

Silicon PIN Diode Switch Element

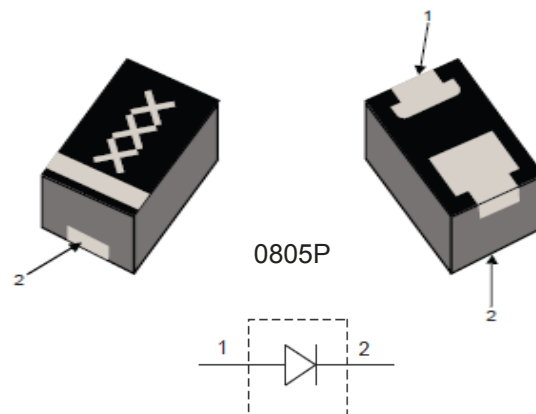
Rev. V1

Features

- Supports up to 40 W Power
- Broadband Performance up to 2 GHz
- Low Insertion Loss
- Medium Isolation
- RoHS* Compliant

Description

The MSWSE-044-010 is a PIN diode SPST switch element designed for medium incident power applications, up to 40W C.W. It has low insertion loss and medium isolation below 2.0 GHz.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Units
Breakdown Voltage	$I_R = 10 \mu\text{A}$	300	—	—	V
Forward Voltage	$I_F = 50 \text{ mA}$	—	900	1000	mV
Total Capacitance	$V_R = 10 \text{ V}, 1 \text{ MHz}$	—	0.3	0.4	pF
Series Resistance	$I_F = 100 \text{ mA}, 500 \text{ MHz}$	—	0.5	0.7	Ω
Lifetime	$I_F = 10 \text{ mA}, I_R = 6 \text{ mA}, 50\%$	—	1200	—	ns
I-Region	I-Layer	—	40	—	μs
Insertion Loss	$I_F = 10 \text{ mA}, <1 \text{ GHz}$ $I_F = 10 \text{ mA}, <2 \text{ GHz}$	—	0.20 0.25	0.30 0.35	dB
Isolation	$V_R = 50 \text{ V}, <1 \text{ GHz}$ $V_R = 50 \text{ V}, <2 \text{ GHz}$	11 —	14 10	—	dB

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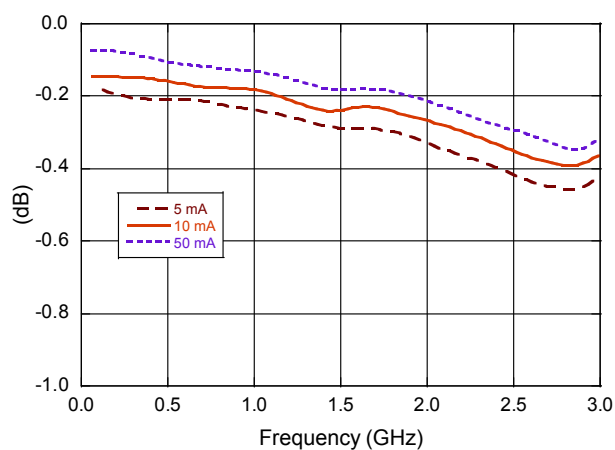
Absolute Maximum Ratings^{1,2}

Parameter	Absolute Maximum
Breakdown Voltage	300 V
Forward Current	200 mA
Thermal Resistance	20°C/W
Junction Temperature	+175°C
Storage Temperature	-55°C to +150°C
Solder Temperature	+260°C, per JEDEC STD-J-20C

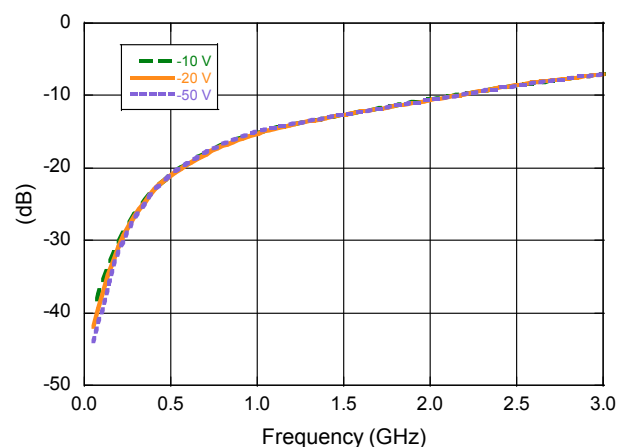
1. Exceeding any one or combination of these limits may cause permanent damage to this device.
 2. MACOM does not recommend sustained operation near these survivability limits.

Typical RF Performance Curves @ +25°C

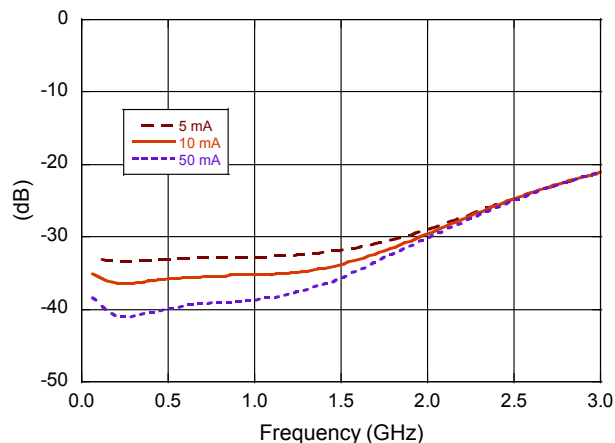
Insertion Loss



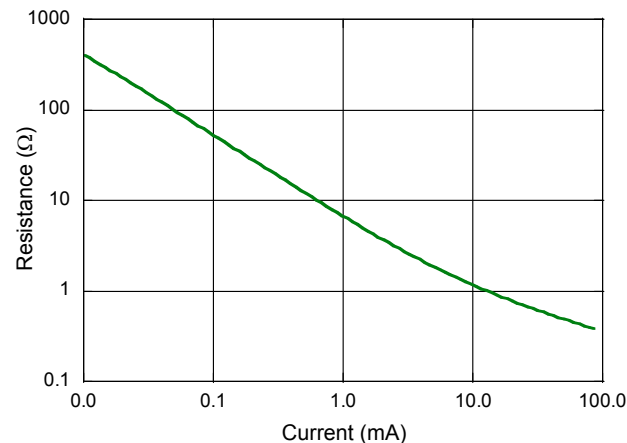
Isolation



Input Return Loss



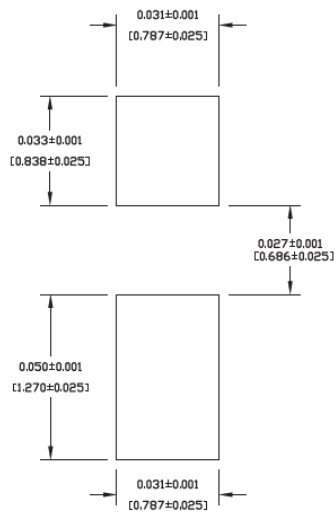
Series Resistance vs. Current



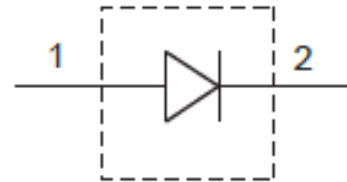
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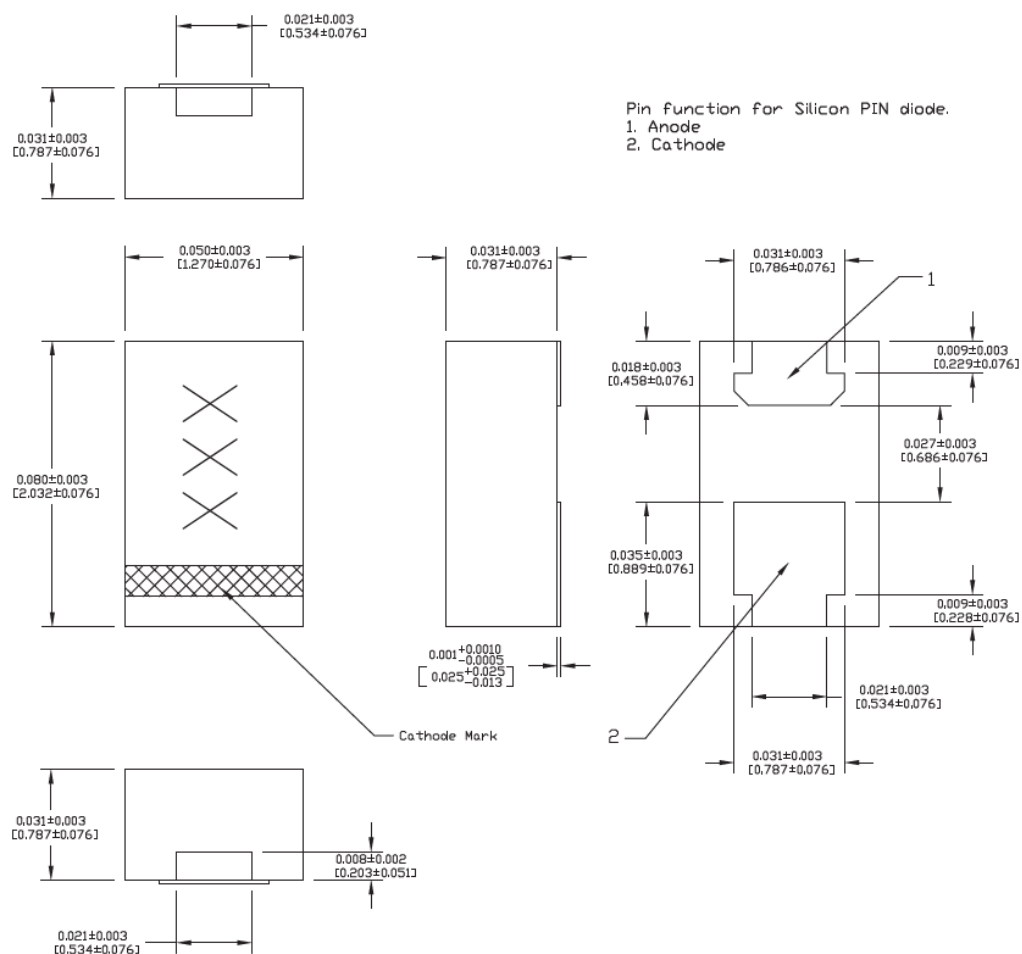
PCB Layout



Schematic



Outline (0805P)



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