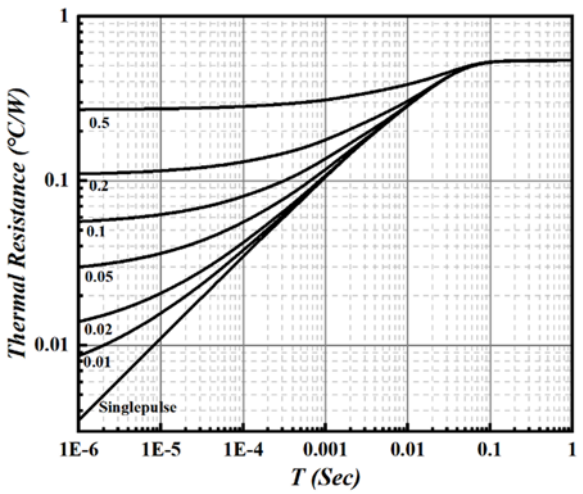
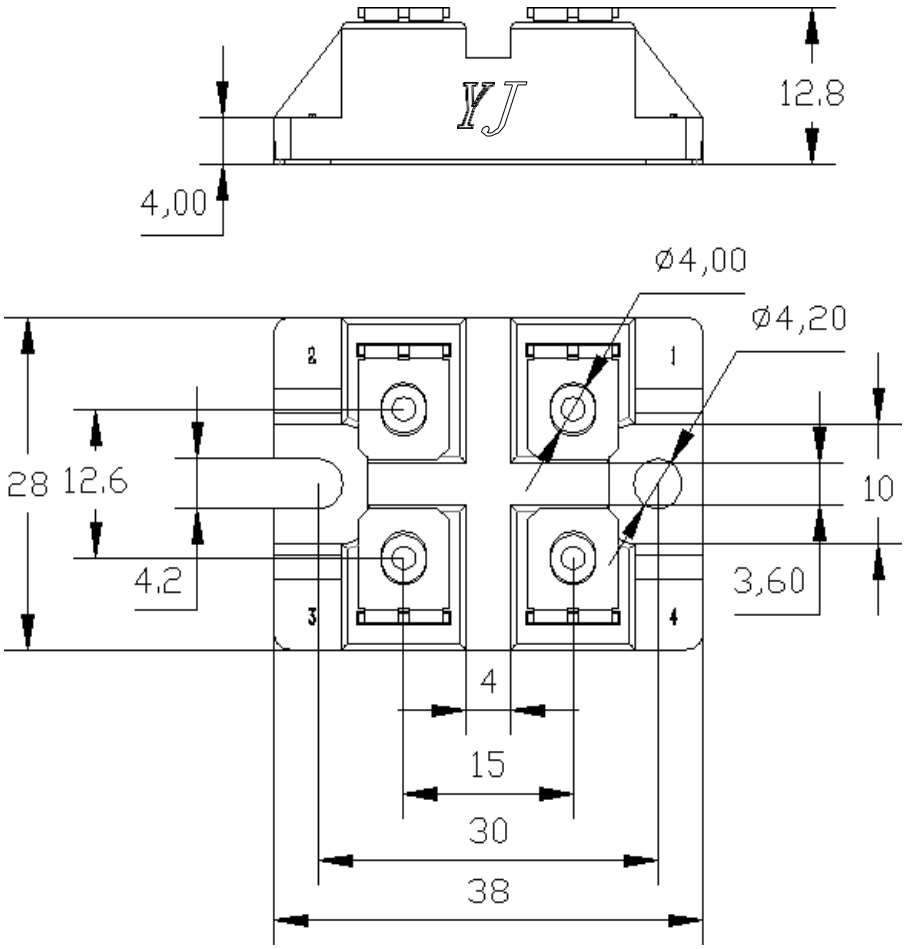


Fig8. Transient Thermal Impedance

Package Outline Information

CASE: FJ



Dimensions in mm

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