

## Features

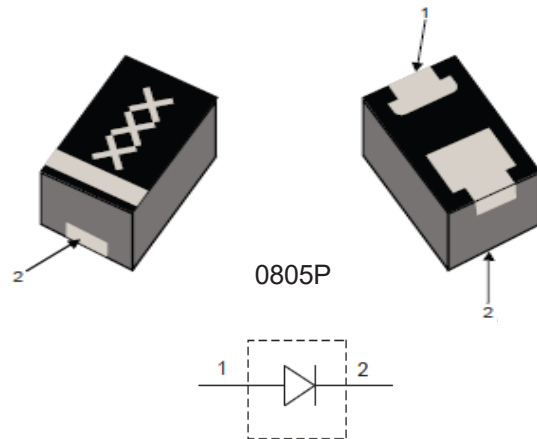
- Supports up to 40 W Power
- Broadband Performance up to 2 GHz
- Low Insertion Loss
- Medium Isolation
- RoHS\* Compliant

## Applications

- ISM

## Description

The MSWSE-044-010 is a PIN diode SPST switch element designed for medium incident power applications, up to 40 W C.W. It has low insertion loss and medium isolation below 2 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	$\Omega$
Lifetime	$I_F = 10 \text{ mA}, I_R = 6 \text{ mA}, 50\%$	—	1200	—	ns
I-Region	I-Layer	—	40	—	$\mu\text{m}$
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

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

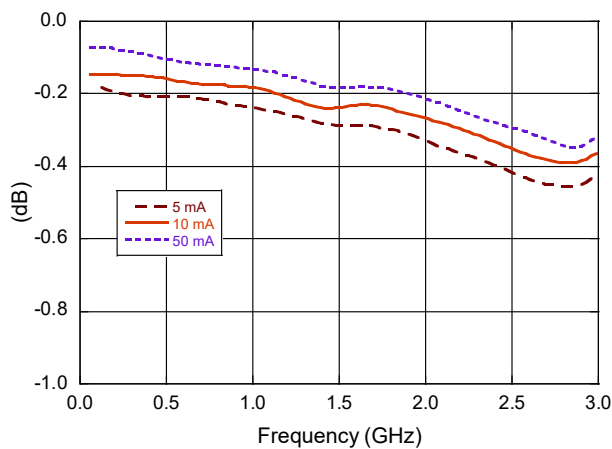
## Absolute Maximum Ratings<sup>1,2</sup>

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

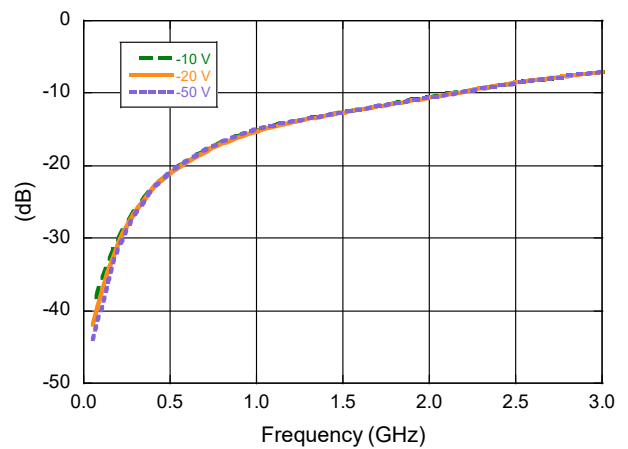
1. Exceeding any one or combination of these limits may cause permanent damage to this device.
2. MACOM does not recommend sustained operation near these survivability limits.

## Typical RF Performance Curves @ +25°C

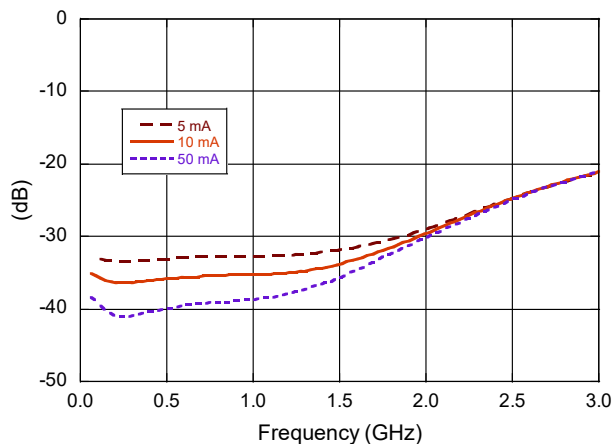
**Insertion Loss**



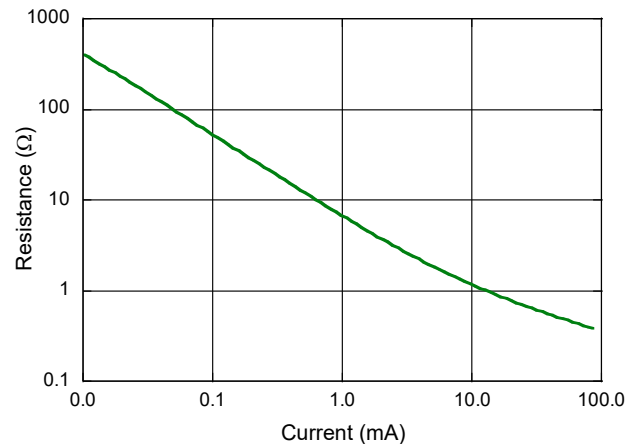
**Isolation**



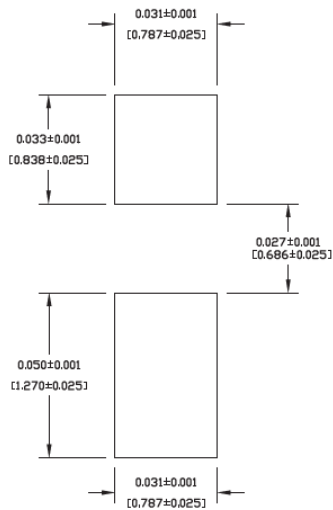
**Input Return Loss**



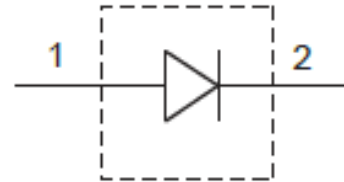
**Series Resistance vs. Current**



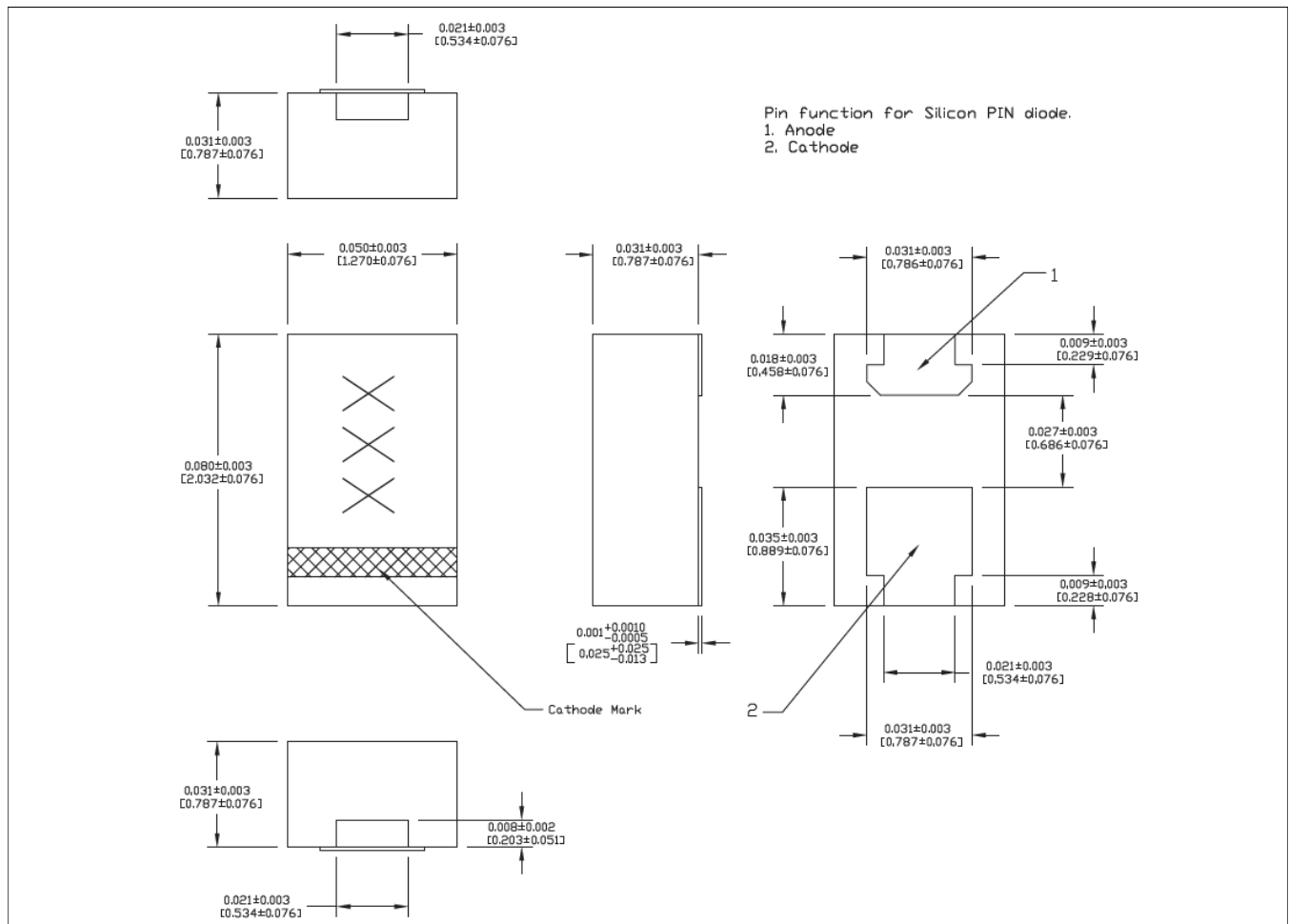
## PCB Layout



## Schematic



## Outline (0805P)



3

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. Visit [www.macom.com](http://www.macom.com) for additional data sheets and product information.

For further information and support please visit:  
<https://www.macom.com/support>

MACOM Technology Solutions Inc. ("MACOM"). All rights reserved.

These materials are provided in connection with MACOM's products as a service to its customers and may be used for informational purposes only. Except as provided in its Terms and Conditions of Sale or any separate agreement, MACOM assumes no liability or responsibility whatsoever, including for (i) errors or omissions in these materials; (ii) failure to update these materials; or (iii) conflicts or incompatibilities arising from future changes to specifications and product descriptions, which MACOM may make at any time, without notice. These materials grant no license, express or implied, to any intellectual property rights.

THESE MATERIALS ARE PROVIDED "AS IS" WITH NO WARRANTY OR LIABILITY, EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY, INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHT, ACCURACY OR COMPLETENESS, OR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.