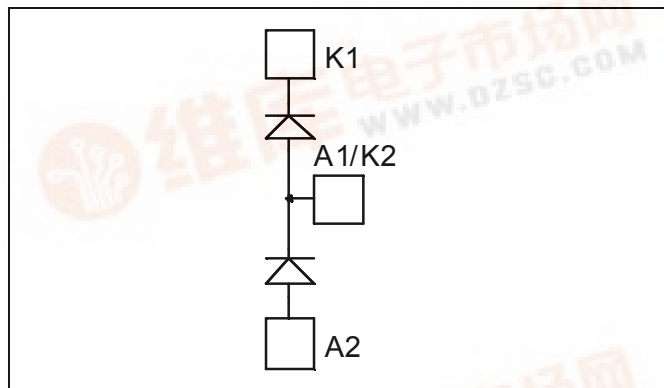




APTDF400AK170G

Diode Phase leg Power Module

$V_{RRM} = 1700V$
 $I_C = 400A @ T_c = 55^\circ C$



Application

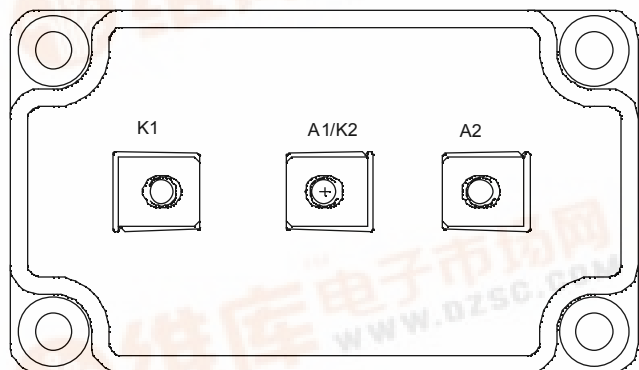
- Anti-Parallel diode
- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers

Features

- Ultra fast recovery times
- Soft recovery characteristics
- High blocking voltage
- High current
- Low leakage current
- Very low stray inductance
 - Symmetrical design
 - 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
- 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%	$T_c = 25^\circ C$	A
		$T_c = 55^\circ C$	
$I_{F(RMS)}$	RMS Forward Current	500	
I_{FSM}	Non-Repetitive Forward Surge Current	$T_j = 25^\circ C$	

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

Electrical Characteristics

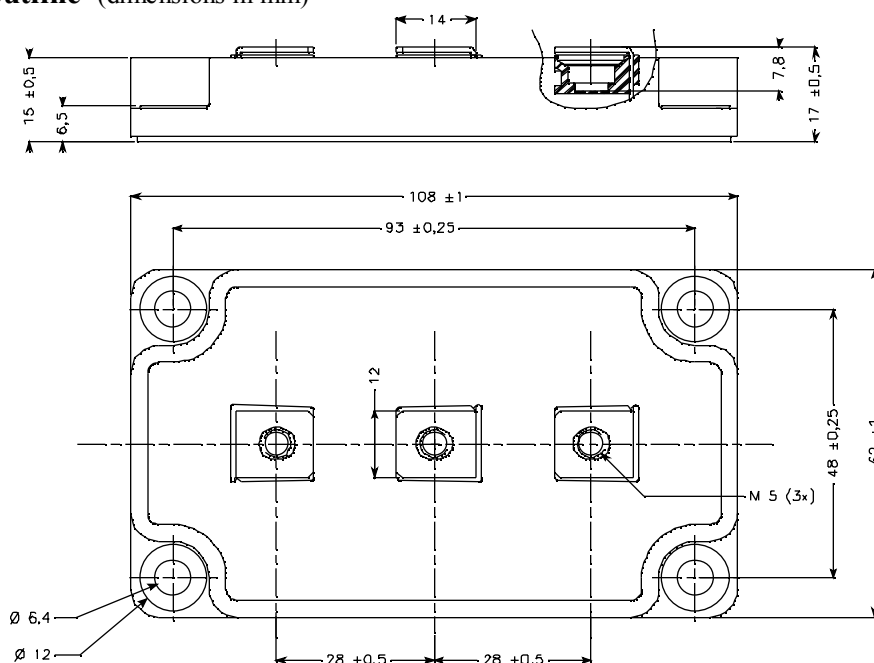
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
V_F	Diode Forward Voltage	$I_F = 400\text{A}$	$T_j = 25^\circ\text{C}$	2.2	2.5	V
			$T_j = 125^\circ\text{C}$	2.1		
I_{RM}	Maximum Reverse Leakage Current	$V_R = 1700\text{V}$	$T_j = 25^\circ\text{C}$		750	μA
			$T_j = 125^\circ\text{C}$		1000	

Dynamic Characteristics

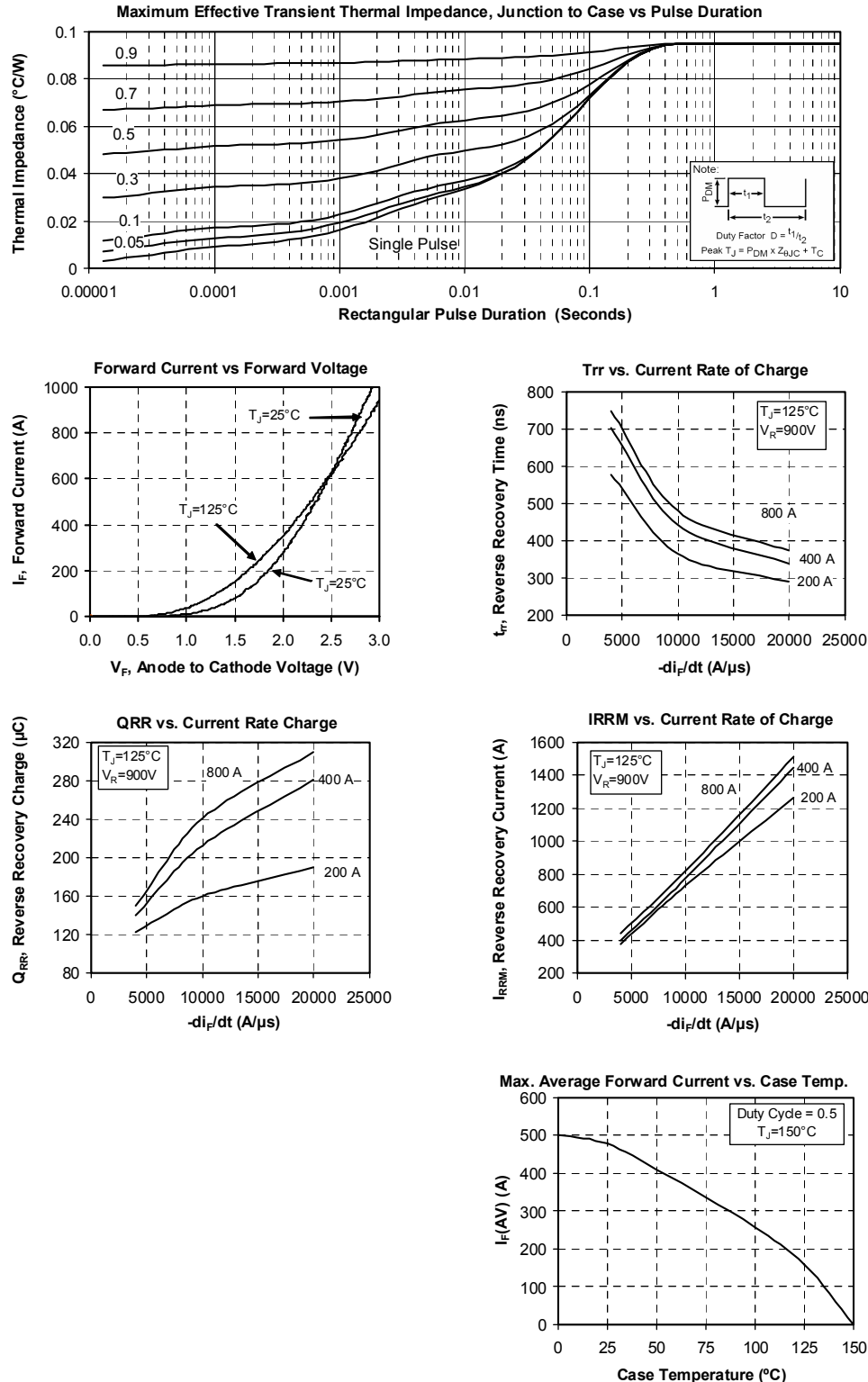
Symbol	Characteristic	Test Conditions	Min	Typ	Max	Unit
t_{rr}	Reverse Recovery Time	$I_F = 400\text{A}$ $V_R = 900\text{V}$ $di/dt = 4000\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$	572		ns
			$T_j = 125^\circ\text{C}$	704		
Q_{rr}	Reverse Recovery Charge		$T_j = 25^\circ\text{C}$	80		μC
			$T_j = 125^\circ\text{C}$	140		
I_{RRM}	Reverse Recovery Current		$T_j = 25^\circ\text{C}$	280		A
			$T_j = 125^\circ\text{C}$	400		

Thermal and package characteristics

Symbol	Characteristic			Min	Typ	Max	Unit
R _{thJC}	Junction to Case Thermal Resistance					0.095	°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	M6	3		5	N.m
		For terminals	M5	2		3.5	
Wt	Package Weight					280	g

SP6 Package outline (dimensions in mm)


Typical Performance Curve



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