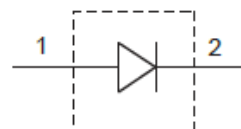
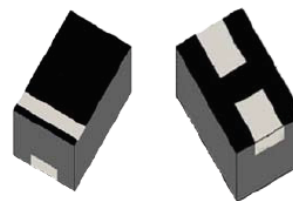


## Features

- Small Size (50 x 30 mils)
- Broadband Performance up to 1 GHz
- Supports up to 20 W Power
- Low Insertion Loss, 0.05 dB up to 1 GHz
- Cost effective choice for switch applications
- RoHS\* Compliant



0503 (Molded Plastic DFN Package)

## Applications

- ISM

## Description

The MSWSE-020-05 is a SPST PIN diode switch element designed for medium incident power applications, up to 20 W CW. It has low insertion loss and medium isolation below 0.5 GHz.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Units
Breakdown Voltage	$I_R = 10 \mu\text{A}$	250	—	—	V
Forward Voltage	$I_F = 50 \text{ mA}$	—	850	950	mV
Junction Capacitance	$V_R = -50 \text{ V}, 1 \text{ MHz}$	—	0.53	0.65	pF
Total Capacitance	$V_R = -50 \text{ V}, 1 \text{ MHz}$	—	0.55	—	pF
Series Resistance	$I_F = 10 \text{ mA}, 500 \text{ MHz}$ $I_F = 100 \text{ mA}, 500 \text{ MHz}$	—	0.3 0.1	0.5 0.3	$\Omega$
Lifetime	$I_F = 10 \text{ mA}, I_R = 6 \text{ mA}, 50\%$	—	600	1000	ns
I-Region	I-Layer	—	15	—	$\mu\text{m}$
Insertion Loss	$I_F = 50 \text{ mA}, 1 \text{ GHz}$	—	15.00 0.05	— 0.15	dB
Return Loss	$I_F = 50 \text{ mA}, 0.5 \text{ GHz}$ $I_F = 50 \text{ mA}, 1.0 \text{ GHz}$	35 —	40 38	—	dB
Isolation	$V_R = 50 \text{ V}, 0.5 \text{ GHz}$ $V_R = 50 \text{ V}, 1.0 \text{ GHz}$	11 —	14 8	—	dB

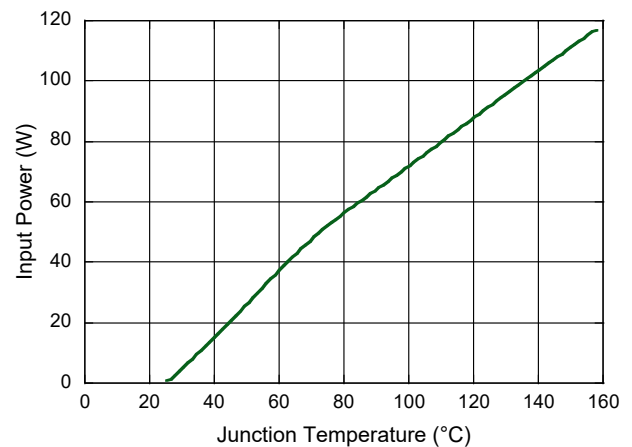
\* Restrictions on Hazardous Substances, compliant to current RoHS EU directive.

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

Parameter	Absolute Maximum
Breakdown Voltage	250 V
Forward Current	500 mA
Thermal Resistance	15°C/W
Junction Temperature	+175°C
Storage Temperature	-55°C to +150°C
Solder Temperature	+260°C per JEDEC STD-J-20C

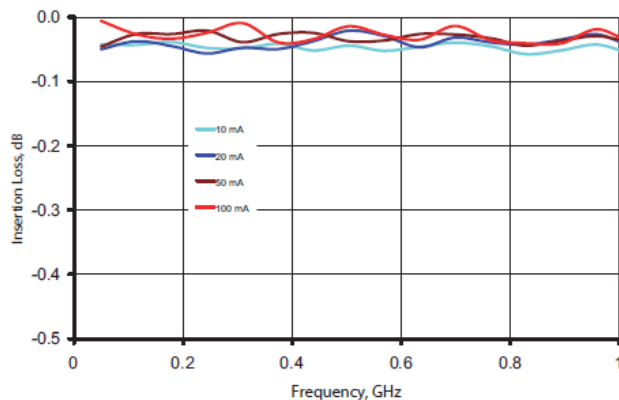
1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.

## Junction Temperature vs. Input Power T<sub>A</sub> = 25°C, 1.3 GHz, mounted on heatsink

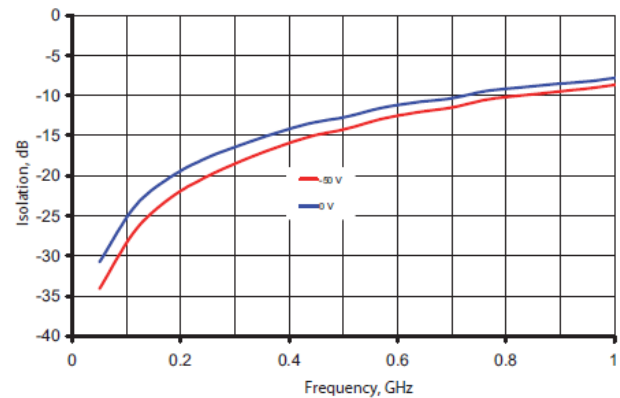


## Typical RF Performance Curves @ +25°C

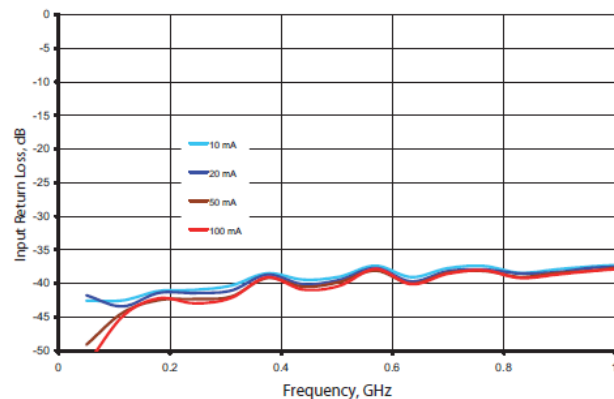
### Insertion Loss



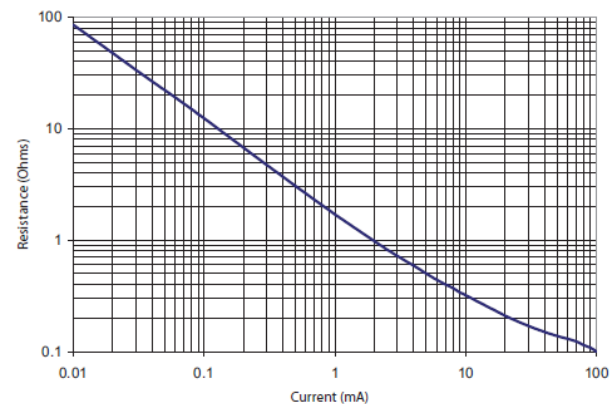
### Isolation



### Input Return Loss



### Series Resistance vs. Current



## Package Outline (0503) & PCB Layout

