

PIN Diode Shunt Switch Element

Rev. V1

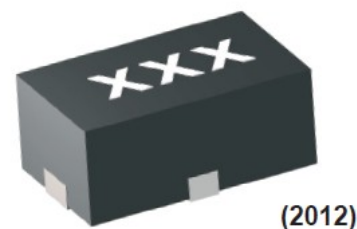
Features

- Supports up to 40 W Power
- Low Insertion Loss:
 - 0.10 dB to 2.7 GHz
 - 0.25 dB to 6.0 GHz
- High Isolation:
 - 25 dB to 6.0 GHz
- RoHS* Compliant

Description

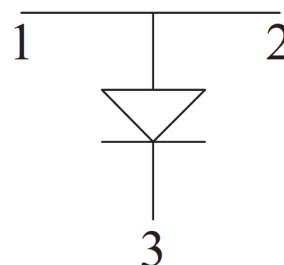
A broadband, high linearity, medium power shunt switch element in a 1.9 x 1.1 mm DFN package.

This device is designed for wireless telecommunications infrastructure and test instrument applications. It is also suited for other applications in 0.05 ~ 6 GHz.



(2012)

Pin Out / Schematic



Ordering Information

Part Number	Package
MSWSH-040-30	3000 piece reel

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

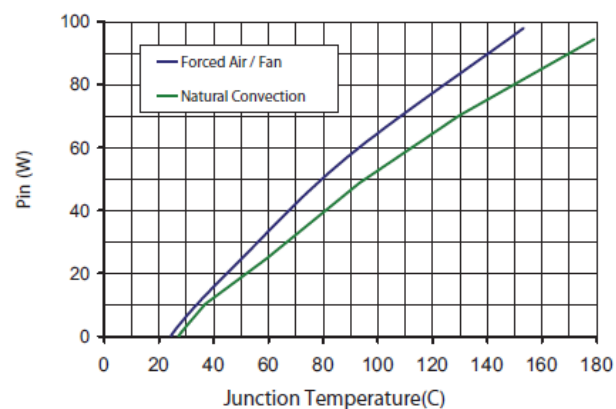
Parameter	Test Conditions	Units	Min.	Typ.	Max.
Breakdown Voltage (V_B)	$I_R = 10 \mu\text{A}$	V	500	—	—
Total Capacitance (C_T)	$V_R = -50 \text{ V}$, 1 MHz	pF	—	0.42	—
Series Resistance (R_S)	$I_F = 100 \text{ mA}$, 500 MHz	Ω	—	0.36	—
I-Region (W)	I-Layer	mm	—	40	—
Insertion Loss (I_L)	$V_R = 10 \text{ V}$ 2.7 GHz <6.0 GHz	dB	—	0.10 0.30	0.30 0.50
Isolation (I_{SO})	$I_F = 100 \text{ mA}$ 2.7 GHz <6.0 GHz	dB	29 24	32 36	—
Input / Output Return Loss (R_L)	$V_R = 10 \text{ V}$ 2.7 GHz <6.0 GHz	dB	18 13	22 15	—
Minority Carrier Lifetime (T_L)	$I_F = 10 \text{ mA}$, $I_R = 6 \text{ mA}$, @ 50%	ns	—	600	—

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

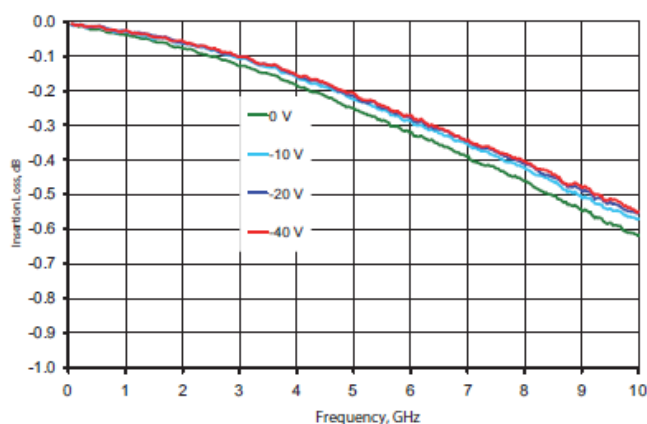
Absolute Maximum Ratings

Parameter	Absolute Maximum
Breakdown Voltage	500 V
Forward Current	500 mA
Thermal Resistance	10°C/W
Junction Temperature	+175°C
Storage Temperature	-65°C to +150°C
Assembly Temperature	+260°C Per JEDEC STD-J-20C

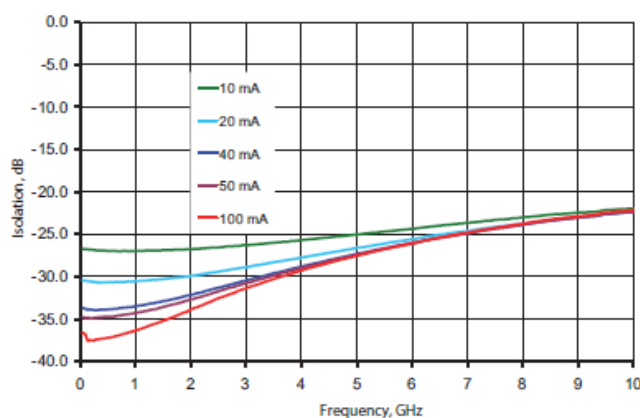
Junction Temperature vs. Power
Mounted on Heatsink, +25°C, 1.3 GHz



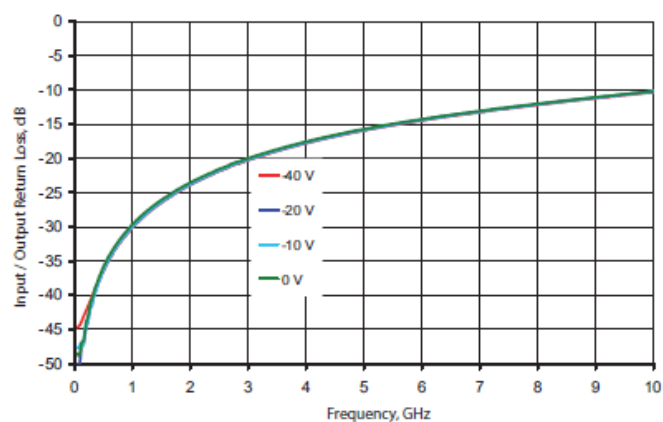
Insertion Loss



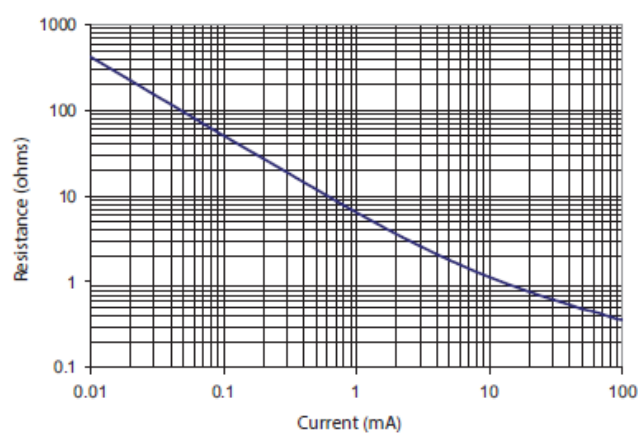
Isolation



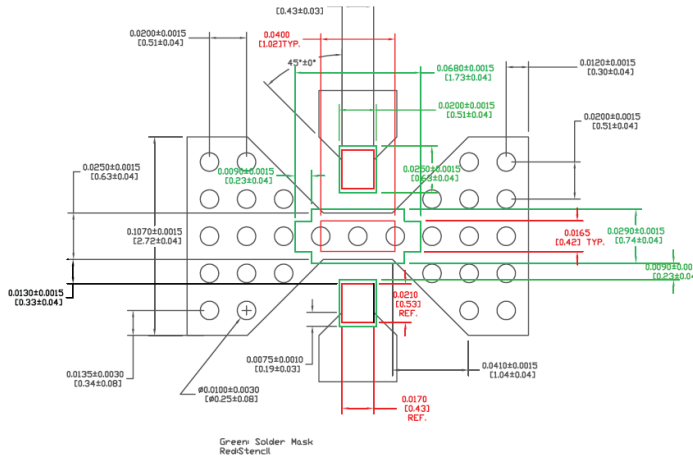
Input Return Loss



Series Resistance vs. Bias, 500 MHz



Printed Circuit Board Layout

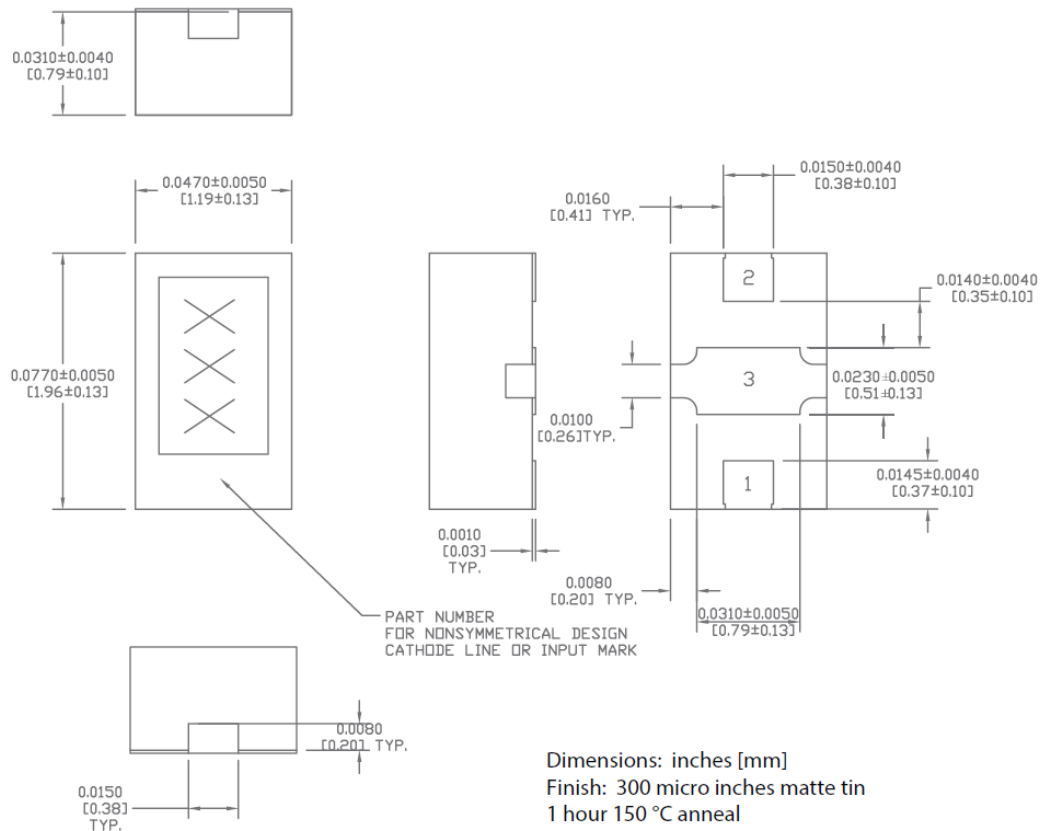


NOTE: If possible, use copper filled vias underneath pin 3 for better thermals; otherwise, use vias that are plated through, filled and plated over.

Solder mask should provide a 60 um clearance between copper pad and soldermask. Rounded pkg pads should have matching rounded solder mask openings.

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

Outline (2012)



Dimensions: inches [mm]
Finish: 300 micro inches matte tin
1 hour 150 °C anneal

MACOM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with MACOM 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.