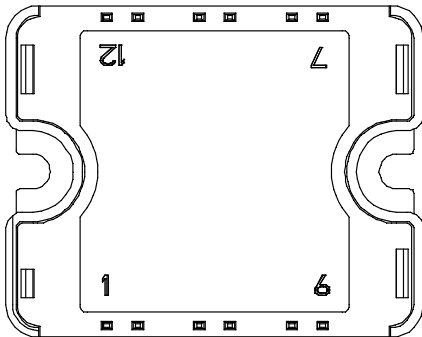
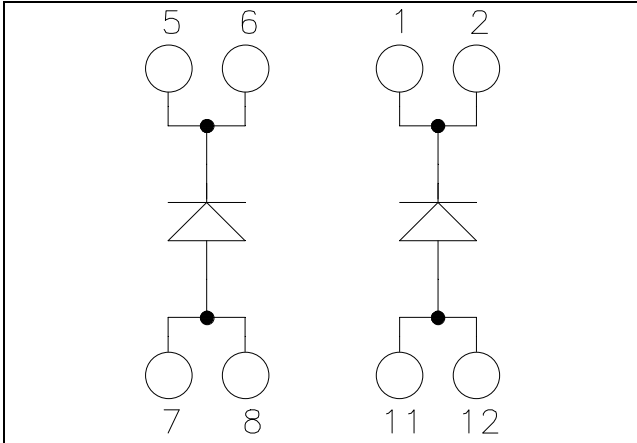


## Single SiC Diode Power Module

$V_{RRM} = 600V$   
 $I_F = 90A @ T_c = 80^\circ C$



All multiple inputs and outputs must be shorted together  
 1/2 ; 5/6 ; 7/8 ; 11/12

### Application

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

### Features

- **SiC Schottky Diode**
  - Zero reverse recovery
  - Zero forward recovery
  - Temperature Independent switching behavior
  - Positive temperature coefficient on VF
- Very low stray inductance
- High level of integration

### Benefits

- Outstanding performance at high frequency operation
- Low losses
- Low noise switching
- Solderable terminals for easy PCB mounting
- Direct mounting to heatsink (isolated package)
- Low junction to case thermal resistance
- RoHS Compliant

### Absolute maximum ratings (per leg)

Symbol	Parameter	Max ratings	Unit
$V_R$	Maximum DC reverse Voltage	600	V
$V_{RRM}$	Maximum Peak Repetitive Reverse Voltage		
$I_{F(AV)}$	Maximum Average Forward Current	90	A
$I_{FSM}$	Non-Repetitive Forward Surge Current	1100	
		10 $\mu s$	$T_c = 25^\circ C$

**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

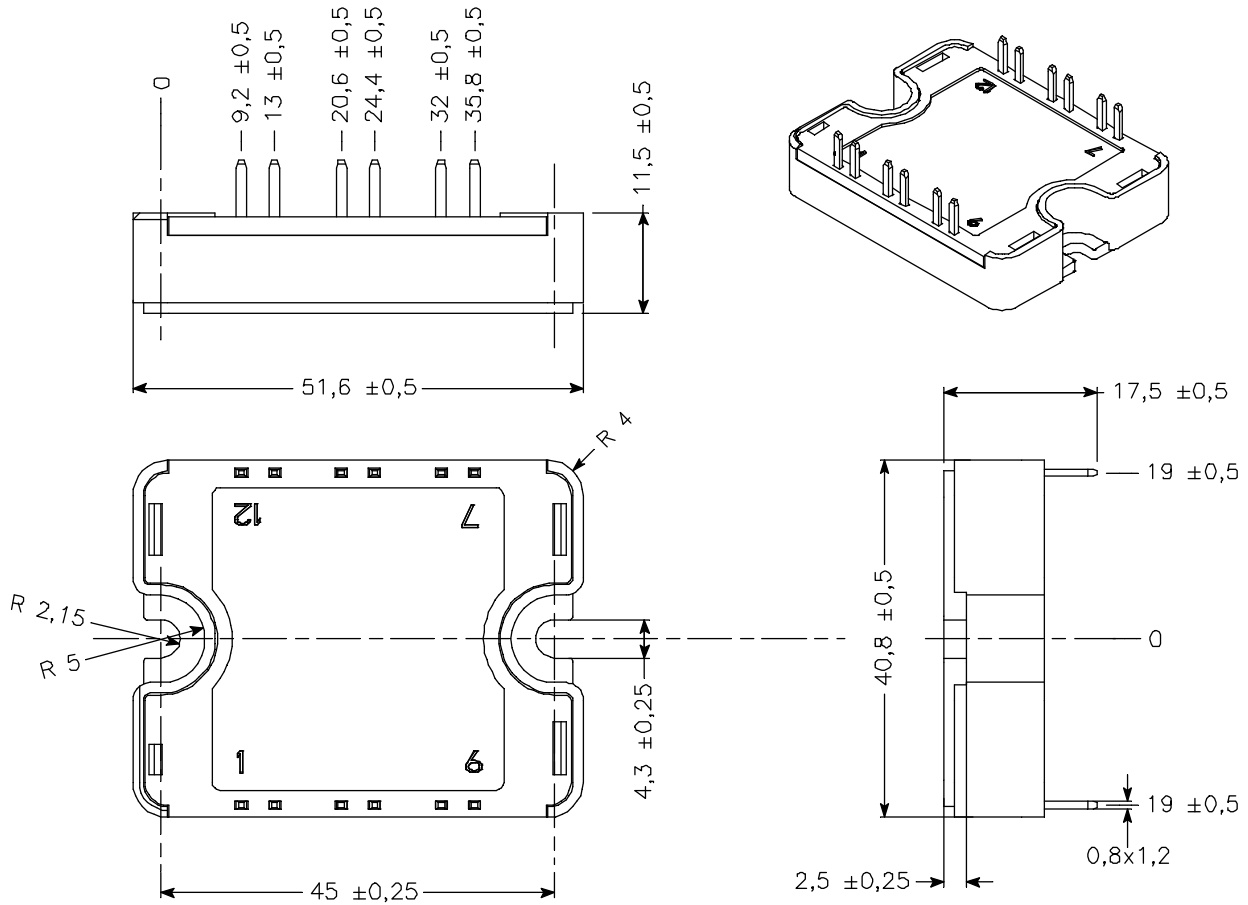
**Electrical Characteristics (per leg)**

<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	$I_F = 90\text{A}$	$T_j = 25^\circ\text{C}$		1.6	1.8	V
			$T_j = 175^\circ\text{C}$		2	2.4	
$I_{RM}$	Maximum Reverse Leakage Current	$V_R = 600\text{V}$	$T_j = 25^\circ\text{C}$		450	1800	$\mu\text{A}$
			$T_j = 175^\circ\text{C}$		900	9000	
$Q_C$	Total Capacitive Charge	$I_F = 90\text{A}, V_R = 300\text{V}$ $di/dt = 2200\text{A}/\mu\text{s}$			126		nC
C	Total Capacitance	$f = 1\text{MHz}, V_R = 200\text{V}$			585		pF
		$f = 1\text{MHz}, V_R = 400\text{V}$			450		

**Thermal and package characteristics (per leg)**

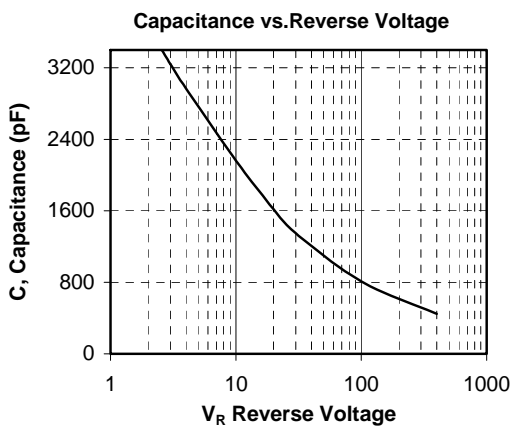
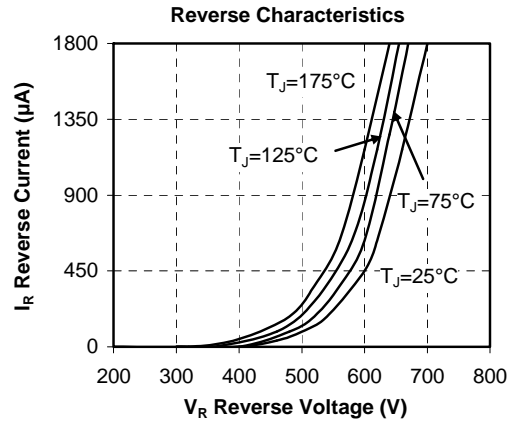
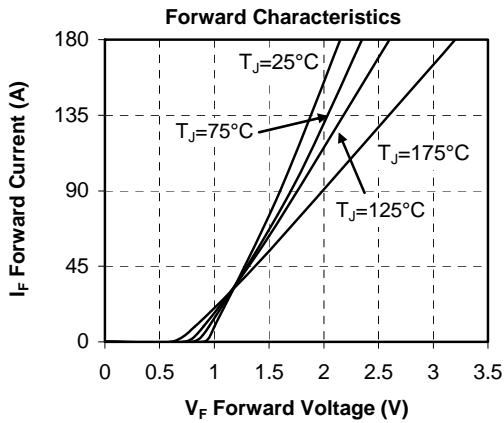
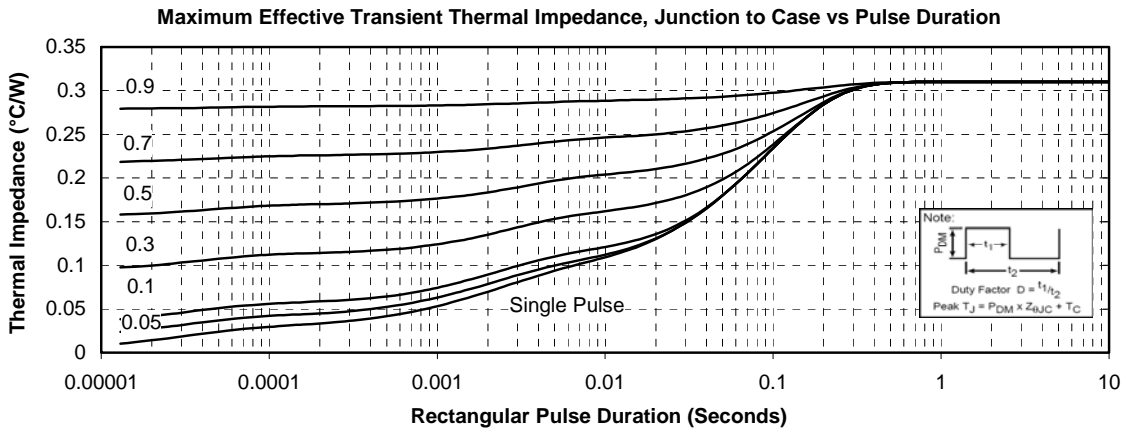
<i>Symbol</i>	<i>Characteristic</i>	<i>Min</i>	<i>Typ</i>	<i>Max</i>	<i>Unit</i>	
$R_{thJC}$	Junction to Case Thermal Resistance			0.31	$^\circ\text{C}/\text{W}$	
$V_{ISOL}$	RMS Isolation Voltage, any terminal to case $t = 1\text{ min}$ , $I_{isol} < 1\text{mA}$ , 50/60Hz	2500			V	
$T_J$	Operating junction 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	M4	2.5	4.7	N.m
Wt	Package Weight				80	g

**SP1 Package outline** (dimensions in mm)



See application note 1904 - Mounting Instructions for SP1 Power Modules on [www.microsemi.com](http://www.microsemi.com)

## Typical Diode Performance Curve



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

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