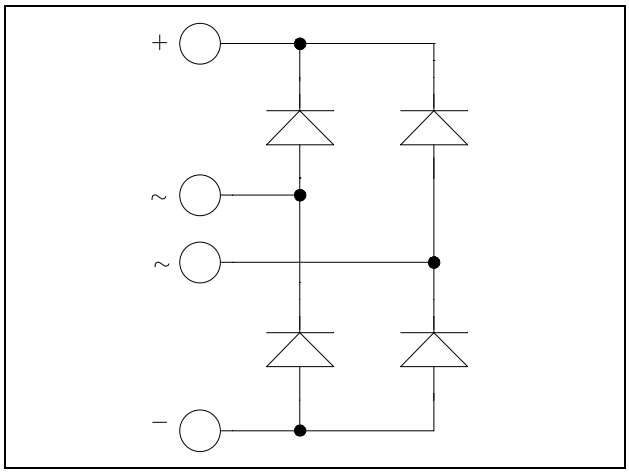
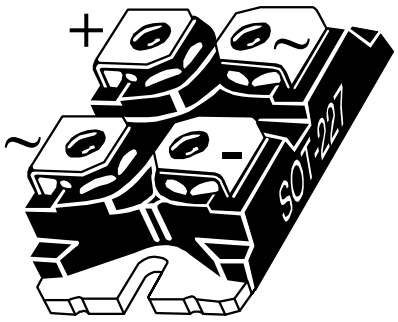
Microsemi
POWER PRODUCTS GROUP

APT30DF120HJ

ISOTOP® Fast Diode Full Bridge Power Module

V_{RRM} = 1200V
I_C = 30A @ Tc = 80°C





Application

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

Features

- Ultra fast recovery times
- Soft recovery characteristics
- High blocking voltage
- High current
- Low leakage current
- Very low stray inductance
- High level of integration
- ISOTOP® Package (SOT-227)

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 = 25°C	45	A
			T_C = 80°C	30	
I_{FSM}	Non-Repetitive Forward Surge Current	8.3ms	T_J = 45°C	210	

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 = 30A			2.5	3.1	V
		I_F = 60A			3.2		
		I_F = 30A	T_j = 125°C		1.8		
I_{RM}	Maximum Reverse Leakage Current	V_R = 1200V	T_j = 25°C			100	µA
			T_j = 125°C			500	
C_T	Junction Capacitance	V_R = 200V			28		pF

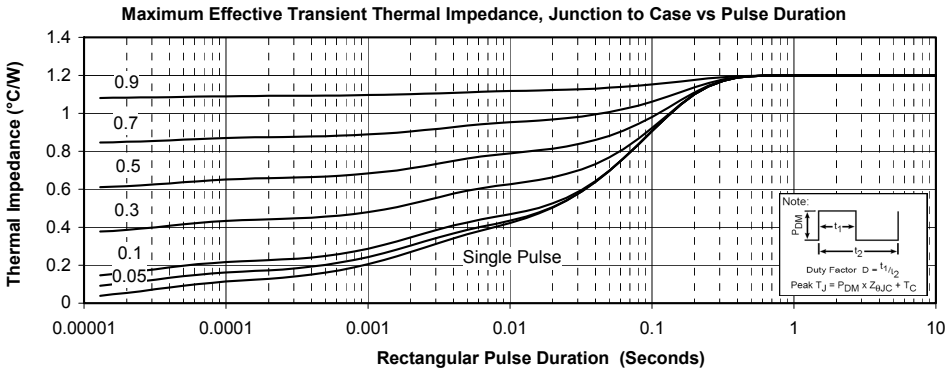
Dynamic Characteristics

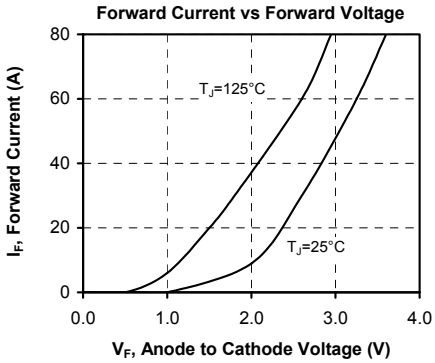
Symbol	*Characteristic*	*Test Conditions*		*Min*	*Typ*	*Max*	*Unit*
t_{rr}	Reverse Recovery Time	I_F = 30A V_R = 800V di/dt = 200A/µs	T_j = 25°C		300		ns
			T_j = 125°C		380		
Q_{rr}	Reverse Recovery Charge		T_j = 25°C		360		nC
			T_j = 125°C		1700		
I_{RRM}	Reverse Recovery Current		T_j = 25°C		4		A
			T_j = 125°C		8		
t_{rr}	Reverse Recovery Time	I_F = 30A V_R = 800V di/dt=1000A/µs	T_j = 125°C		160		ns
Q_{rr}	Reverse Recovery Charge				2550		nC
I_{RRM}	Reverse Recovery Current				28		A

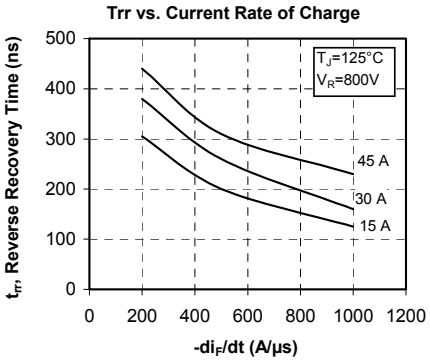
Thermal and package characteristics

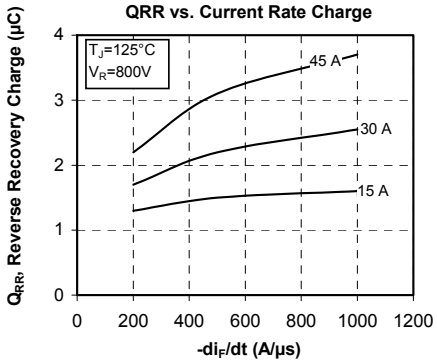
Symbol	*Characteristic*	*Min*	*Typ*	*Max*	*Unit*
R_{thJC}	Junction to Case Thermal resistance			1.2	°C/W
R_{thJA}	Junction to Ambient			20	
V_{ISOL}	RMS Isolation Voltage, any terminal to case t =1 min, 50/60Hz	2500			V
T_J,T_{STG}	Storage Temperature Range	-55		175	°C
T_L	Max Lead Temp for Soldering:0.063" 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

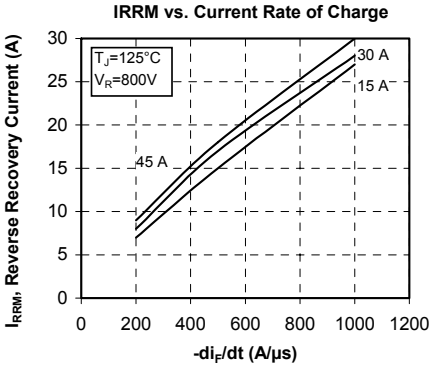
Typical Performance Curve

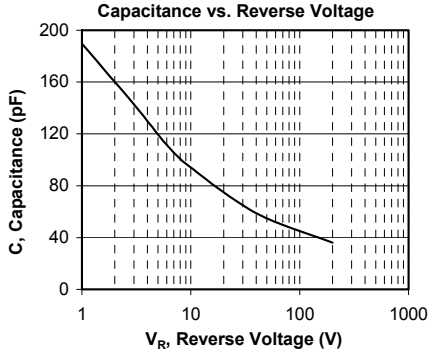




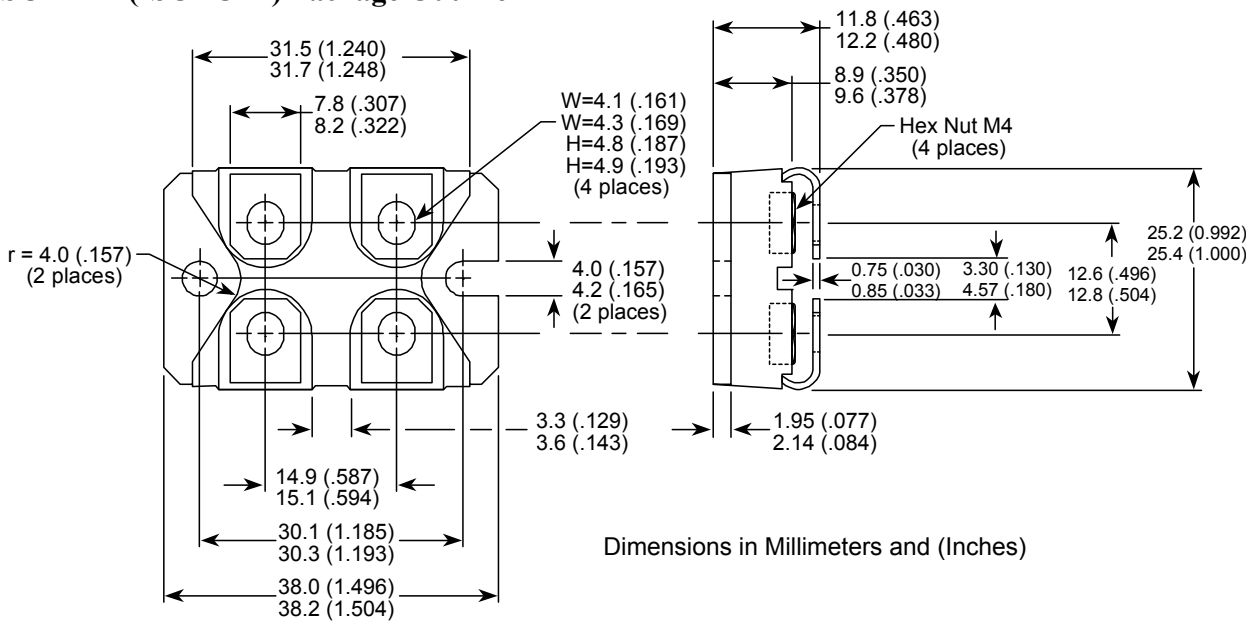








SOT-227 (ISOTOP®) Package Outline



Dimensions in Millimeters and (Inches)

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