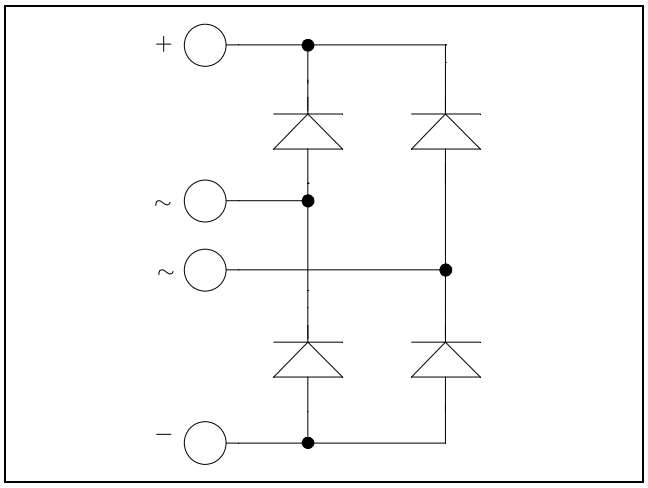
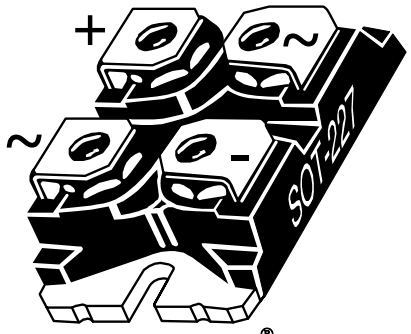
ISOTOP® SiC Diode Full Bridge Power Module

V_{RRM} = 600V
I_C = 40A @ Tc = 100°C





ISOTOP®

Application

- Switch mode power supplies rectifier
- Induction heating
- Welding equipment
- High speed rectifiers

Features

- ***SiC Schottky Diode***
  - Zero reverse recovery
  - Zero forward recovery
  - Temperature Independent switching behavior
  - Positive temperature coefficient on VF
- ISOTOP® Package (SOT-227)
- Very low stray inductance
- High level of integration

Benefits

- Outstanding performance at high frequency operation
- Low losses
- Low noise switching
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- RoHS Compliant

Absolute maximum ratings

Symbol	*Parameter*			*Max ratings*	*Unit*
V_R	Maximum DC reverse Voltage			600	V
V_{RRM}	Maximum Peak Repetitive Reverse Voltage				
$I_{F(AV)}$	Maximum Average Forward Current	Duty cycle = 50%	T_C = 100°C	40	A
I_{FSM}	Non-Repetitive Forward Surge Current	10 µs	T_C = 25°C	500	

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed.
See application note APT0502 on www.microsemi.com

All ratings @ T_j = 25°C unless otherwise specified

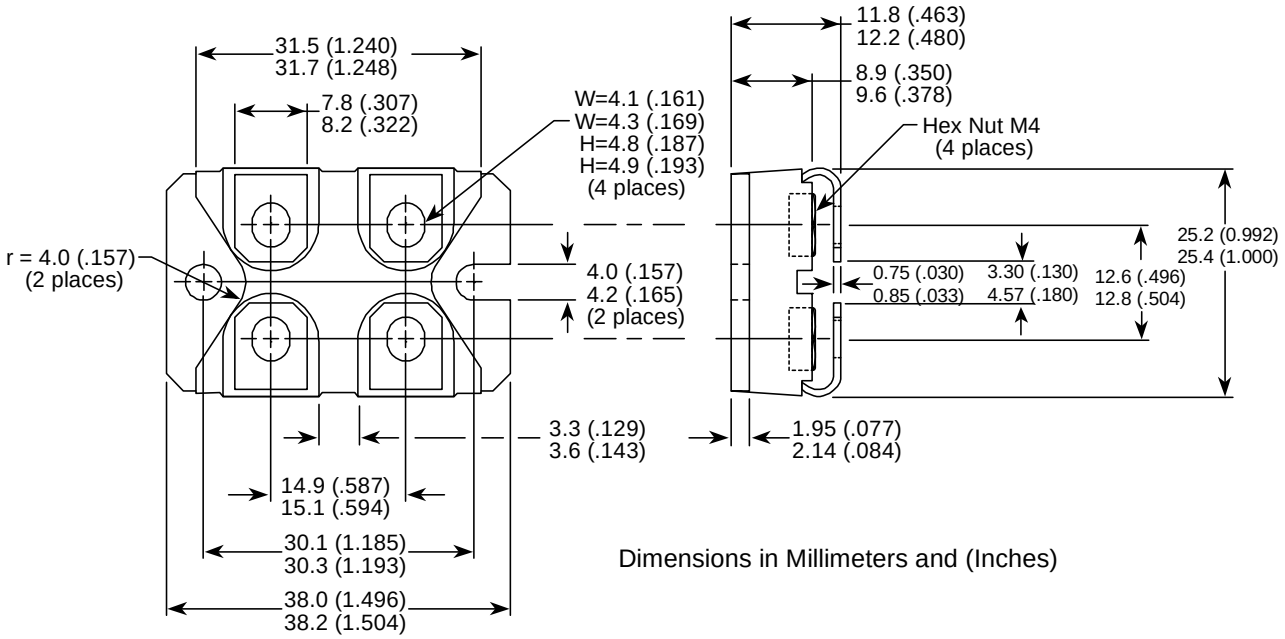
Electrical Characteristics

Symbol	*Characteristic*	*Test Conditions*		*Min*	*Typ*	*Max*	*Unit*
V_F	Diode Forward Voltage	I_F = 40A	T_j = 25°C		1.6	1.8	V
			T_j = 175°C		2	2.4	
I_{RM}	Maximum Reverse Leakage Current	V_R = 600V	T_j = 25°C		200	800	µA
			T_j = 175°C		400	4000	
Q_C	Total Capacitive Charge	I_F = 40A, V_R = 300V di/dt =1200A/µs			56		nC
C	Total Capacitance	f = 1MHz, V_R = 200V			260		pF
		f = 1MHz, V_R = 400V			200		

Thermal and package characteristics

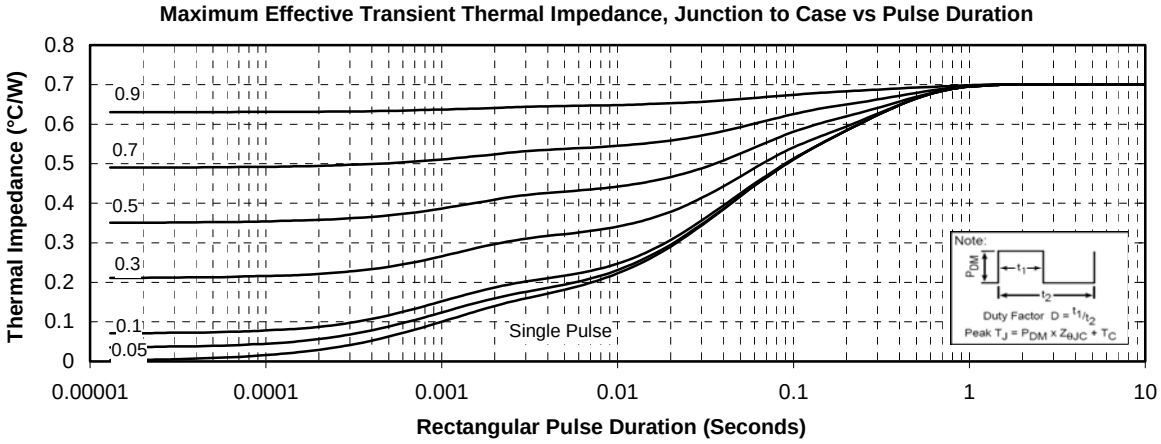
Symbol	*Characteristic*	*Min*	*Typ*	*Max*	*Unit*
R_{thJC}	Junction to Case Thermal resistance			0.7	°C/W
R_{thJA}	Junction to Ambient			20	
V_{ISOL}	RMS Isolation Voltage, any terminal to case t =1 min, I isol<1mA, 50/60Hz	2500			V
T_J,T_{STG}	Storage Temperature Range	-55		175	°C
T_L	Max Lead Temp for Soldering:0.063" from case for 10 sec			300	
Torque	Mounting torque (Mounting = 8-32 or 4mm Machine and terminals = 4mm Machine)			1.5	N.m
Wt	Package Weight		29.2		g

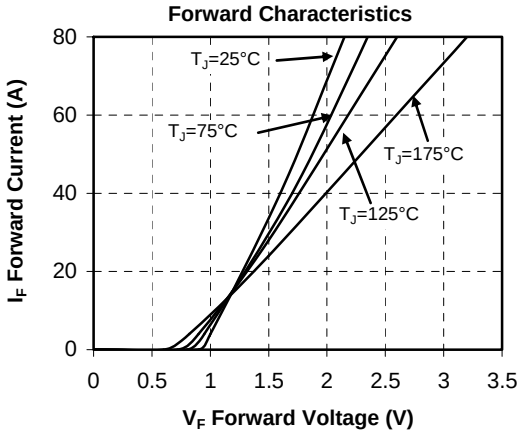
SOT-227 (ISOTOP®) Package Outline

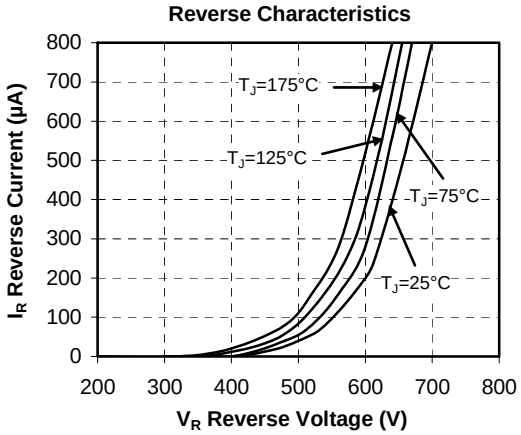


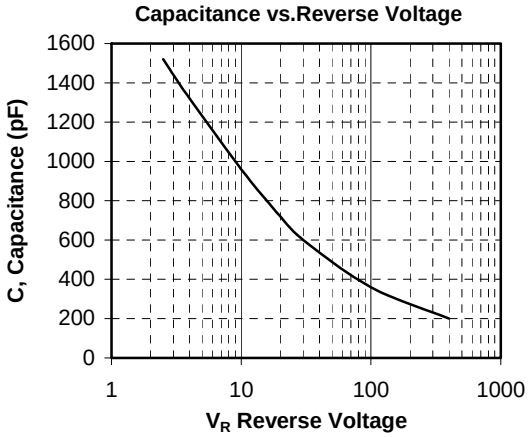
Dimensions in Millimeters and (Inches)

Typical Performance Curve









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