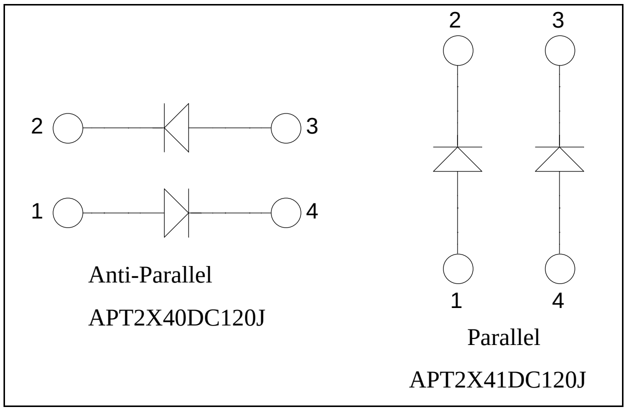
Microsemi
POWER PRODUCTS GROUP

APT2X41DC120J
APT2X40DC120J

ISOTOP® SiC Diode Power Module

V_{RRM} = 1200V
I_F = 40A @ T_C = 100°C



Anti-Parallel
APT2X40DC120J

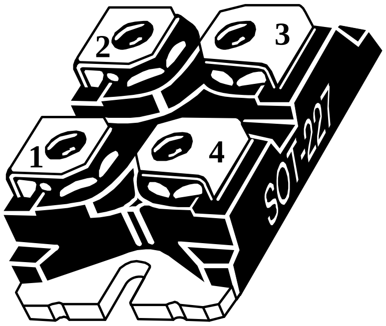
Parallel
APT2X41DC120J

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



ISOTOP®

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			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

All ratings @ T_j = 25°C unless otherwise specified

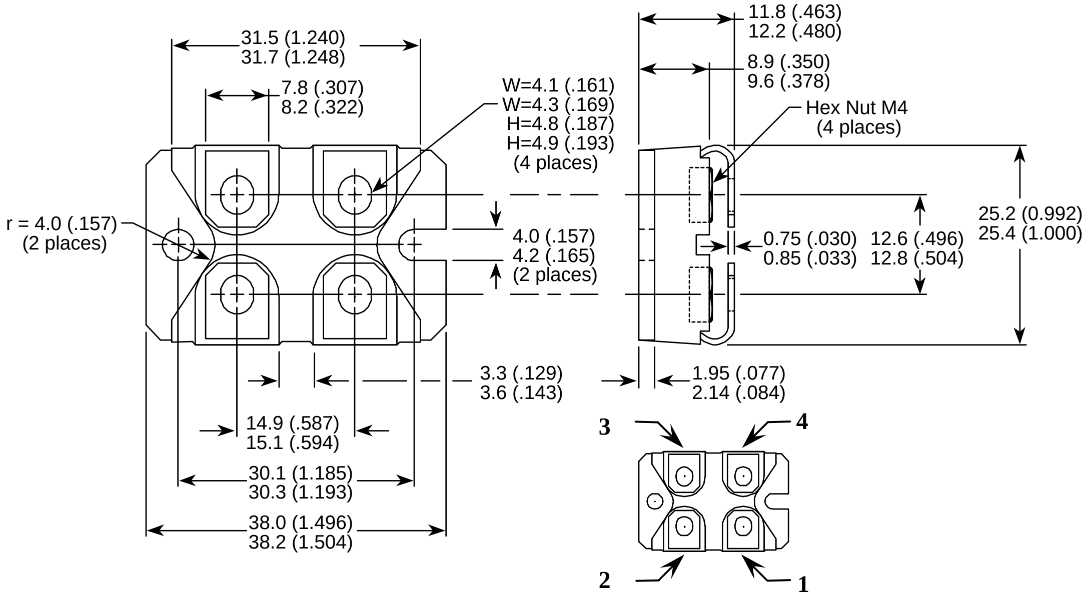
Electrical Characteristics (per leg)

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		2.3	3.0	
I_{RM}	Maximum Reverse Leakage Current	V_R = 1200V	T_j = 25°C		128	800	µA
			T_j = 175°C		224	4000	
Q_C	Total Capacitive Charge	I_F = 40A, V_R = 600V di/dt =2000A/µs			160		nC
C	Total Capacitance	f = 1MHz, V_R = 200V			384		pF
		f = 1MHz, V_R = 400V			276		

Thermal and package characteristics (per leg)

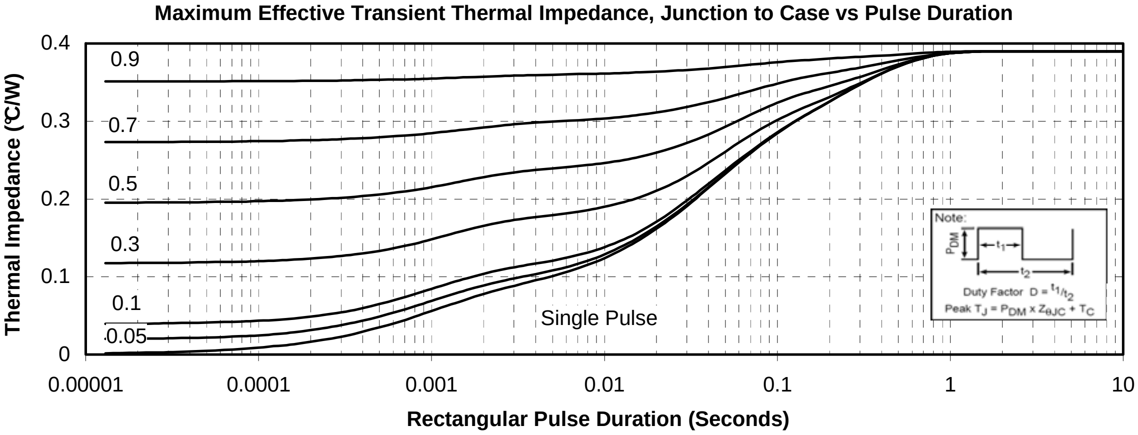
Symbol	*Characteristic*	*Min*	*Typ*	*Max*	*Unit*
R_{thJC}	Junction to Case Thermal resistance			0.39	°C/W
R_{thJA}	Junction to Ambient (IGBT & Diode)			20	
V_{ISOL}	RMS Isolation Voltage, any terminal to case t =1 min, I isol<1mA, 50/60Hz	2500			V
T_J,T_{STG}	Storage Temperature Range	-55		175	°C
T_L	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

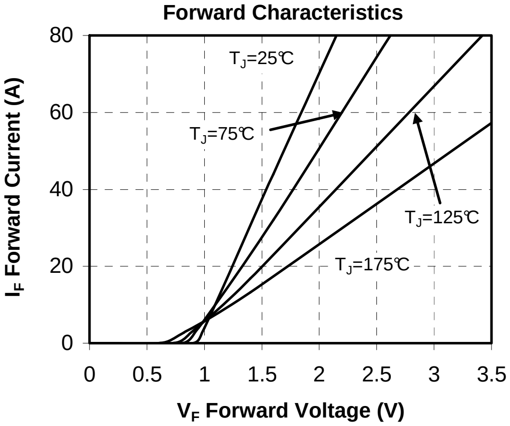
SOT-227 (ISOTOP®) Package Outline

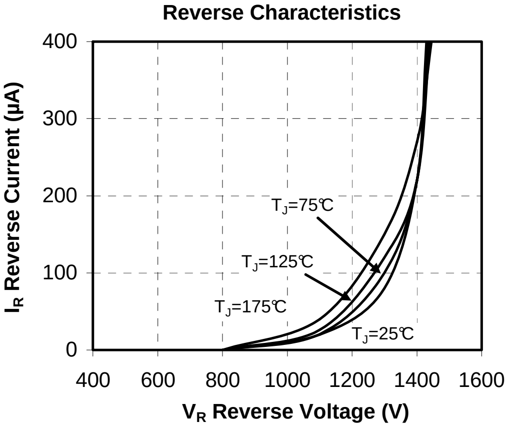


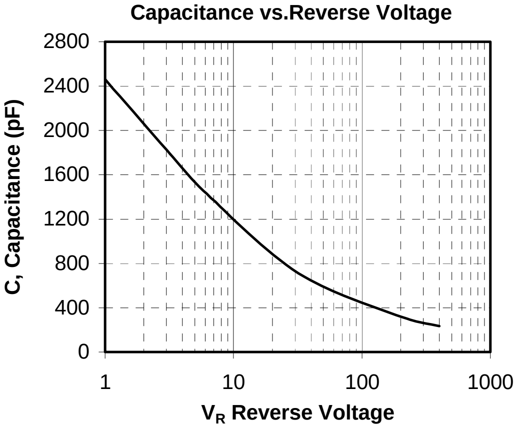
Dimensions in Millimeters and (Inches)

Typical Diode Performance Curve









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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.