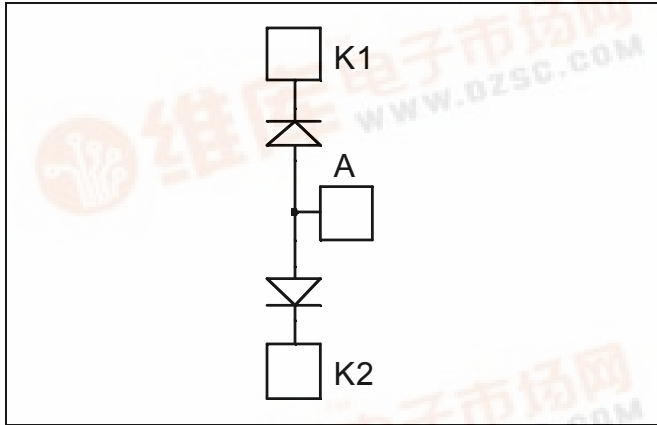




APTDF400AA120

Dual Common Anode diodes Power Module

$V_{RRM} = 1200V$
 $I_C = 400A @ T_c = 60^\circ C$



Application

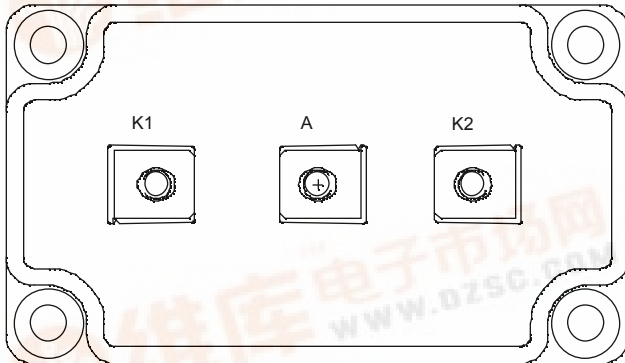
- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers

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
 - M5 power connectors
- 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



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	470	A	
			T _C = 60°C	400		
I _{F(RMS)}	RMS Forward Current	Duty cycle = 50%	T _C = 45°C	500		
I _{FSM}	Non-Repetitive Forward Surge Current		8.3ms	T _C = 45°C		3000

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



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

Electrical Characteristics

Symbol	Characteristic	Test Conditions		Min	Typ	Max	Unit
V_F	Diode Forward Voltage	$I_F = 400\text{A}$			2.4	3.0	V
		$I_F = 600\text{A}$			2.7		
		$I_F = 400\text{A}$	$T_j = 125^\circ\text{C}$		1.8		
I_{RM}	Maximum Reverse Leakage Current	$V_R = 1200\text{V}$	$T_j = 25^\circ\text{C}$			250	μA
			$T_j = 125^\circ\text{C}$			1000	
C_T	Junction Capacitance	$V_R = 1200\text{V}$			440		pF

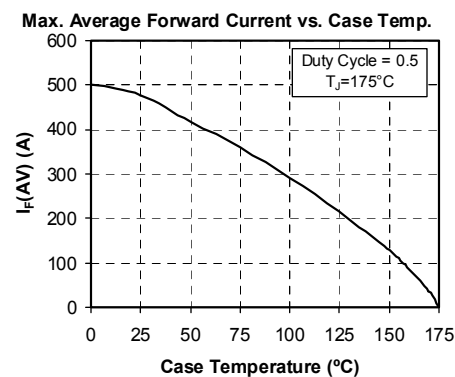
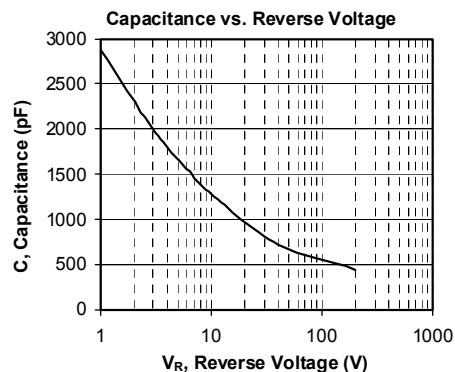
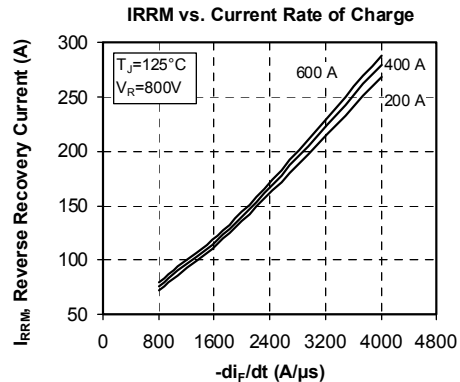
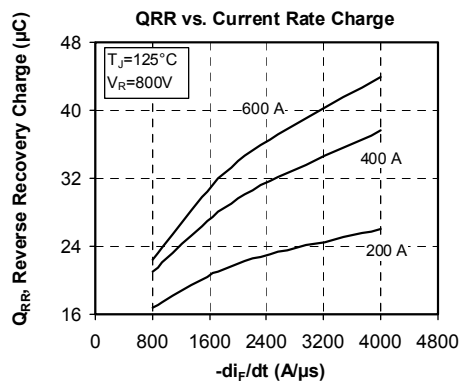
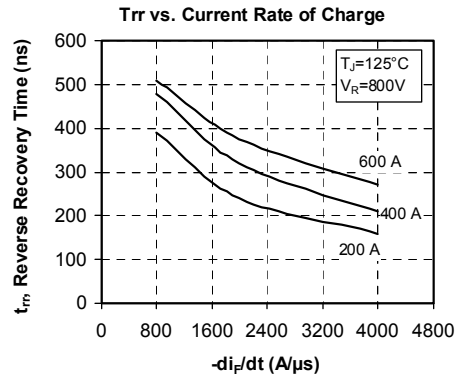
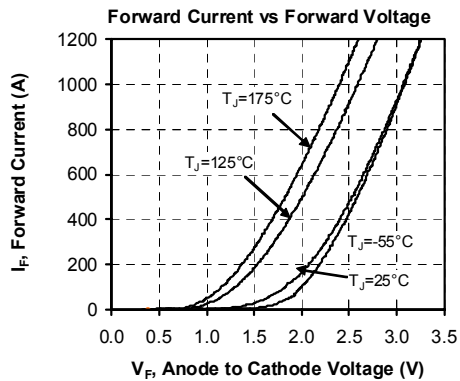
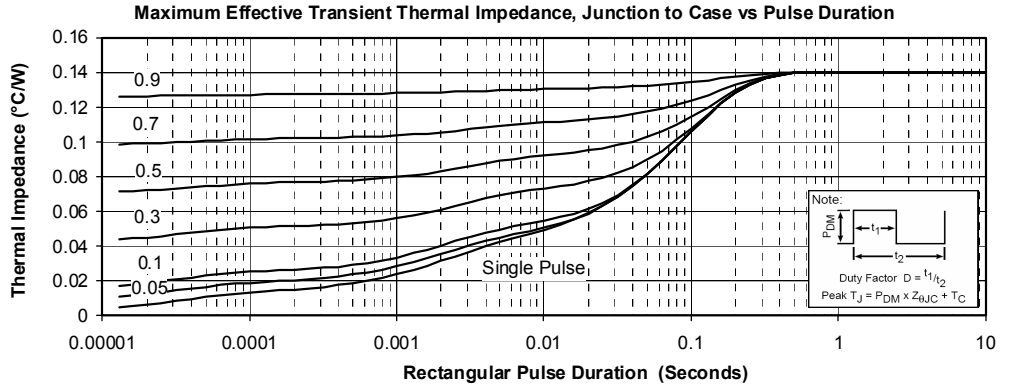
Dynamic Characteristics

Symbol	Characteristic	Test Conditions		Min	Typ	Max	Unit	
t _{rr}	Reverse Recovery Time	I _F =1 A, V _R =30V di/dt = 400A/μs	T _j = 25°C		45		ns	
t _{rr}	Reverse Recovery Time	I _F = 400 A V _R = 800 V di/dt = 800A/μs	T _j = 25°C		385		ns	
			T _j = 125°C		480			
Q _{rr}	Reverse Recovery Charge		T _j = 25°C		4.2		μC	
			T _j = 125°C		20.9			
I _{RRM}	Reverse Recovery Current		T _j = 25°C		24		A	
			T _j = 125°C		76			
t _{rr}	Reverse Recovery Time	I _F = 400 A V _R = 800 V di/dt = 4000A/μs	T _j = 125°C		210		ns	
Q _{rr}	Reverse Recovery Charge				38		μC	
I _{RRM}	Reverse Recovery Current				280		A	

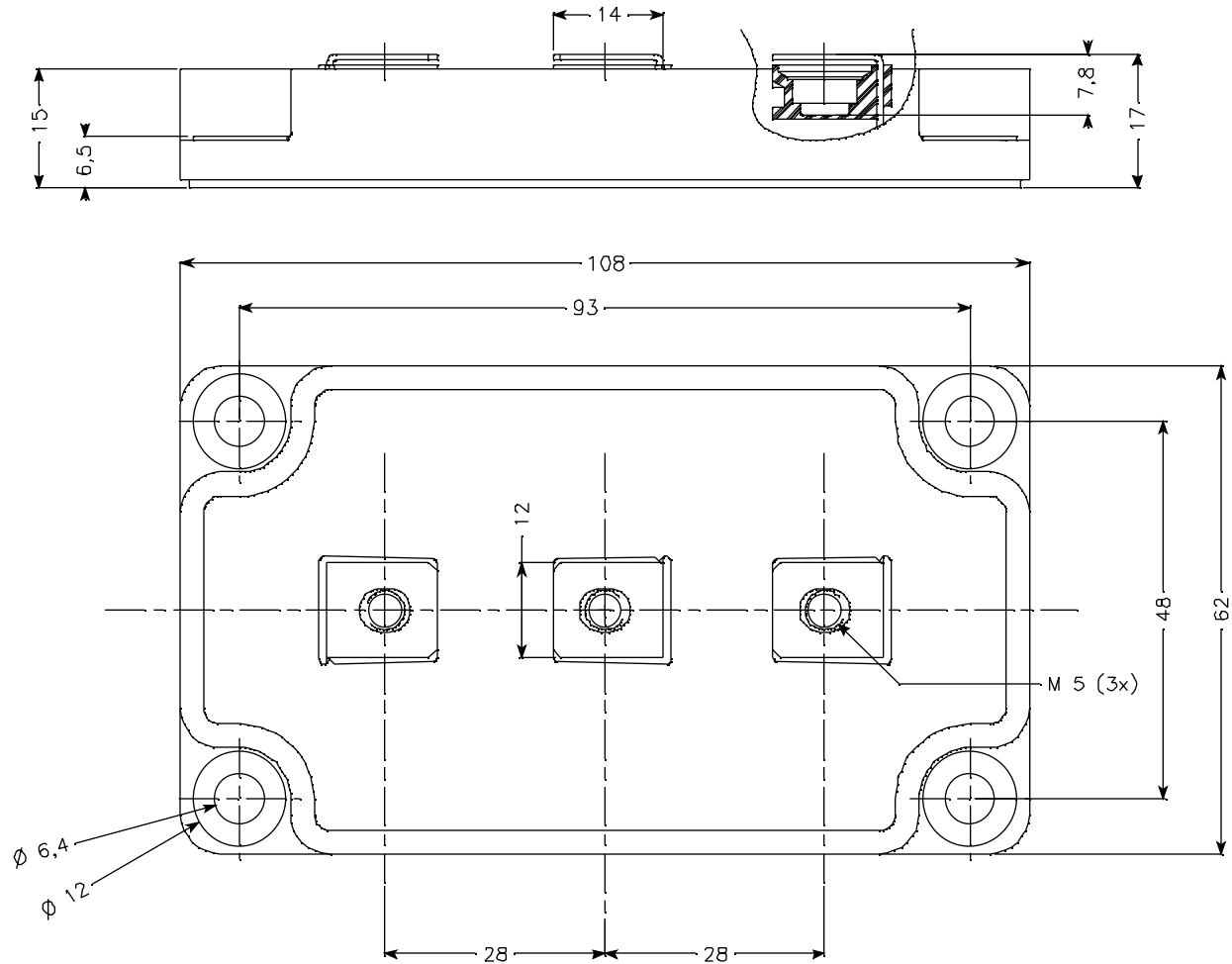
Thermal and package characteristics

Symbol	Characteristic			Min	Typ	Max	Unit
R_{thJC}	Junction to Case					0.14	$^\circ\text{C}/\text{W}$
V_{ISOL}	RMS Isolation Voltage, any terminal to case $t = 1\text{ min}$, $I_{isol} < 1\text{mA}$, 50/60Hz			2500			V
T_j	Operating junction temperature range			-40		175	$^\circ\text{C}$
T_{STG}	Storage Temperature Range			-40		125	
T_C	Operating Case Temperature			-40		100	
Torque	Mounting torque	To heatsink	M6	3		5	N.m
		For terminals	M5	2		3.5	
Wt	Package Weight					280	g

Typical Performance Curve



Package outline (dimensions in mm)



APT reserves the right to change, without notice, the specifications and information contained herein

APT'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 and foreign patents. U.S. and Foreign patents pending. All Rights Reserved.