

PIN Diode Shunt Switch Element

50 MHz to 10 GHz



MASW-011163

Rev. V2

Features

- 3 Terminal LPF Broadband Shunt Structure
- 50 MHz - 10 GHz Broadband Frequency
- >40 W Peak Power Handling
- <0.38 dB Shunt Insertion loss
- >31 dB Shunt Isolation
- RoHS* Compliant

Applications

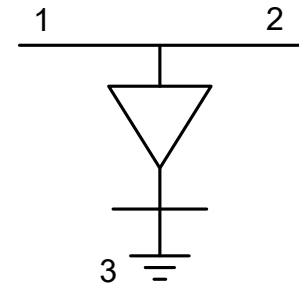
- Wireless Telecommunications Infrastructure & Test Instrument Applications

Description

The MASW-011163 is a broadband, high linearity, medium power shunt switch element in a lead free 1.9 x 1.1 mm DFN surface mount plastic package.

This device is designed for wireless telecommunications infrastructure and test instrument applications. It is also suited for other applications in 0.05 ~ 10 GHz.

Pin Out / Schematic



Pin Configuration³

Pin #	Pin Name	Description
1	RF _{IN}	RF Input
2	RF _{OUT}	RF Output
3	Paddle ⁴	Ground

- MACOM recommends connecting unused package pins to ground.
- The exposed pad centered on the package bottom must be connected to RF, DC and thermal ground.

Ordering Information

Part Number	Package
MASW-011163-20120T	500 Piece Reel

Electrical Specifications: T_A = +25°C

Parameter	Test Conditions	Units	Min.	Typ.	Max.
Breakdown Voltage (V _B)	I _R = 10 μA	V	200	275	—
Insertion Loss (I _L)	V _R = 25 V, 512 MHz V _R = 25 V, 2.7 GHz	dB	—	0.10 0.38	—
Isolation (I _{SO})	I _F = 10 mA, 512 MHz I _F = 10 mA, 2.7 GHz	dB	—	39 31	—
Input / Output Return Loss	V _R = 25 V, 512 MHz V _R = 25 V, 2.7 GHz	dB	—	24 12	—
Minority Carrier Lifetime (T _L)	I _F = 10 mA, I _R = 6 mA, @ 50%	ns	—	1000	—

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

PIN Diode Shunt Switch Element

50 MHz to 10 GHz



MASW-011163

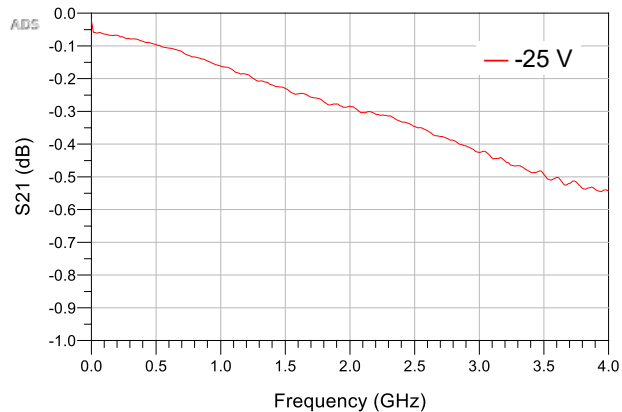
Rev. V2

Absolute Maximum Ratings

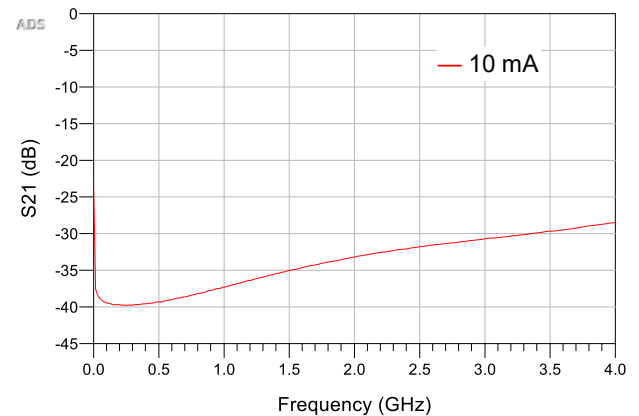
Parameter	Absolute Maximum
Breakdown Voltage	275 V
Forward Current	200 mA
Junction Temperature	+175°C
Storage Temperature	-65°C to +150°C
Assembly Temperature	+260°C Per JEDEC STD-J-20C

Typical Performance Curves

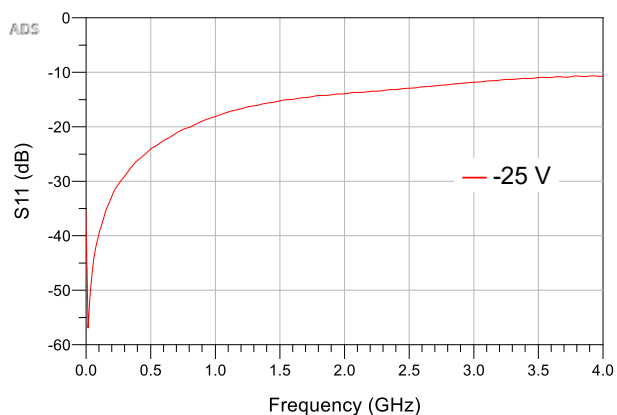
Insertion Loss



Isolation



Input Return Loss



PIN Diode Shunt Switch Element

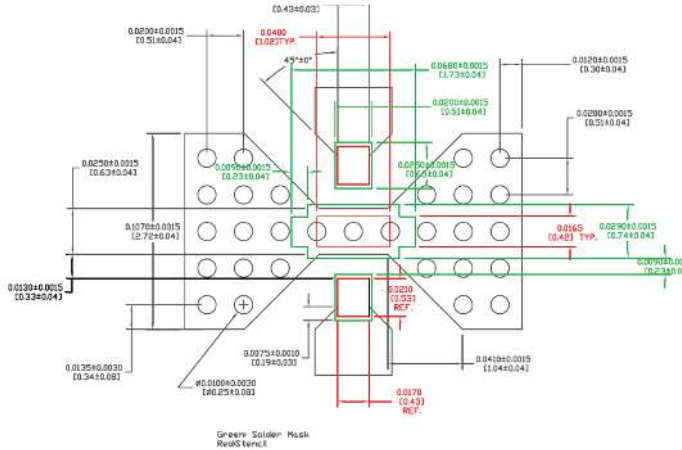
50 MHz to 10 GHz



MASW-011163

Rev. V2

Printed Circuit Board Layout

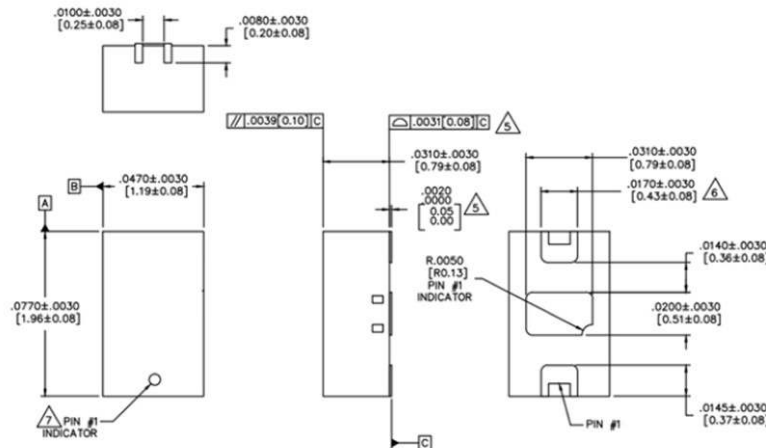


NOTE: If possible, use copper filled vias underneath pin 3 for better thermals; otherwise, use vias that are plated through, filled and plated over.

Solder mask should provide a 60 μm clearance between copper pad and solder mask. 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)



NOTES

1. DIMENSIONS DO NOT INCLUDE MOLD FLASHING
2. BURRS AND DUMBAR SHALL NOT EXCEED 0,002" PER SURFACE
3. LEAD CO-PLANARITY IS 0,003" MAXIMUM

PIN Diode Shunt Switch Element

50 MHz to 10 GHz



MASW-011163

Rev. V2

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.