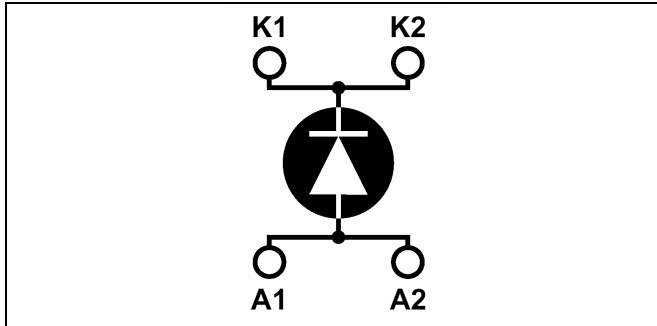


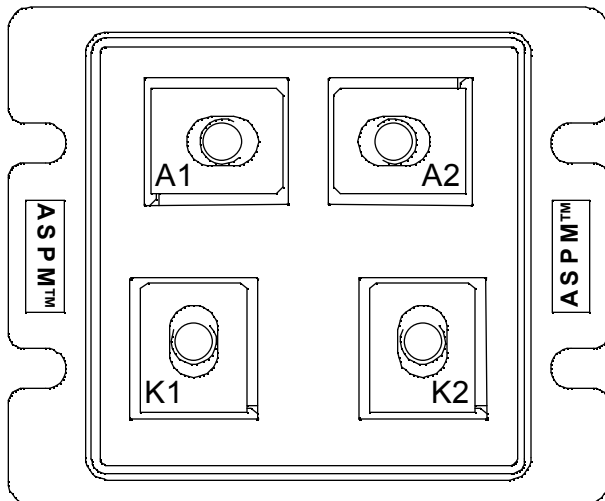
## Single diode Power Module

$V_{CES} = 400V$   
 $I_C = 500A @ T_c = 80^\circ C$



### 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	400	V	
$V_{RRM}$	Maximum Peak Repetitive Reverse Voltage			
$I_{F(AV)}$	Maximum Average Forward Current	Duty cycle = 50%	$T_c = 25^\circ C$	A
			$T_c = 80^\circ C$	
$I_{F(RMS)}$	RMS Forward Current	850		
$I_{FSM}$	Non-Repetitive Forward Surge Current	$T_j = 25^\circ C$	5000	

**CAUTION:** These Devices are sensitive to Electrostatic Discharge. Proper Handling Procedures Should Be Followed. See application note APT0502 on [www.microsemi.com](http://www.microsemi.com)

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	$I_F = 500\text{A}$				1.5	V
		$I_F = 1000\text{A}$			1.5		
		$I_F = 500\text{A}$	$T_j = 150^\circ\text{C}$			1.3	
$I_{RM}$	Maximum Reverse Leakage Current	$V_R = 400\text{V}$	$T_j = 25^\circ\text{C}$			2500	$\mu\text{A}$
			$T_j = 150^\circ\text{C}$			5000	
$C_T$	Junction Capacitance	$V_R = 200\text{V}$			800		pF

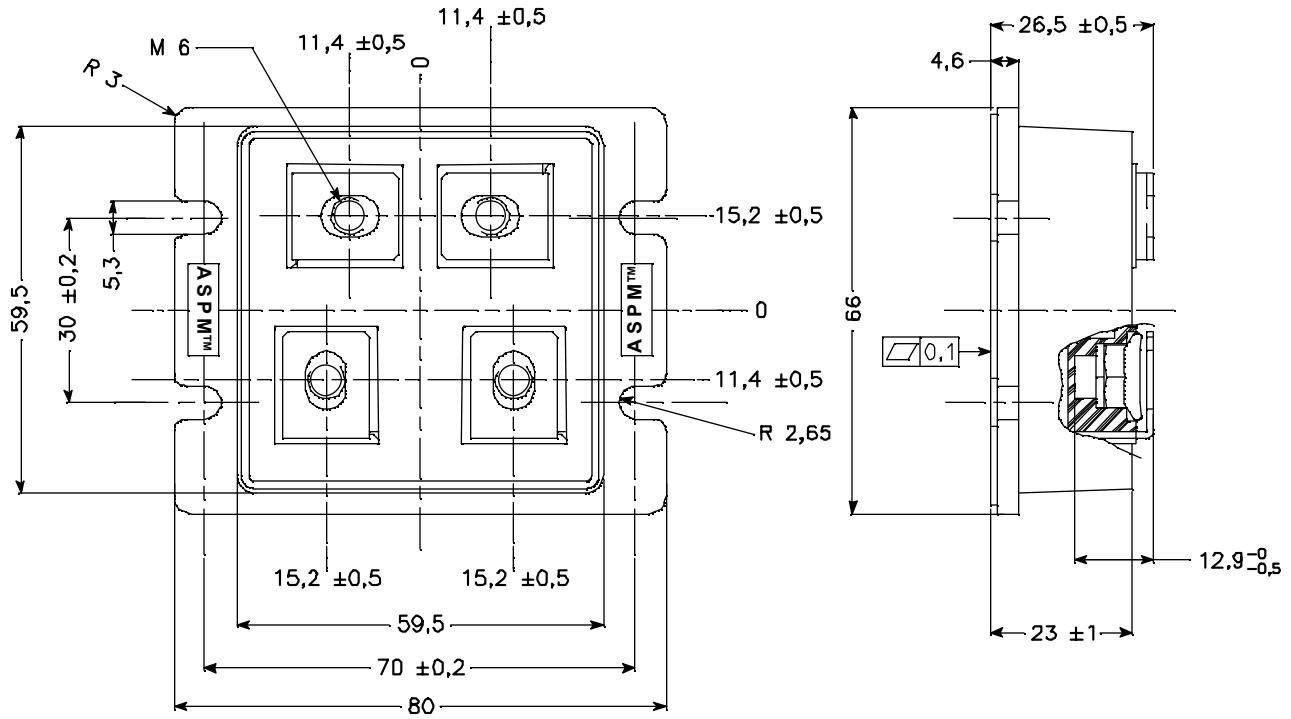
**Dynamic Characteristics**

Symbol	Characteristic	Test Conditions		Min	Typ	Max	Unit
$t_{rr1}$	Reverse Recovery Time	$I_F = 1\text{A}, V_R = 30\text{V}$ $di/dt = 15\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$			50	ns
$t_{rr2}$			$T_j = 25^\circ\text{C}$			120	
$t_{rr3}$			$T_j = 100^\circ\text{C}$			260	
$t_{fr1}$	Forward Recovery Time	$I_F = 500\text{A}$ $V_R = 240\text{V}$ $di/dt = 1000\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$		210		ns
$t_{fr2}$			$T_j = 100^\circ\text{C}$		220		
$I_{RRM1}$	Reverse Recovery Current		$T_j = 25^\circ\text{C}$			50	A
$I_{RRM2}$			$T_j = 100^\circ\text{C}$			120	
$Q_{rr1}$	Reverse Recovery Charge		$T_j = 25^\circ\text{C}$			3	$\mu\text{C}$
$Q_{rr2}$			$T_j = 100^\circ\text{C}$			15.6	
$V_{fr1}$	Forward Recovery Voltage		$T_j = 25^\circ\text{C}$		19		V
$V_{fr2}$			$T_j = 100^\circ\text{C}$		19		
$d_{IM/dt}$	Rate of Fall of Recovery Current		$T_j = 25^\circ\text{C}$		1200		$\text{A}/\mu\text{s}$
			$T_j = 100^\circ\text{C}$		1800		

**Thermal and package characteristics**

Symbol	Characteristic	Min	Typ	Max	Unit	
$R_{thJC}$	Junction to Case Thermal Resistance			0.08	$^\circ\text{C}/\text{W}$	
$V_{ISOL}$	RMS Isolation Voltage, any terminal to case $t = 1\text{ min}, I_{isol} < 1\text{mA}, 50/60\text{Hz}$	2500			V	
$T_J$	Operating junction temperature range	-40		150	$^\circ\text{C}$	
$T_{STG}$	Storage Temperature Range	-40		125		
$T_C$	Operating Case Temperature	-40		100		
Torque	Mounting torque	To heatsink	M5	2.5	3.5	N.m
		For terminals	M6	3	4	
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.