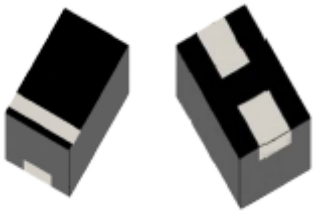
MSWSE-005-10S

Silicon PIN Diode Switch Element

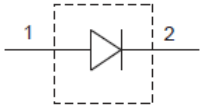
Rev. V1

Features

- Small Size (40 x 25 mils)
- Broadband Performance up to 6 GHz
- Supports up to 5 W Power
- Low Insertion Loss: 0.3 dB
- RoHS* Compliant



(0402)
Molded Plastic DFN Package



Description

The MSWSE-005-10S is a PIN diode SPST switch element designed for medium incident power applications up to 5 W CW It has low insertion loss and medium isolation below 6GHz.

Electrical Specifications: T_A = +25°C

Parameter	Test Conditions	Min.	Typ.	Max.	Units
Breakdown Voltage	I_R = 10 µA	200	—	—	V
Forward Voltage	I_F = 50 mA	—	980	1050	mV
Junction Capacitance	V_R = 50 V, 1 MHz	—	0.035	0.05	pF
Total Capacitance	V_R = 50 V, 1 MHz	—	0.08	0.12	pF
Series Resistance	I_F = 30 mA, 500 MHz I_F = 100 mA, 500 MHz	—	2.0 1.4	2.5 1.8	Ω
Lifetime	I_F = 10 mA, I_R = 6 mA , 50%	—	180	300	ns
Insertion Loss	I_F = 50 mA, <2.7 GHz I_F = 50 mA, <6.0 GHz	—	0.25 0.50	0.4 —	dB
Isolation	V_R = 50 V, <2.7 GHz V_R = 50 V, <6.0 GHz	13 —	16 10	—	dB
Input Return Loss	V_R = 50 V, <6.0 GHz	16	20	—	dB

* Restrictions on Hazardous Substances, European Union Directive 2011/65/EU.

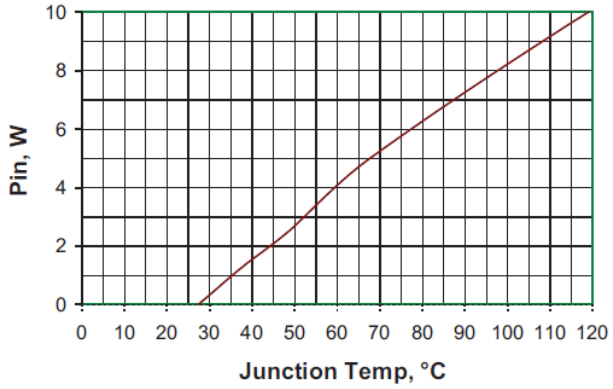
Absolute Maximum Ratings[1,2]

Parameter	Absolute Maximum
Breakdown Voltage	200 V
Forward Current	200 mA
Thermal Resistance	50°CW
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.

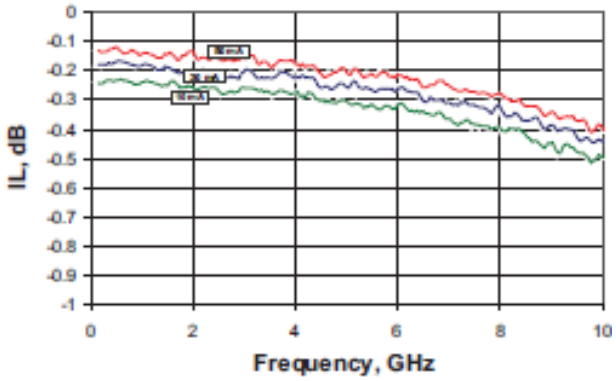
Junction Temperature vs. Input Power

1.3 GHz, T_A = 25°C, PCB Mounted on Heat Sink

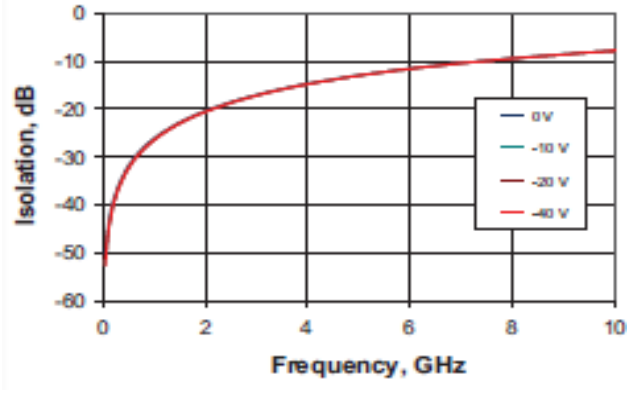


Typical RF Performance Curves @ +25°C

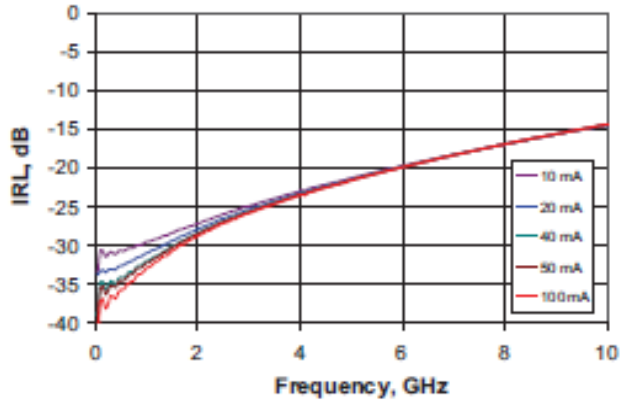
Insertion Loss



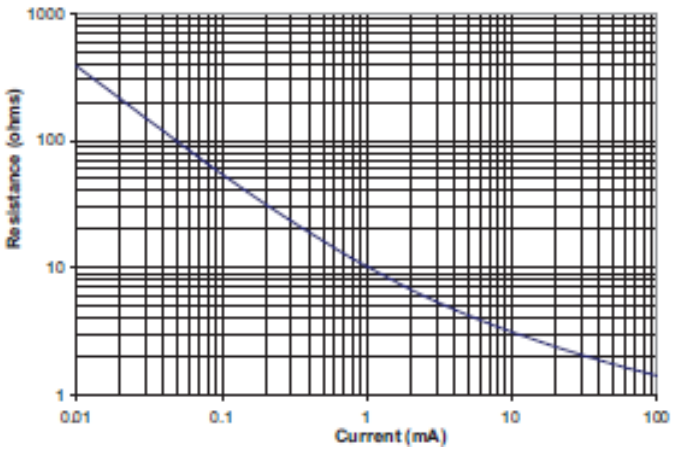
Isolation



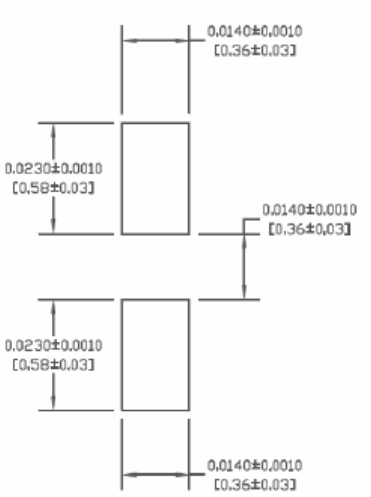
Input Return Loss



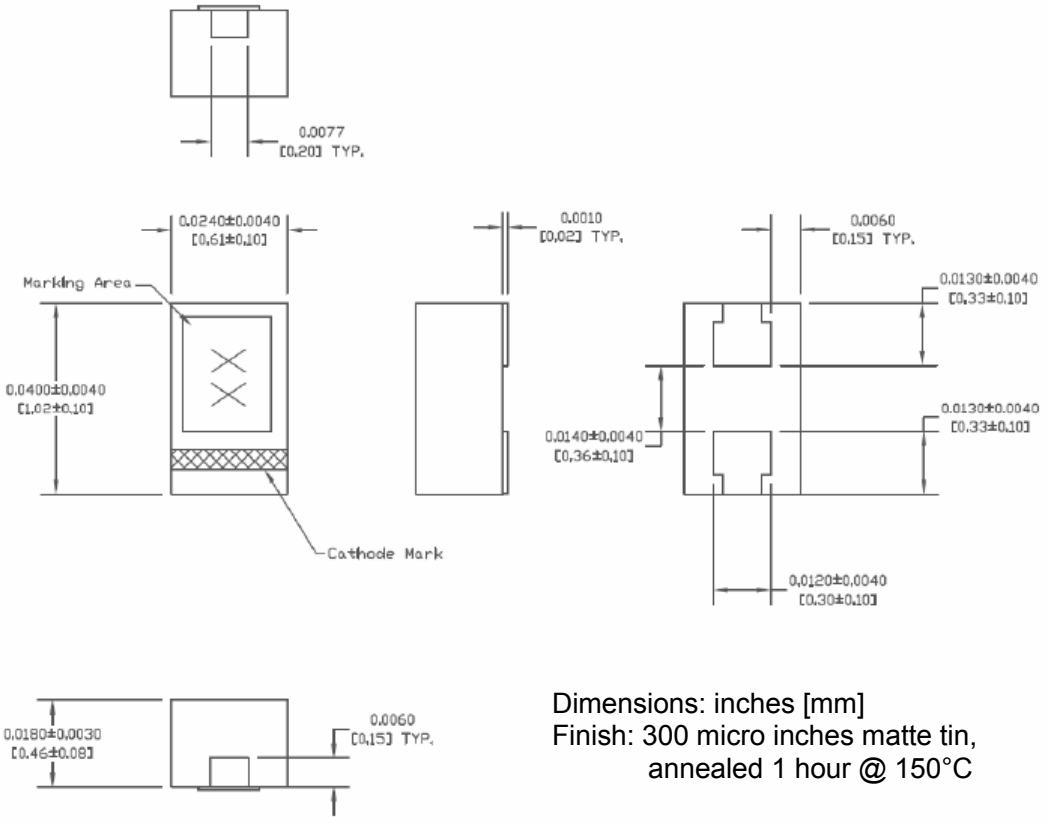
Series Resistance vs. Current, 500 MHz



PCB Layout



Outline



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