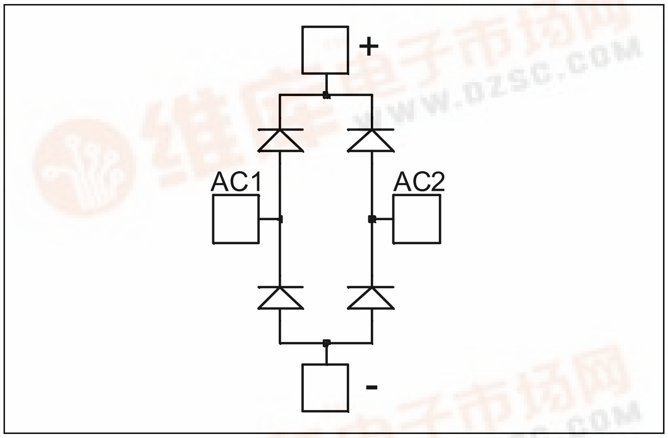
Microsemi
POWER PRODUCTS GROUP

APTDF100H170G

Diode Full Bridge Power Module

V_{RRM} = 1700V
I_C = 100A @ Tc = 55°C

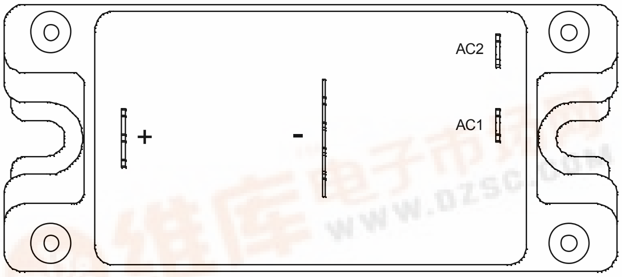


Application

- Uninterruptible Power Supply (UPS)
- 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
  - Symmetrical design
  - Lead frames for power connections
- High level of integration



Benefits

- Outstanding performance at high frequency operation
- Low losses
- Low noise switching
- Solderable terminals for easy PCB mounting
- 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			1700	V
V_{RRM}	Maximum Peak Repetitive Reverse Voltage				
$I_{F(AV)}$	Maximum Average Forward Current	Duty cycle = 50%	T_c = 25°C	120	A
			T_c = 55°C	100	
$I_{F(RMS)}$	RMS Forward Current			125	
I_{FSM}	Non-Repetitive Forward Surge Current		T_j = 25°C	300	

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handing 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 = 100A	T_j = 25°C		2.2	2.5	V
			T_j = 125°C		2.1		
I_{RM}	Maximum Reverse Leakage Current	V_R = 1700V	T_j = 25°C			250	µA
			T_j = 125°C			500	

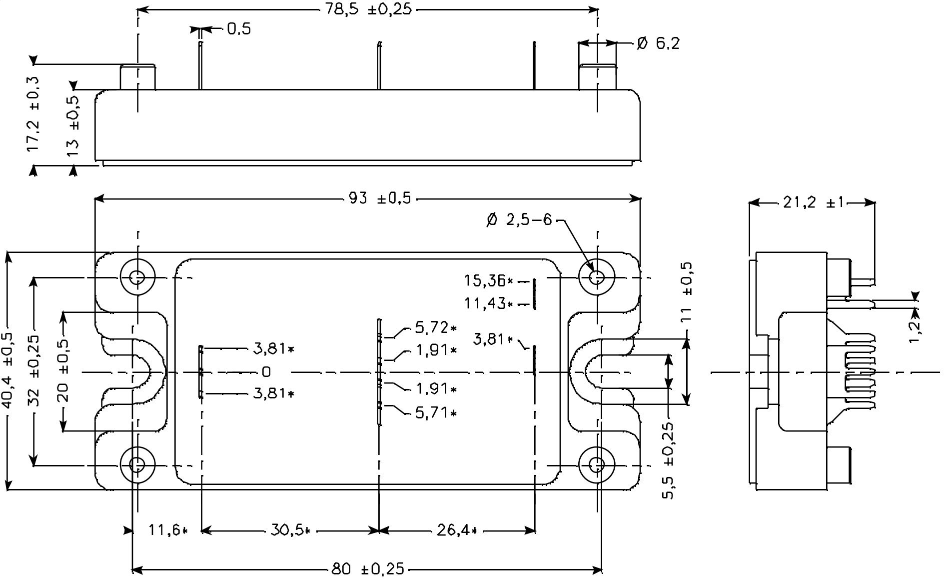
Dynamic Characteristics

Symbol	*Characteristic*	*Test Conditions*		*Min*	*Typ*	*Max*	*Unit*
t_{rr}	Reverse Recovery Time	I_F = 100A V_R = 900V di/dt = 1000A/µs	T_j = 25°C		572		ns
			T_j = 125°C		704		
Q_{rr}	Reverse Recovery Charge		T_j = 25°C		20		µC
			T_j = 125°C		35		
I_{RRM}	Reverse Recovery Current		T_j = 25°C		70		A
			T_j = 125°C		100		

Thermal and package characteristics

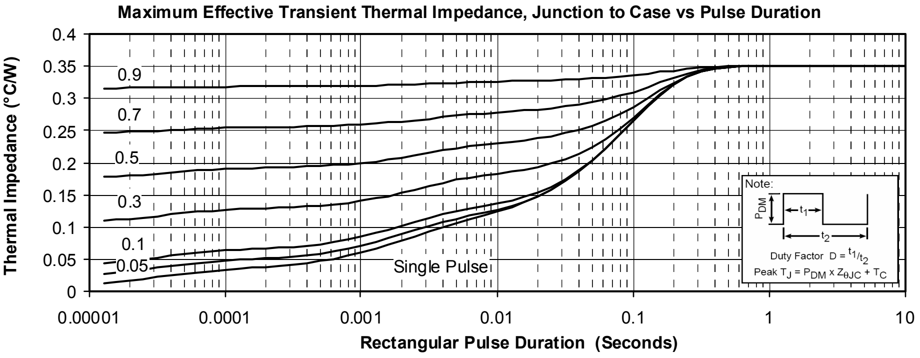
Symbol	*Characteristic*			*Min*	*Typ*	*Max*	*Unit*
R_{thJC}	Junction to Case Thermal Resistance					0.35	°C/W
V_{ISOL}	RMS Isolation Voltage, any terminal to case t =1 min, I isol<1mA, 50/60Hz			3500			V
T_J	Operating junction temperature range			-40		150	°C
T_{STG}	Storage Temperature Range			-40		125	
T_C	Operating Case Temperature			-40		100	
Torque	Mounting torque	To Heatsink	M5	2.5		4.7	N.m
Wt	Package Weight					160	g

SP4 Package outline (dimensions in mm)

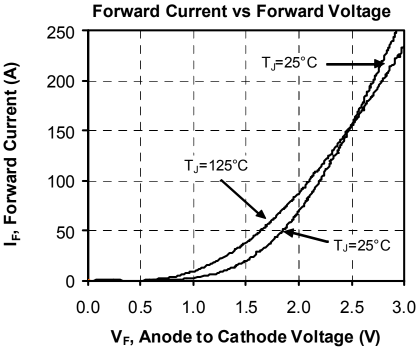


ALL DIMENSIONS MARKED " * " ARE TOLERENCED AS : ⌖ Ø1

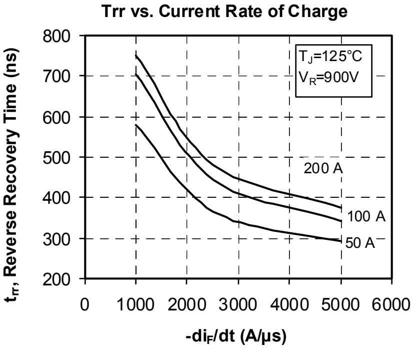
Typical Performance Curve



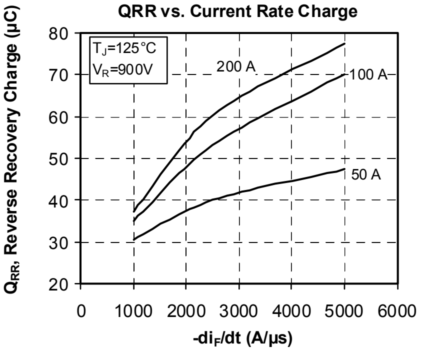
Maximum Effective Transient Thermal Impedance, Junction to Case vs Pulse Duration



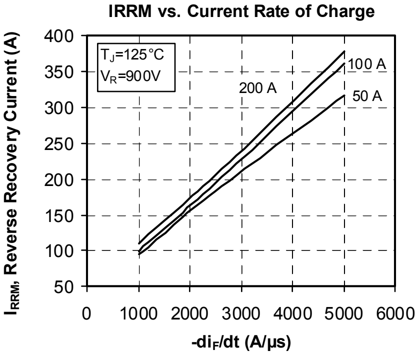
Forward Current vs Forward Voltage



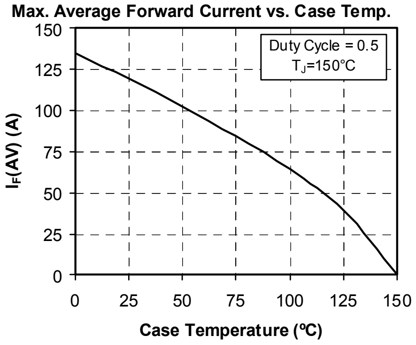
Trr vs. Current Rate of Charge



QRR vs. Current Rate Charge



IRRM vs. Current Rate of Charge



Max. Average Forward Current vs. Case Temp.

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