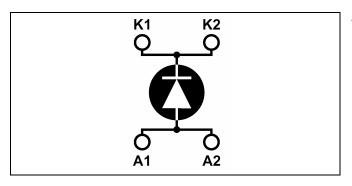


APTDF500U20G

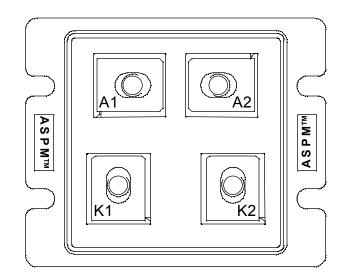
Single diode Power Module



$V_{CES} = 200V$ $I_{C} = 500A$ @ Tc = 80°C

Application

- Anti-Parallel diode
 - Switchmode Power Supply
 - Inverters
- Snubber diode
- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers
- Electric vehicles



Features

- Ultra fast recovery times
- Soft recovery characteristics
- Very low stray inductance
- High blocking voltage
- High current
- Low leakage current

Benefits

- 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			200	V
V _{RRM}	Maximum Peak Repetitive Revers	e Voltage		200	v
т	Maximum Average Forward	Dute evel $= 500/$	$T_c = 25^{\circ}C$	500	
$I_{F(A V)}$	Current	Duty cycle = 50%	$T_c = 80^{\circ}C$	500	Δ
I _{F(RMS)}	RMS Forward Current		850	Λ	
I _{FSM}	Non-Repetitive Forward Surge Current		$T_j = 25^{\circ}C$	5000	

CAUTION: These Devices are sensitive to Electrostatic Discharge. Proper Handing Procedures Should Be Followed. See application note APT0502 on www.microsemi.com

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All ratings (a) $T_j = 25^{\circ}C$ unless otherwise specified

Electrical Characteristics

	Characteristic	Test Conditions		Min	Тур	Max	Unit
V _F	Diode Forward Voltage	$I_F = 500 A$				1.1	
		$I_{\rm F} = 1000 {\rm A}$			1.25		V
		$I_{\rm F} = 500 {\rm A}$	$T_{j} = 150^{\circ}C$			0.95	
I _{RM}	Maximum Reverse Leakage Current	$V_{\rm p} = 200 V$	$T_j = 25^{\circ}C$			2500	۸
			$T_{j} = 150^{\circ}C$			5000	μA
CT	Junction Capacitance	$V_{R} = 200 V$			1000		pF
Ls	Series Inductance	Lead to Lead 5mm from Base			30	40	nH

Dynamic Characteristics

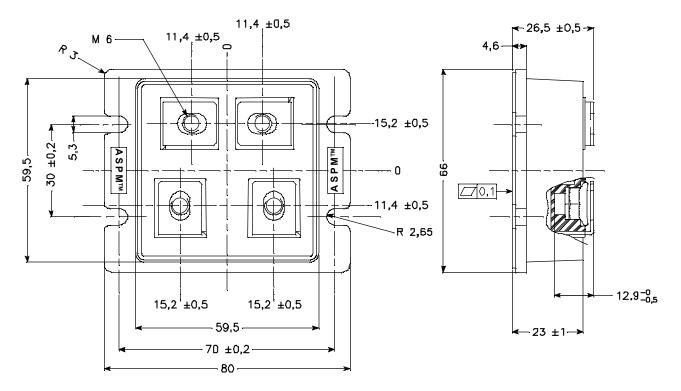
Symbol	Characteristic	Test Conditions		Min	Тур	Max	Unit
t_{rr1}	Reverse Recovery Time	$I_F=1A, V_R=30V$ di/dt = 15A/µs	$T_j = 25^{\circ}C$		70		ns
t _{rr2}		$I_{\rm F} = 500 {\rm A}$	$T_j = 25^{\circ}C$		70		
t _{rr3}		$V_R = 100V$ di/dt=800A/µs	$T_j = 100^{\circ}C$		150		
t _{fr1}	Forward Recovery Time		$T_j = 25^{\circ}C$		250		ns
t _{fr2}			$T_{j} = 100^{\circ}C$		250		115
I _{RRM1}	Reverse Recovery Current		$T_j = 25^{\circ}C$			50	А
I _{RRM2}			$T_{j} = 100^{\circ}C$			120	
Q _{rr1}	Reverse Recovery Charge	$I_{\rm F} = 500 {\rm A}$ $V_{\rm R} = 100 {\rm V}$	$T_j = 25^{\circ}C$		4.9		μC
Q _{rr2}		di/dt=800A/µs	$T_{j} = 100^{\circ}C$		22		μο
$V_{\rm fr1}$	Forward Recovery Voltage		$T_j = 25^{\circ}C$		15		v
$V_{\mathrm{fr}2}$			$T_{j} = 100^{\circ}C$		15		
d _{IM/dt}	Rate of Fall of Recovery Current		$T_j = 25^{\circ}C$		1200		A/μs
⊶nvi/dt			$T_{j} = 100^{\circ}C$		1800		1540

Thermal and package characteristics

Symbol	Characteristic			Min	Тур	Max	Unit	
R _{thJC}	Junction to Case Thermal Resistance					0.08	°C/W	
V _{ISOL}	RMS Isolation Voltage, any terminal to case t=1 min, I isol<1mA, 50/60Hz			2500			V	
TJ	Operating junction temperature range			-40		150		
T _{STG}	Storage Temperature Range			-40		125	°C	
T _C	Operating Case Temperature	-40		100				
Torque	Mounting torque	To heatsink	M5	2.5		3.5	N.m	
Torque	rorque	would be determined and the	For terminals	M6	3		4	19.111
Wt	Package Weight					250	g	



LP4 Package outline (dimensions in mm)



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.