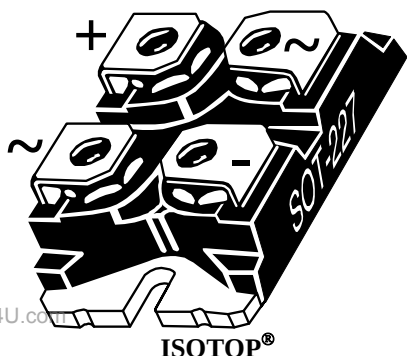
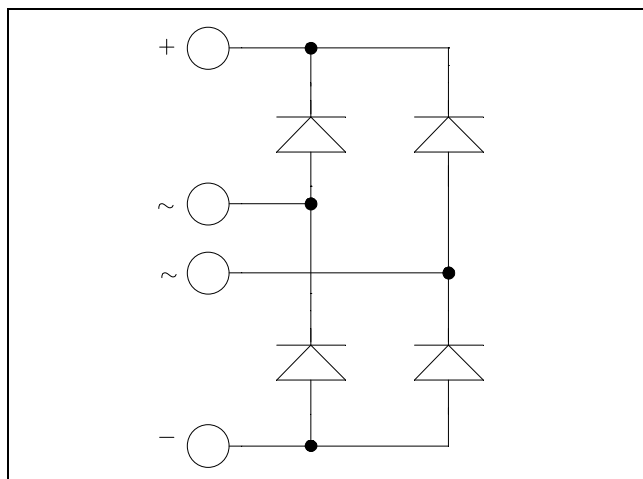


ISOTOP[®] SiC Diode Full Bridge Power Module

$$V_{RRM} = 1200V$$

$$I_C = 40A @ T_C = 100^{\circ}C$$



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			1200	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

APT40DC120HJ

All ratings @ $T_j = 25^\circ\text{C}$ unless otherwise specified

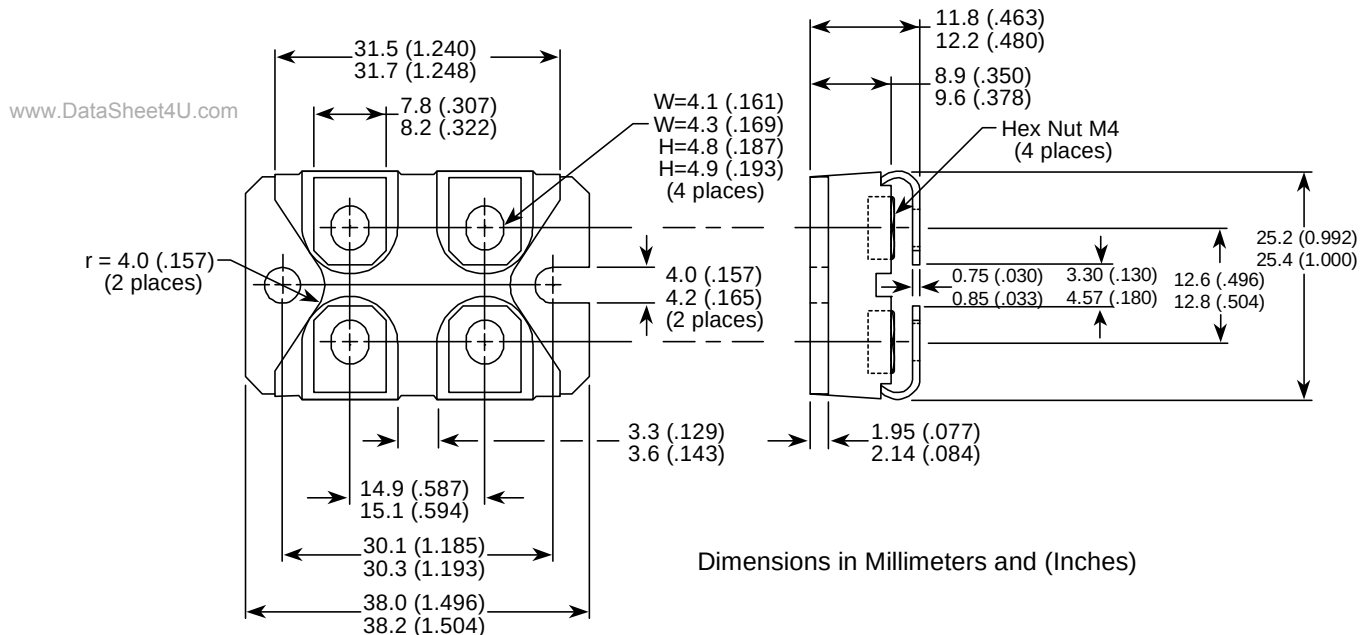
Electrical Characteristics

Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
V_F	Diode Forward Voltage	$I_F = 40\text{A}$	$T_j = 25^\circ\text{C}$		1.6	V
			$T_j = 175^\circ\text{C}$		2.3	
I_{RM}	Maximum Reverse Leakage Current	$V_R = 1200\text{V}$	$T_j = 25^\circ\text{C}$		128	μA
			$T_j = 175^\circ\text{C}$		224	
Q_C	Total Capacitive Charge	$I_F = 40\text{A}$, $V_R = 600\text{V}$ $di/dt = 2000\text{A}/\mu\text{s}$		160		nC
C	Total Capacitance	$f = 1\text{MHz}$, $V_R = 200\text{V}$		384		pF
		$f = 1\text{MHz}$, $V_R = 400\text{V}$		276		

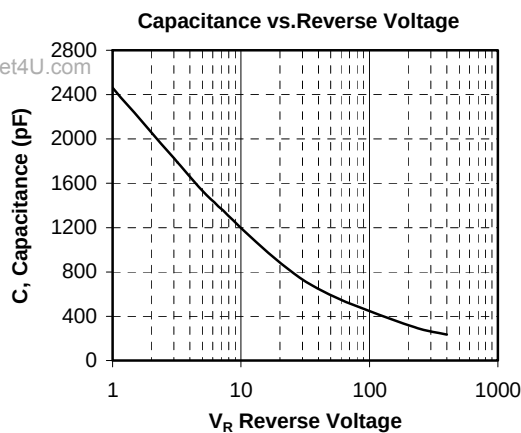
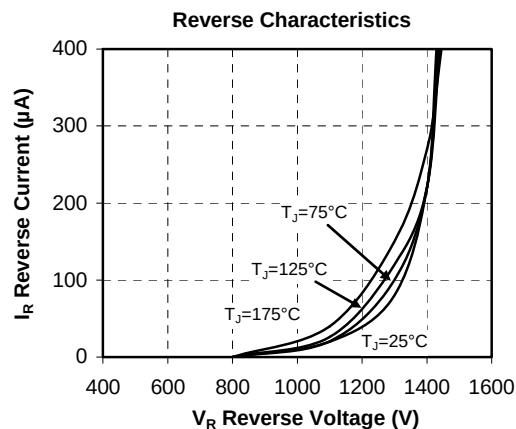
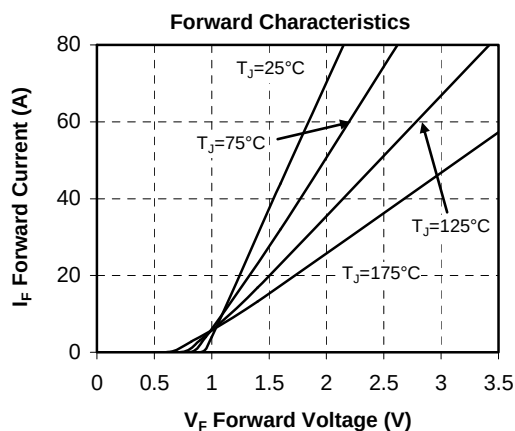
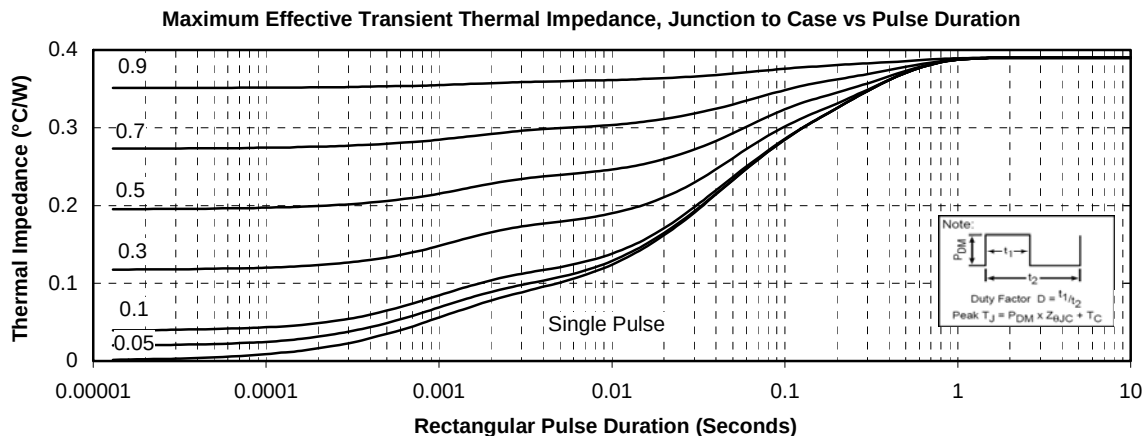
Thermal and package characteristics

Symbol	Characteristic	Min	Typ	Max	Unit
R_{thJC}	Junction to Case Thermal resistance			0.39	$^\circ\text{C}/\text{W}$
R_{thJA}	Junction to Ambient			20	$^\circ\text{C}/\text{W}$
V_{ISOL}	RMS Isolation Voltage, any terminal to case $t = 1\text{ min}$, $I_{isol} < 1\text{mA}$, 50/60Hz	2500			V
T_j, T_{STG}	Storage Temperature Range	-55		175	$^\circ\text{C}$
T_L	Max Lead Temp for Soldering: 0.063" from case for 10 sec			300	$^\circ\text{C}$
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



Typical Performance Curve



ISOTOP® is a registered trademark of ST Microelectronics NV

Microsemi reserves the right to change, without notice, the specifications and information contained herein

Microsemi's products are covered by one or more of U.S. patents 4,895,810 5,045,903 5,089,434 5,182,234 5,019,522 5,262,336 6,503,786 5,256,583 4,748,103 5,283,202 5,231,474 5,434,095 5,528,058 6,939,743 7,352,045 5,283,201 5,801,417 5,648,283 7,196,634 6,664,594 7,157,886 6,939,743 7,342,262 and foreign patents. U.S. and Foreign patents pending. All Rights Reserved.