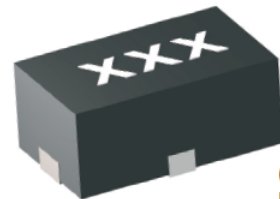


### Features

- Supports up to 20 watt
- Low Insertion Loss 0.3 dB @ 2.7 GHz
- Low Insertion Loss 0.4 dB @ 10.0 GHz
- High Isolation 55 dB @ 2.7 GHz
- High Isolation 33 dB @ 10.0 GHz
- RoHS\* Compliant

### Description

A broadband, high linearity medium power series shunt switch element in a plastic 1.9 x 1.1 mm DFN package.



(2012)  
Molden Plastic DFN

This device is designed for wireless telecommunication infrastructure and test instrument applications. It is also suited for other applications in 0.1 ~ 10 GHz.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Units
Breakdown Voltage	$I_R = 10 \text{ mA}$	200	—	—	V
Junction Capacitance	$V_R = 50 \text{ V}$ , $F = 1 \text{ MHz}$ Shunt Series	—	0.26 0.048	—	pF
Series Resistance	$I_F = 100 \text{ mA}$ , $F = 500 \text{ MHz}$ Shunt Series	—	0.40 0.98	—	Ohms
Lifetime	$I_F = 10 \text{ mA}$ , $I_R = 6 \text{ mA}$ , 10%/90% Shunt Series	—	4300 150	8000 250	ns
Insertion Loss	$I = -50 \text{ mA}^1$ $F = 2.3 \sim 2.7 \text{ GHz}$ $F < 10 \text{ GHz}$	—	0.3 0.6	0.5 0.8	dB
Input Return Loss	$I = -50 \text{ mA}^1$ $F = 2.3 \sim 2.7 \text{ GHz}$ $F < 10 \text{ GHz}$	20 15	25 20	—	dB
Output Return Loss	$I = -50 \text{ mA}^1$ $F = 2.3 \sim 2.7 \text{ GHz}$ $F < 10 \text{ GHz}$	20 15	25 18	—	dB
Isolation	$I = -50 \text{ mA}^1$ $F = 2.3 \sim 2.7 \text{ GHz}$ $F < 10 \text{ GHz}$	45 28	55 35	—	dB

1. Positive current is defined as current going into pin 2.

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

1

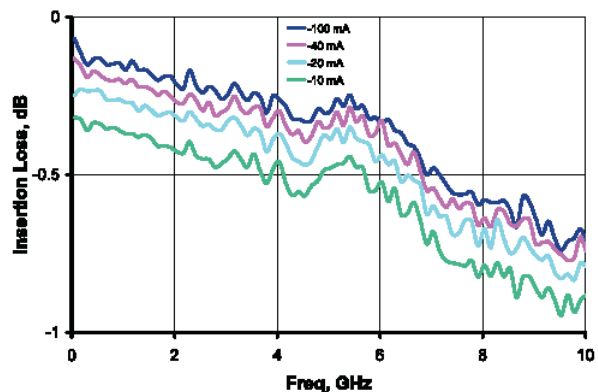
### Absolute Maximum Ratings<sup>3,4</sup>

Parameter	Absolute Maximum
Breakdown Voltage	200 V
Forward Current	100 mA
Input Power	20 W CW
Junction Temperature	+175°C
Storage Temperature	-65°C to +150°C
Solder Temperature	+260°C per JEDEC STD-J-20C

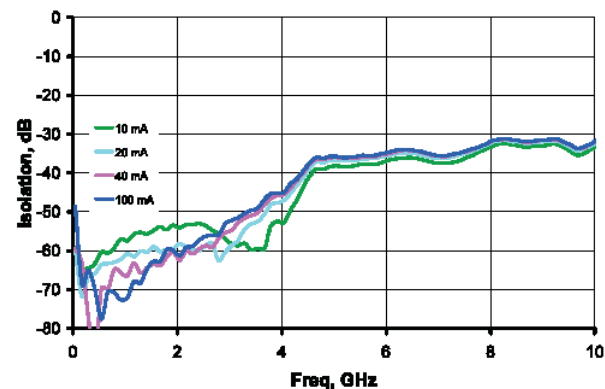
- Exceeding any one or combination of these limits may cause permanent damage to this device.
- MACOM does not recommend sustained operation near these survivability limits.

### Typical RF Performance Curves @ +25°C

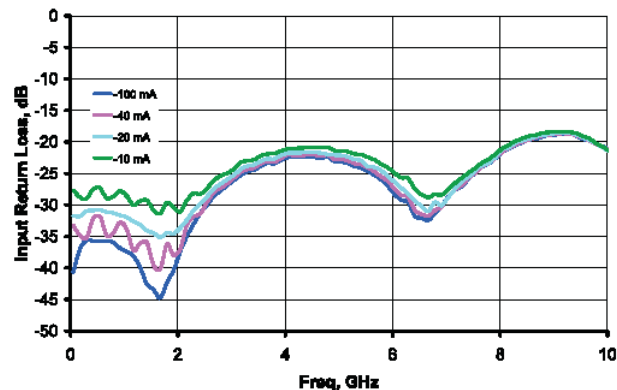
**Insertion Loss**



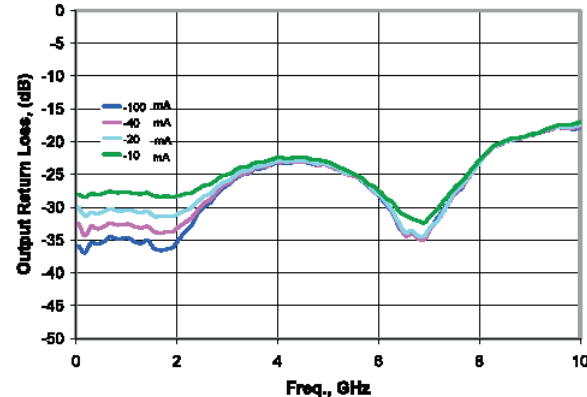
**Isolation**



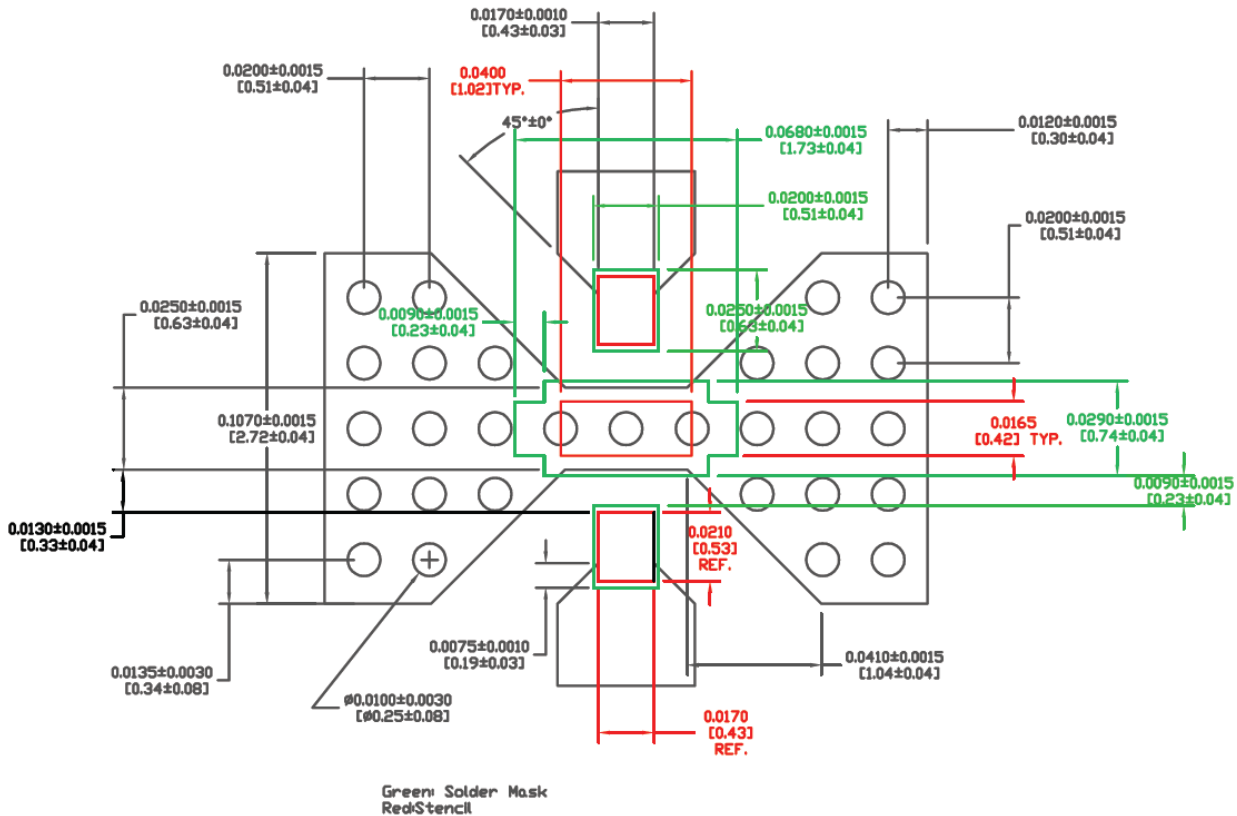
**Input Return Loss**



**Output Return Loss**



### Printed Circuit Board Layout



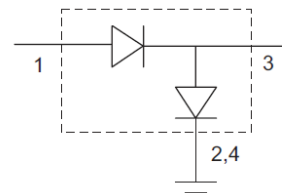
### Assembly

If possible, use copper filled vias underneath pin 3 for better thermals; otherwise, use vias that are plated through, filled and plated over.

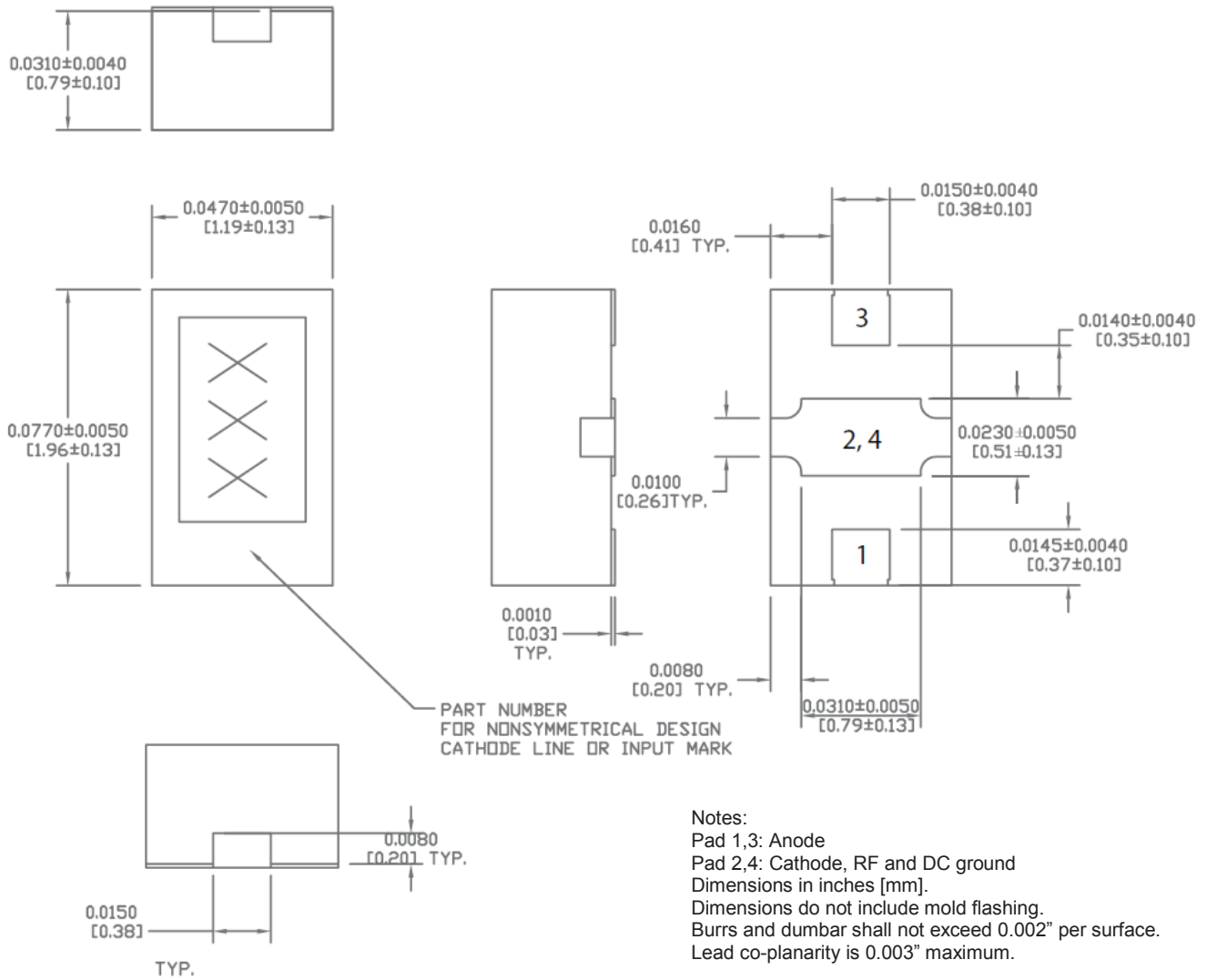
Solder mask should provide a 60  $\mu\text{m}$  clearance between copper pad and solder mask underneath package and 125  $\mu\text{m}$  clearance on outside edges of package. Rounded package pads should have matching rounded solder mask openings.

Use circles or squares for the thermal land stencil such that there is only 50% to 80% solder paste coverage.

### Electrical Schematic



### Outline: 2012 (molded plastic DFN)



M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE 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.