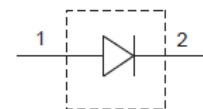
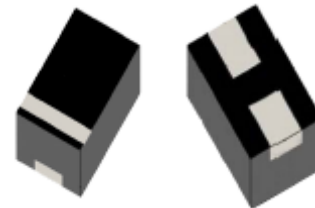


### Features

- Small Size (50 x 30 mils)
- Broadband Performance up to 6 GHz
- Supports up to 4 W Power when Cold Switched
- Low Insertion Loss: 0.5 dB
- RoHS\* Compliant



### Description

The MSWSE-005-15 is a PIN diode SPST switch element designed for medium incident power applications up to 4 W CW. It has low insertion loss and medium isolation below 6 GHz.

### Electrical Specifications: $T_A = +25^\circ\text{C}$

Parameter	Test Conditions	Min.	Typ.	Max.	Units
Breakdown Voltage	$I_R = 10 \mu\text{A}$	200	—	—	V
Forward Voltage	$I_F = 50 \text{ mA}$	—	980	1050	mV
Junction Capacitance	$V_R = 50 \text{ V}, 1 \text{ MHz}$	—	0.035	0.05	pF
Total Capacitance	$V_R = 50 \text{ V}, 1 \text{ MHz}$	—	0.11	0.15	pF
Series Resistance	$I_F = 30 \text{ mA}, 500 \text{ MHz}$ $I_F = 100 \text{ mA}, 500 \text{ MHz}$	—	2.0 1.4	2.5 1.8	$\Omega$
Lifetime	$I_F = 10 \text{ mA}, I_R = 6 \text{ mA}, 50\%$	—	180	300	ns
Insertion Loss	$I_F = 50 \text{ mA}, <2.7 \text{ GHz}$ $I_F = 50 \text{ mA}, <6.0 \text{ GHz}$	—	0.25 0.50	0.4 —	dB
Isolation	$V_R = 50 \text{ V}, <2.7 \text{ GHz}$ $V_R = 50 \text{ V}, <6.0 \text{ GHz}$	13 —	16 10	—	dB
I-Layer	—	—	15	—	$\mu\text{m}$

## Silicon PIN Diode Switch Element

Rev. V1

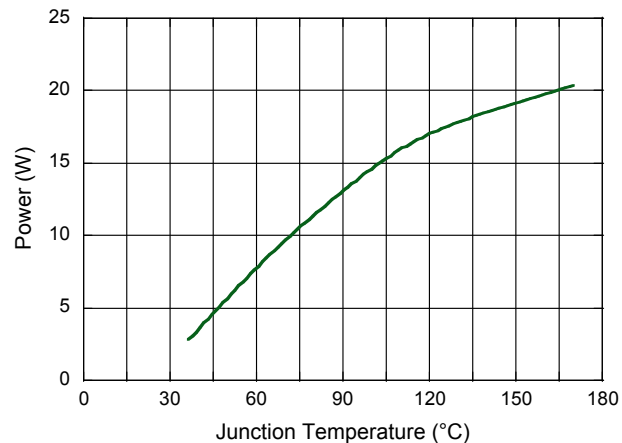
### Absolute Maximum Ratings<sup>1,2</sup>

Parameter	Absolute Maximum
Breakdown Voltage	200 V
Forward Current	200 mA
Thermal Resistance	50°C/W
Junction Temperature	+175°C
Storage Temperature	-55°C to +150°C
Solder Temperature	+260°C per JEDEC STD-J-20C

1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.

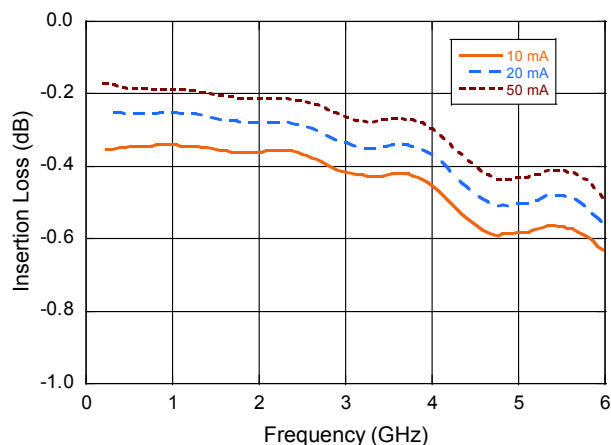
### Junction Temperature vs. Input Power

1.3 GHz,  $T_A = 25^\circ\text{C}$ , PCB Mounted on Heat Sink

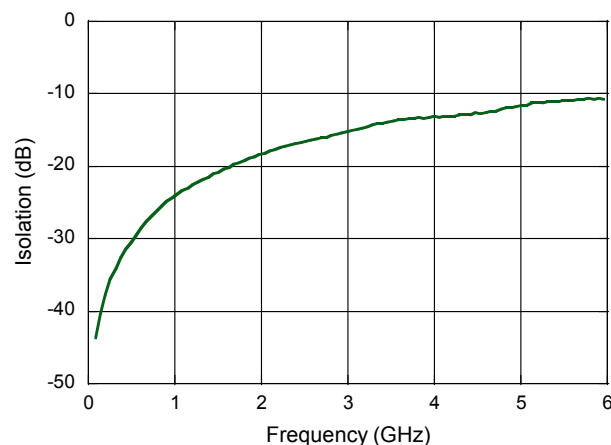


### Typical RF Performance Curves @ +25°C

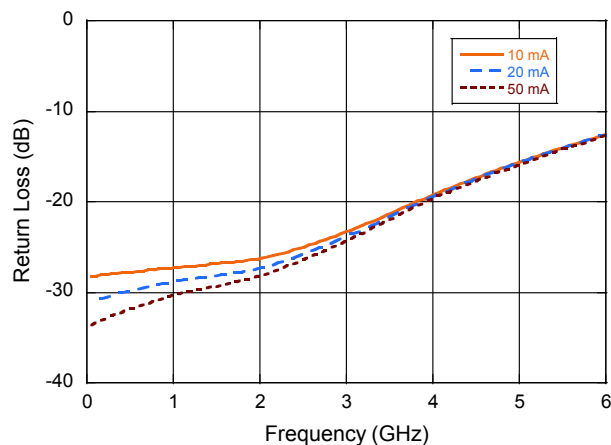
#### Insertion Loss



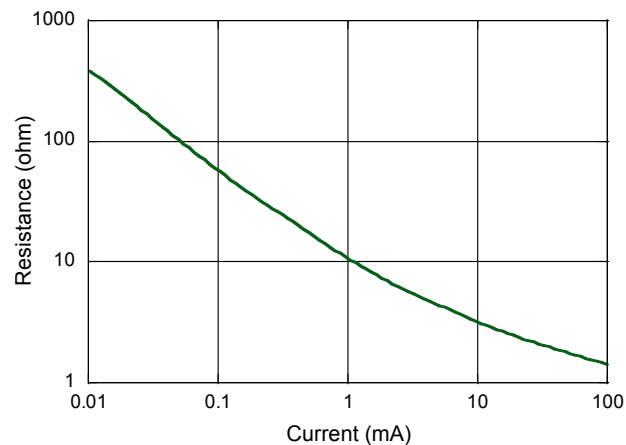
#### Isolation



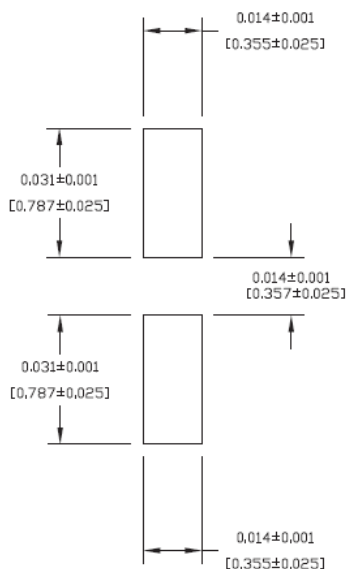
#### Input Return Loss



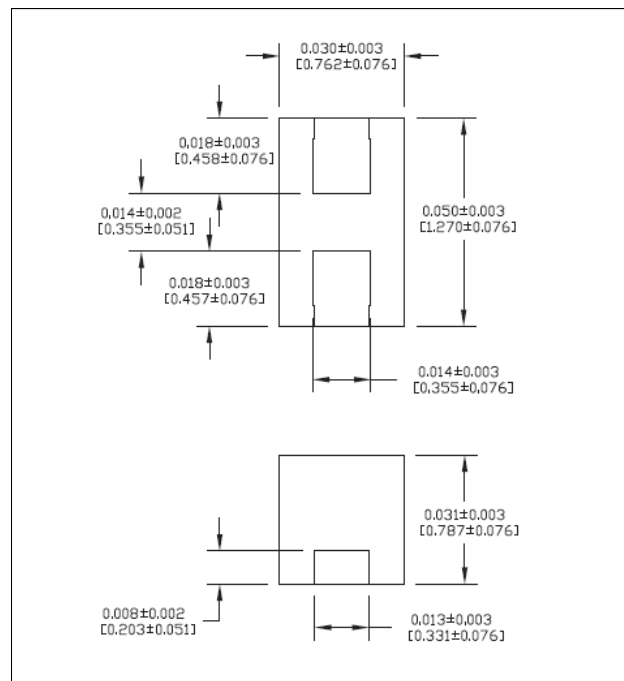
#### Series Resistance vs. Current, 500 MHz



### PCB Layout



### Outline



Dimensions: inches [mm]  
 Finish: 300 micro inches matte tin,  
 annealed 1 hour @ 150°C