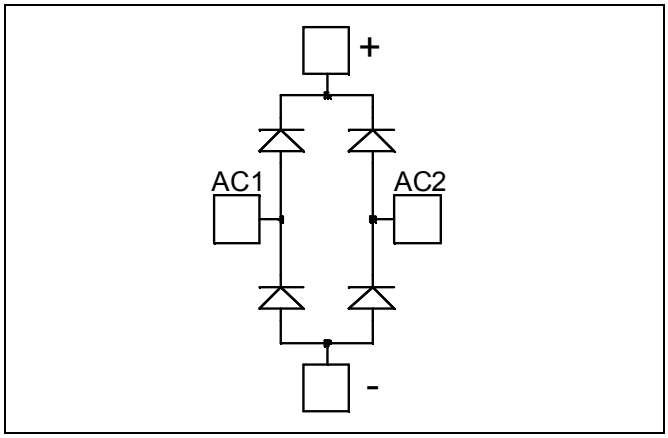
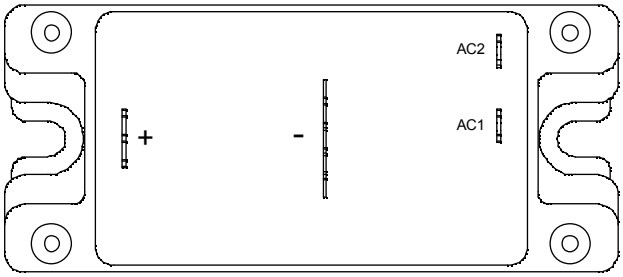
APTDF100H120

Fast Diode Rectifier Bridge Power Module

V_{RRM} = 1200V
I_C = 100A @ Tc = 60°C





Application

- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers

Features

- Ultra fast recovery times
- Soft recovery characteristics
- Very low stray inductance
- 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

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	120	A
			T_C = 60°C	100	
$I_{F(RMS)}$	RMS Forward Current	Duty cycle = 50%	T_C = 45°C	135	
I_{FSM}	Non-Repetitive Forward Surge Current	8.3ms	T_C = 45°C	500	

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handing Procedures Should Be Followed.

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			2.4	3	V
		I_F = 150A			2.7		
		I_F = 100A	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 = 1200V			110		pF

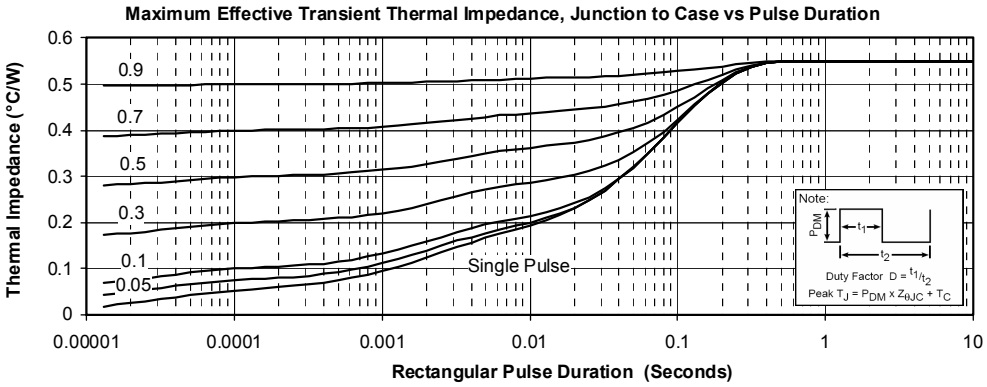
Dynamic Characteristics

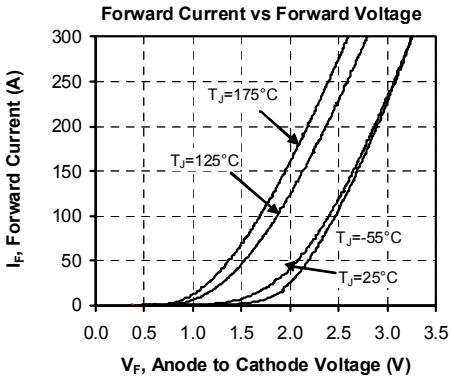
Symbol	*Characteristic*	*Test Conditions*		*Min*	*Typ*	*Max*	*Unit*
t_{rr}	Reverse Recovery Time	I_F=1A, V_R=30V di/dt = 100A/µs	T_j = 25°C		45		ns
t_{rr}	Reverse Recovery Time	I_F = 100A V_R = 800V di/dt = 200A/µs	T_j = 25°C		385		ns
			T_j = 125°C		480		
Q_{rr}	Reverse Recovery Charge		T_j = 25°C		1055		nC
			T_j = 125°C		5240		
I_{RRM}	Reverse Recovery Current		T_j = 25°C		6		A
			T_j = 125°C		19		
t_{rr}	Reverse Recovery Time	I_F = 100A V_R = 800V di/dt=1000A/µs	T_j = 125°C		210		ns
Q_{rr}	Reverse Recovery Charge				9.4		µC
I_{RRM}	Reverse Recovery Current				70		A

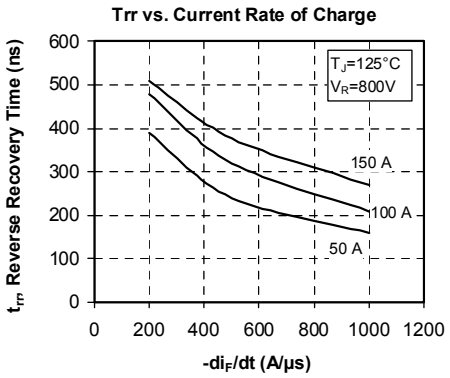
Thermal and package characteristics

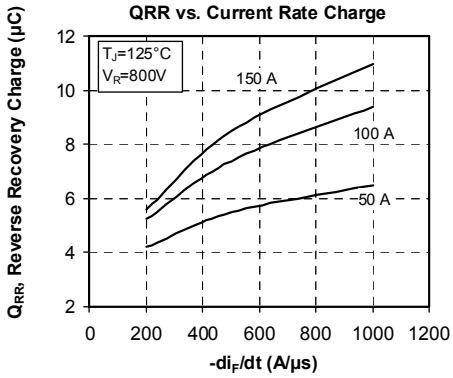
Symbol	*Characteristic*			*Min*	*Typ*	*Max*	*Unit*
R_{thJC}	Junction to Case					0.55	°C/W
V_{ISOL}	RMS Isolation Voltage, any terminal to case t =1 min, I isol<1mA, 50/60Hz			2500			V
T_J	Operating junction temperature range			-40		175	°C
T_{STG}	Storage Temperature Range			-40		125	
T_C	Operating Case Temperature			-40		100	
Torque	Mounting torque	To Heatsink	M5	1.5		4.7	N.m
Wt	Package Weight					160	g

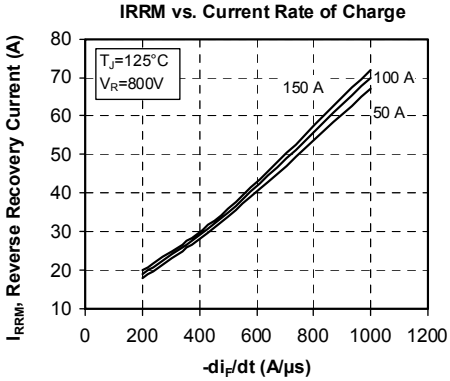
Typical Performance Curve

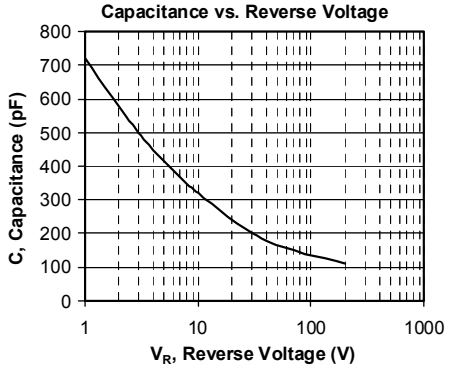


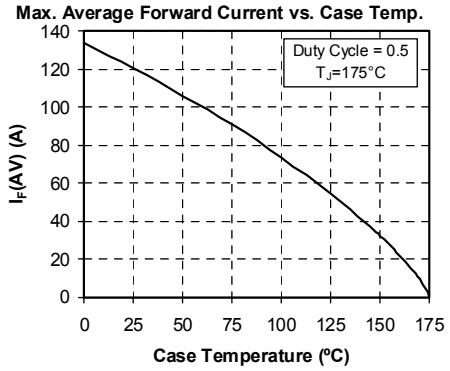












Package outline (dimensions in mm)