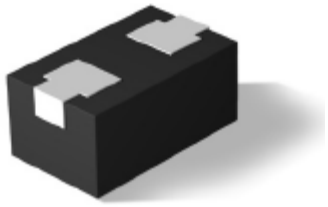
Silicon PIN Diode Switch Element

MSWSE-010-15S
Rev. V2

Features

- Small Size (40 x 24 mils)
- Broadband Performance up to 3 GHz
- Supports up to 10 W Power
- Low Insertion Loss, 0.15 dB
- Cost effective choice for switch applications
- RoHS* Compliant



0402 (Molded Plastic DFN Package)

Applications

- ISM

Description

The MSWSE-010-15S is a PIN diode switch element designed for medium incident power applications, up to 10 W CW. It has low insertion loss and medium isolation below 3 GHz.

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	—	870	950	mV
Junction Capacitance	V_R = -50 V, 1 MHz	—	0.13	—	pF
Total Capacitance	V_R = -50 V, 1 MHz	—	0.17	0.22	pF
Series Resistance	I_F = 30 mA, 500 MHz I_F = 100 mA, 500 MHz	—	0.8 0.6	1.0 0.8	Ω
Lifetime	I_F = 10 mA, I_R = 6 mA , 50%	—	650	900	ns
I-Region	I-Layer	—	10	—	mm
Insertion Loss	I_F = 50 mA, 1 GHz I_F = 50 mA, 2 GHz	—	0.05 0.10	— 0.25	dB
Input Return Loss	I_F = 50 mA, 1 GHz I_F = 50 mA, 2 GHz	25 —	30 25	—	dB
Isolation	V_R = 50 V, 1 GHz V_R = 50 V, 2 GHz	15 —	20 15	—	dB

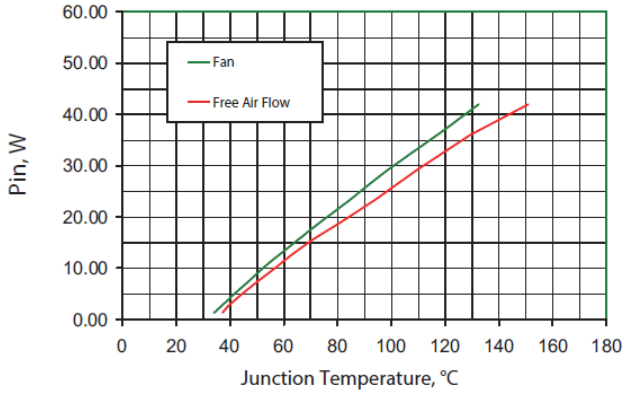
* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

Absolute Maximum Ratings[1,2]

Parameter	Absolute Maximum
Breakdown Voltage	200 V
Forward Current	200 mA
Thermal Resistance	35 W CW
Junction Temperature	+175°C
Storage Temperature	-55°C to +150°C
Solder Temperature	+260°C per JEDEC STD-J-20C

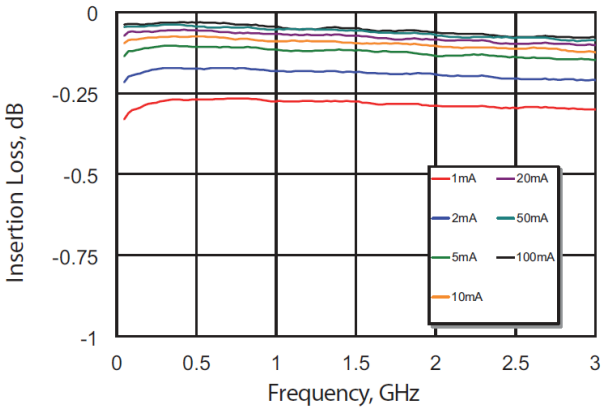
1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.

Junction Temperature vs. Input Power Mounted on Heatsink T_A = 25°C, 1.3 GHz

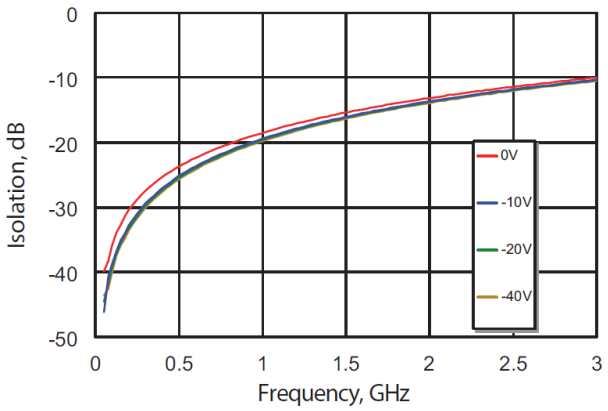


Typical RF Performance Curves @ +25°C

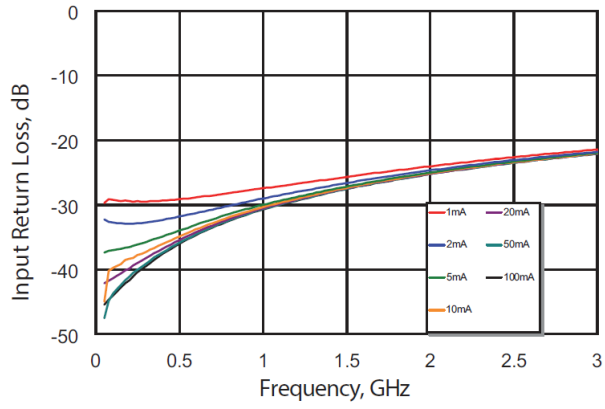
Insertion Loss



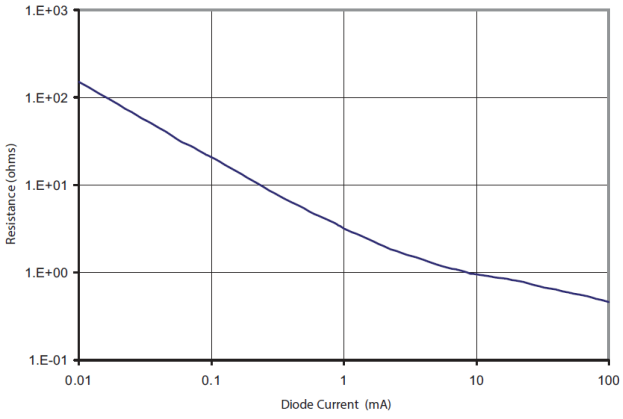
Isolation



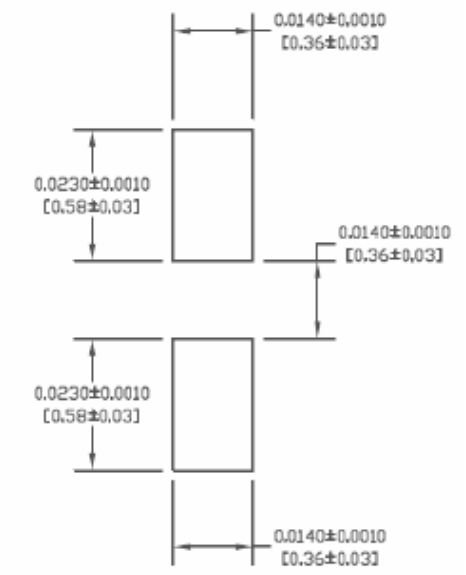
Input Return Loss



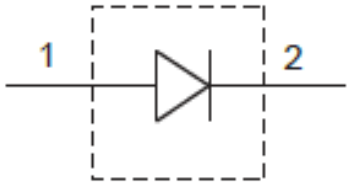
Series Resistance vs. Current



PCB Layout



Schematic



Outline (0402)