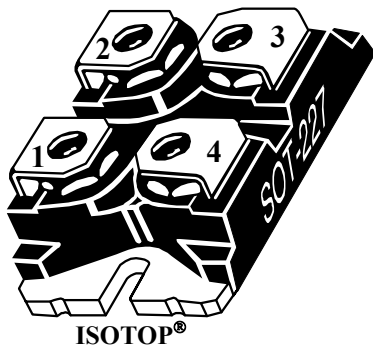
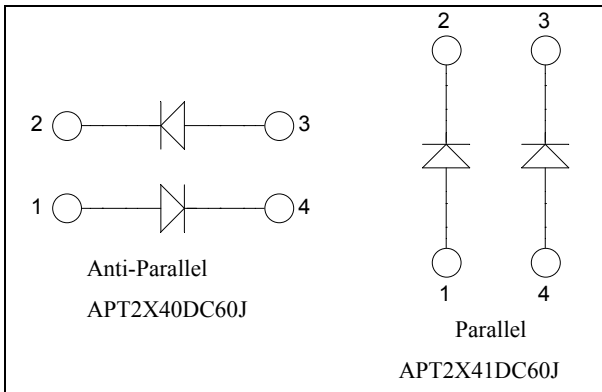


ISOTOP[®] SiC Diode
Power Module
 $V_{RRM} = 600V$
 $I_F = 40A @ T_C = 100^{\circ}C$

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 μ s	
		$T_C = 100^{\circ}C$	
		$T_C = 25^{\circ}C$	

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

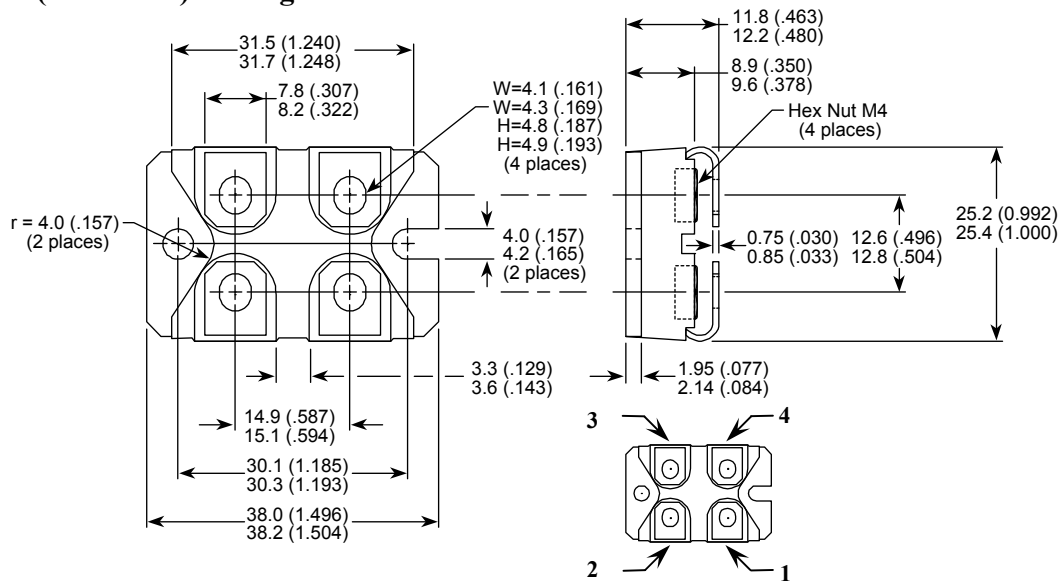
All ratings @ $T_j = 25^\circ\text{C}$ unless otherwise specified

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)

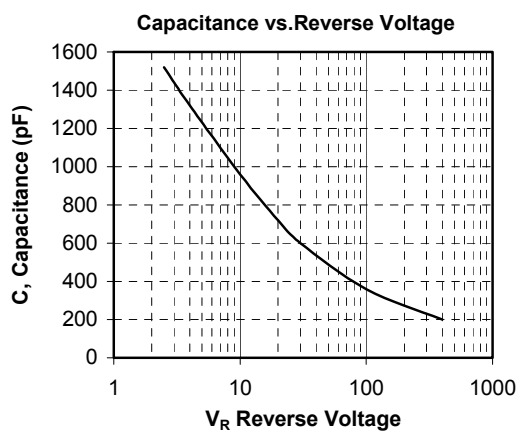
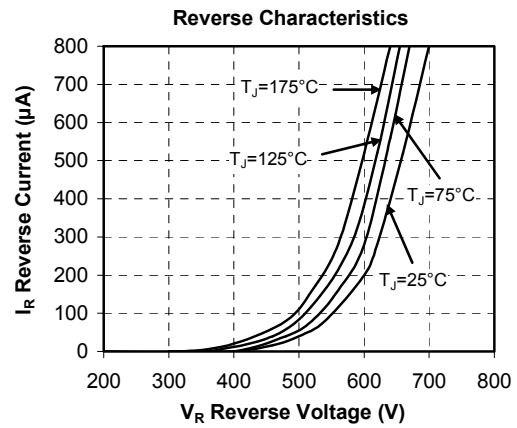
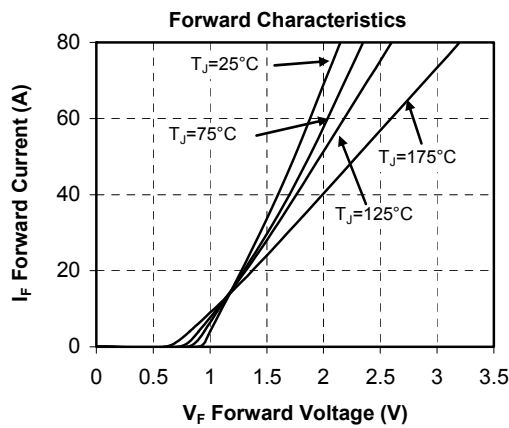
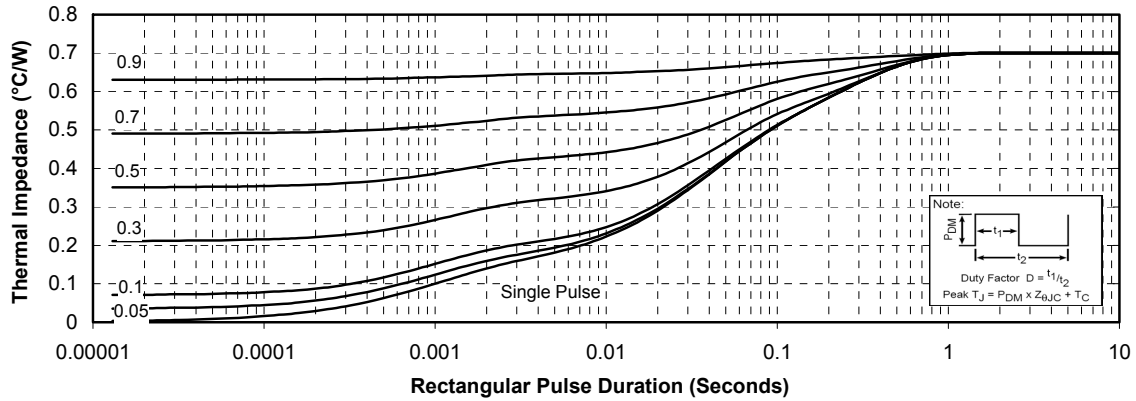
Symbol	Characteristic	Min	Typ	Max	Unit
R_{thJC}	Junction to Case Thermal resistance			0.7	$^\circ\text{C}/\text{W}$
R_{thJA}	Junction to Ambient (Diode)			20	$^\circ\text{C}/\text{W}$
V_{ISOL}	RMS Isolation Voltage, any terminal to case $t = 1\text{ min}, 50/60\text{Hz}$	2500			V
T_j, T_{STG}	Storage 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


Dimensions in Millimeters and (Inches)

Typical Diode Performance Curve

Maximum Effective Transient Thermal Impedance, Junction to Case vs Pulse Duration



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