

Single diode Power Module

$$V_{CES} = 1000V$$

$$I_C = 430A @ T_c = 80^{\circ}C$$

Application

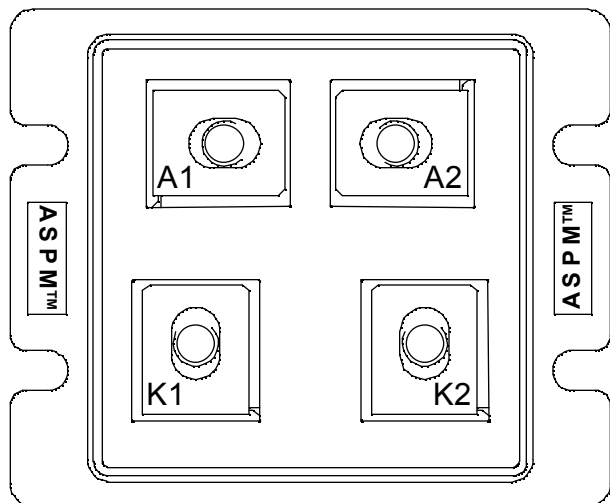
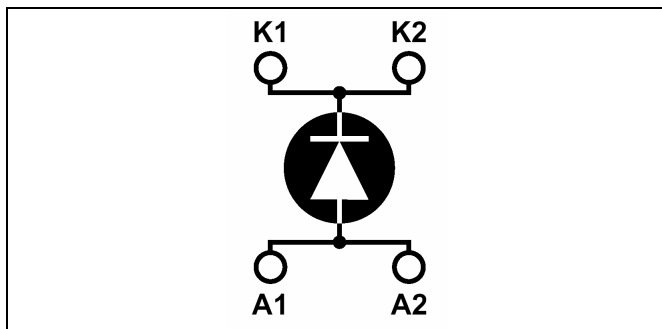
- Anti-Parallel diode
 - Switchmode Power Supply
 - Inverters
- Snubber diode
- Uninterruptible Power Supply (UPS)
- Induction heating
- Welding equipment
- High speed rectifiers
- Electric vehicles

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			1000	V
V_{RRM}	Maximum Peak Repetitive Reverse Voltage				
$I_{F(AV)}$	Maximum Average Forward Current	Duty cycle = 50%	$T_c = 25^{\circ}C$	500	A
			$T_c = 80^{\circ}C$	430	
$I_{F(RMS)}$	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

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

Electrical Characteristics

<i>Symbol</i>	<i>Characteristic</i>	<i>Test Conditions</i>		<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>
V_F	Diode Forward Voltage	$I_F = 500\text{A}$			2.0	2.3	V
		$I_F = 1000\text{A}$			2.5		
		$I_F = 500\text{A}$	$T_j = 150^\circ\text{C}$			1.8	
I_{RM}	Maximum Reverse Leakage Current	$V_R = 1000\text{V}$	$T_j = 25^\circ\text{C}$			2500	μA
			$T_j = 150^\circ\text{C}$			5000	
C_T	Junction Capacitance	$V_R = 200\text{V}$			580		pF

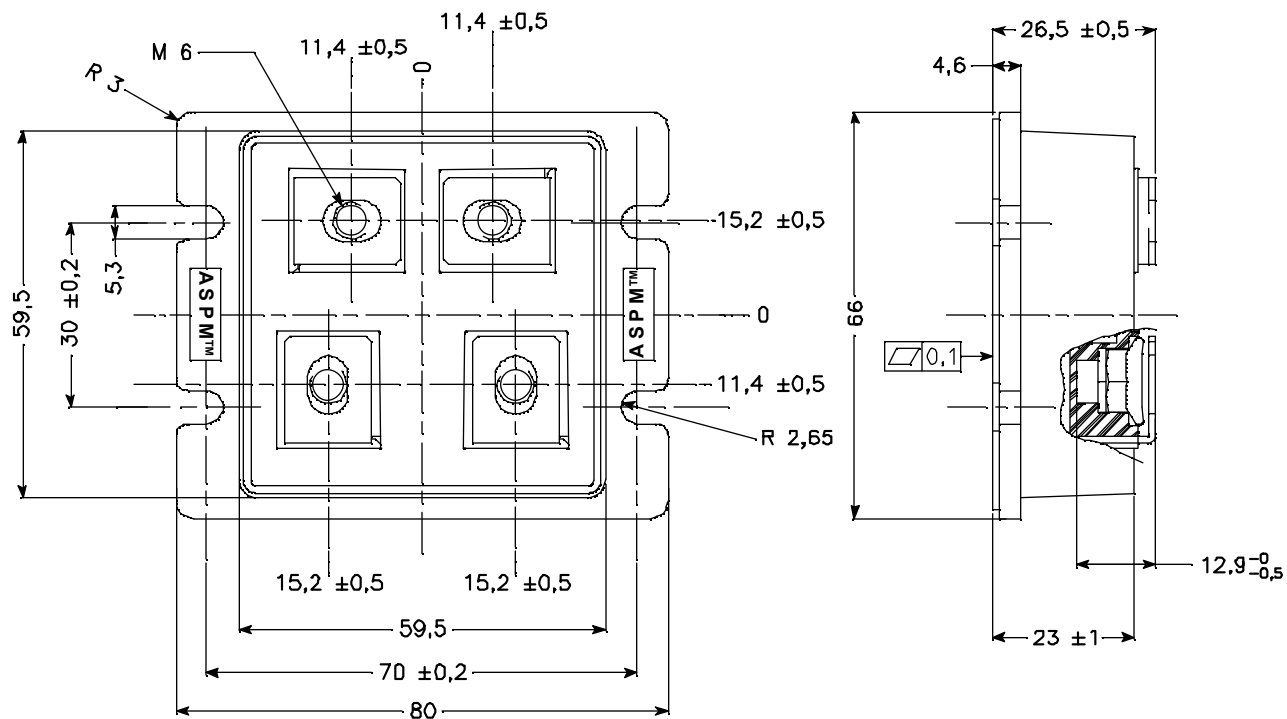
Dynamic Characteristics

<i>Symbol</i>	<i>Characteristic</i>	<i>Test Conditions</i>		<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>	
t_{rr1}	Reverse Recovery Time	$I_F = 1\text{A}, V_R = 30\text{V}$ $di/dt = 15\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$		80	95	ns	
t_{rr2}			$T_j = 25^\circ\text{C}$		100	120		
t_{rr3}			$T_j = 100^\circ\text{C}$		200	300		
t_{fr1}	Forward Recovery Time	$I_F = 500\text{A}$ $V_R = 540\text{V}$ $di/dt = 1000\text{A}/\mu\text{s}$	$T_j = 25^\circ\text{C}$		135		ns	
t_{fr2}			$T_j = 100^\circ\text{C}$		200			
I_{RRM1}	Reverse Recovery Current		$T_j = 25^\circ\text{C}$		35	50	A	
I_{RRM2}			$T_j = 100^\circ\text{C}$		65	85		
Q_{rr1}	Reverse Recovery Charge		$T_j = 25^\circ\text{C}$		1.75	3	μC	
Q_{rr2}			$T_j = 100^\circ\text{C}$		6.5	12.8		
V_{fr1}	Forward Recovery Voltage		$T_j = 25^\circ\text{C}$		31		V	
V_{fr2}			$T_j = 100^\circ\text{C}$		31			
d_{IM}/dt	Rate of Fall of Recovery Current		$T_j = 25^\circ\text{C}$		1000		$\text{A}/\mu\text{s}$	
			$T_j = 100^\circ\text{C}$		500			

Thermal and package characteristics

<i>Symbol</i>	<i>Characteristic</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>	
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)



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