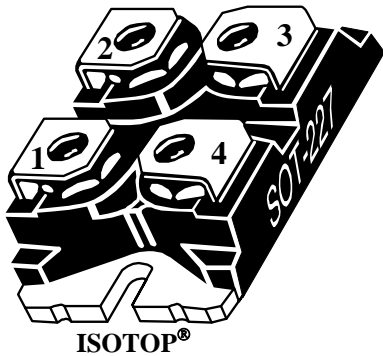
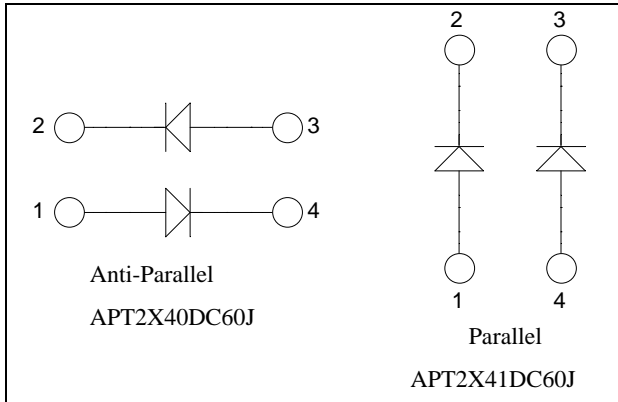


ISOTOP[®] SiC Diode Power Module

$V_{RRM} = 600V$
 $I_F = 40A @ T_C = 100^{\circ}C$



Application

- Uninterruptible Power Supply (UPS)
- 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 (per leg)

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	40	A
I_{FSM}	Non-Repetitive Forward Surge Current		
		10 μs	$T_C = 25^{\circ}C$

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

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

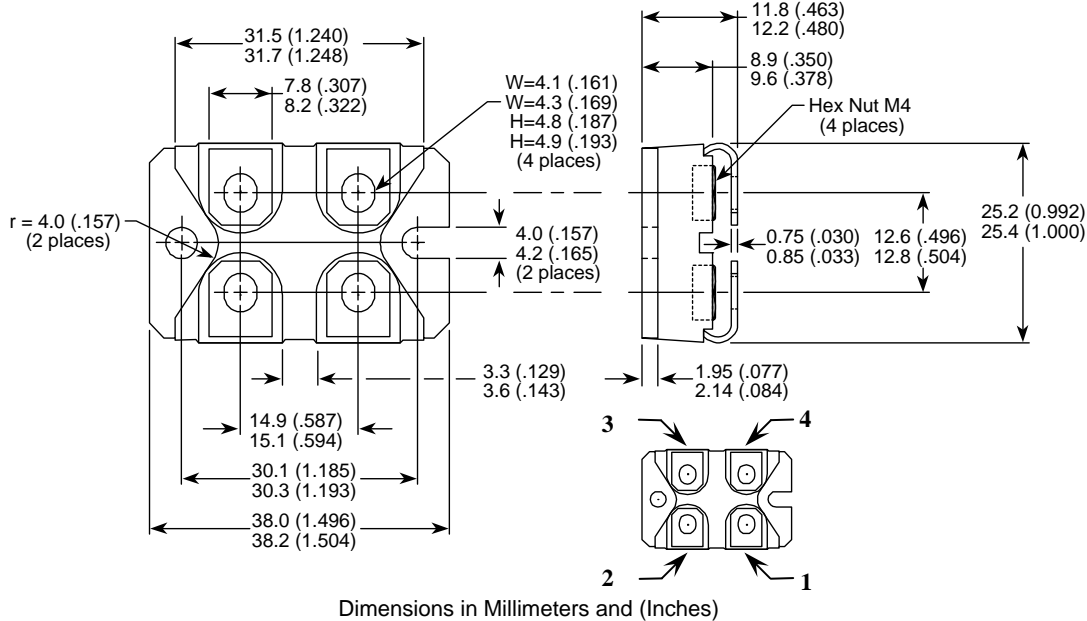
Electrical Characteristics (per leg)

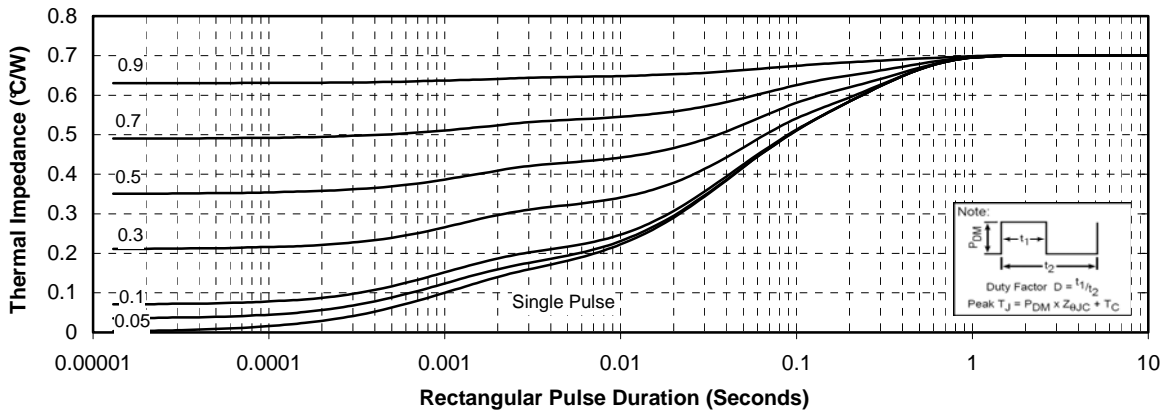
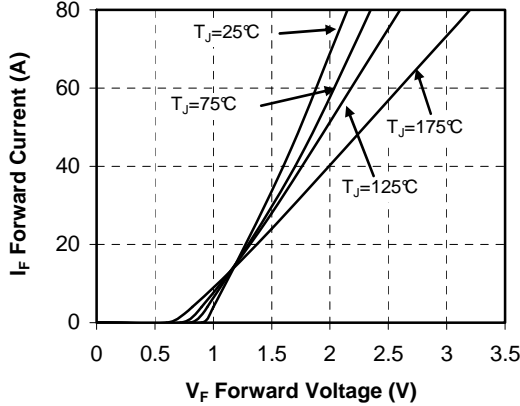
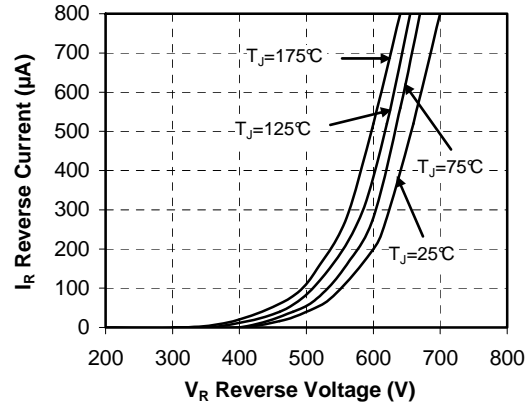
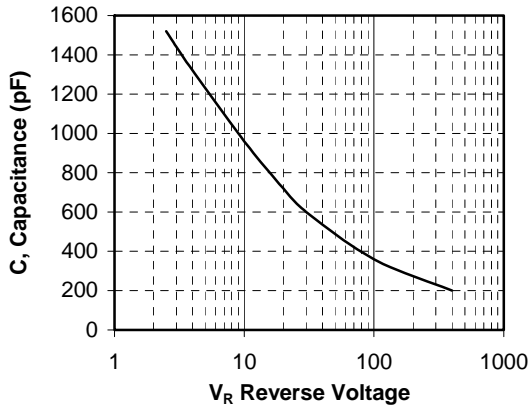
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit	
V_F	Diode Forward Voltage	$I_F = 40\text{A}$	$T_j = 25^\circ\text{C}$		1.6	1.8	V
			$T_j = 175^\circ\text{C}$		2	2.4	
I_{RM}	Maximum Reverse Leakage Current	$V_R = 600\text{V}$	$T_j = 25^\circ\text{C}$		200	800	μA
			$T_j = 175^\circ\text{C}$		400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

Thermal and package characteristics (per leg)

Symbol	Characteristic	Min	Typ	Max	Unit
R_{thJC}	Junction to Case Thermal resistance			0.7	$^\circ\text{C}/\text{W}$
R_{thJA}	Junction to Ambient (Diode)			20	
V_{ISOL}	RMS Isolation Voltage, any terminal to case $t=1$ 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	
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 Diode Performance Curve
Maximum Effective Transient Thermal Impedance, Junction to Case vs Pulse Duration

Forward Characteristics

Reverse Characteristics

Capacitance vs. Reverse Voltage


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.