

MG-MASW-000825

PIN Diode SPDT 20W Switch For 0.05~6GHz Applications

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Features

- 1, Low Insertion Loss: TX = 0.70 dB @ 2.7 GHz
- 2, High Isolation: Rx = 20 dB @ 2.7 GHz
- 3, High TX RF Input Power = 20 W C.W. @ 2.0 GHz, 85°C
- 4, Exceptional Broadband Performance

Applications

- 1, 802.11 b/g WLAN Transceivers
- 2, Military Radio Applications
- 3, High Power LTE, TD-SCDMA, WiMAX,

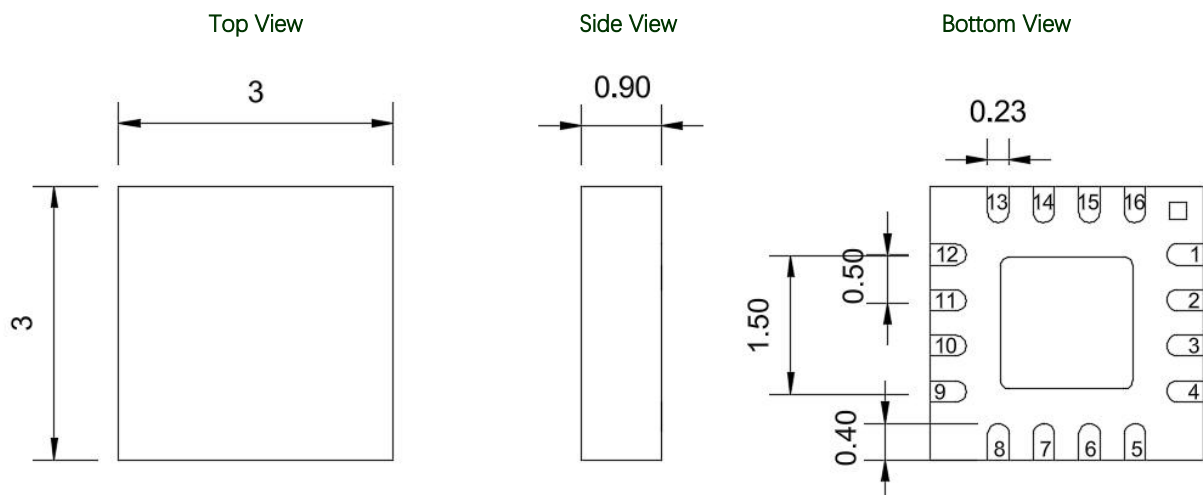
Description

The MG-MASW-000825 is a SPDT high power, broadband, high linearity, PIN diode T/R switch for 0.05 – 6.0 GHz applications, including WiMAX & WiFi. The device is provided in an industry standard lead free 3mm PQFN plastic package. This device incorporates PIN diode die fabricated with Megsine Technology Solutions' Low Loss, High Isolation Switching Diode processes. All components are 100% RF tested.

Absolute Maximum Ratings

Parameter	Min	Max	Unit
Forward Current	-	100	mA
Reverse Voltage	-	140	V
Operating Temperature	-40	85	°C
Storage Temperature	-40	85	°C
Junction Temperature	-	175	°C
TX Incident C.W. Power	-	20	W

SHAPES AND DIMENSIONS



Unit: mm

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Terminal Functions		
2,4,9,11,13,15	GND	Ground
14	ANT	Antenna
1,5,6,7,8,12,16	N/C	No Connection
10	RX	Receive
3	TX	Transmit

Electrical Specifications @ +25°C, Bias= 28V 50Ω

Parameter	Condition	Minimum	Typical	Maximum	Unit
Operation frequency		50		6000	MHz
Insertion loss	Rx, 1.0GHz	-	0.35	-	dB
	Tx, 1.0GHz	-	0.41	-	
	Rx, 2.0GHz	-	0.46	-	
	Tx, 2.0GHz	-	0.55	-	
	Rx, 3.0GHz	-	0.65	-	
	Tx, 3.0GHz	-	0.75	--	
Isolation	RX to Antenna, 2.0 GHz	-	21	-	dB
	TX to Antenna, 2.0 GHz	-	21	-	
	RX to Antenna, 2.7 GHz	-	20	-	
	TX to Antenna, 2.7 GHz	-	20	-	
	RX to Antenna, 3.5 GHz	-	19	-	
	TX to Antenna, 3.5 GHz	-	19	-	
Input Return loss	Rx	-	18	-	dB
	Tx	-	18	-	
TX Input P0.1dB	TX to Antenna	-	-	43	dBm
TX CW Input Power	85°C Base plate		43 / 20		dBm / W
	1.0 GHz	-	42.5 / 17.8		
	2.7 GHz		42 / 16		
	3.0 GHz				
RX CW Input Power	85°C Base plate	-	39 / 8		dBm / W
	2.0 GHz				
TX RF Switching Speed	(10 - 90% RF Voltage) 1 MHz Rep Rate in Modulating Mode	-	200		ns

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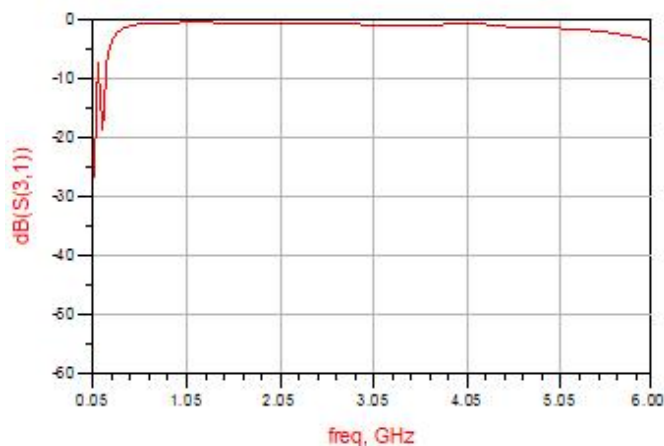
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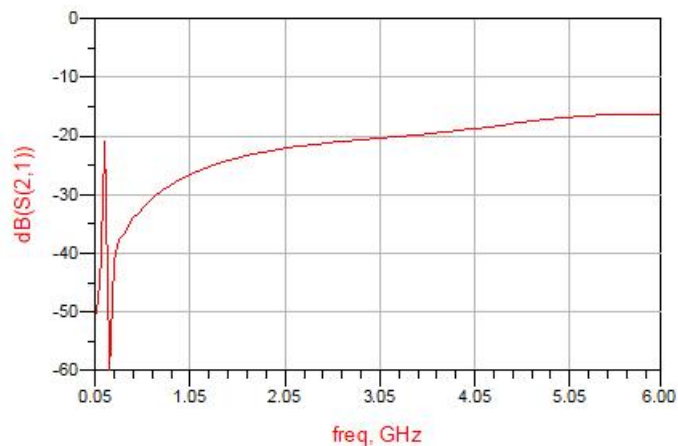
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FREQUENCY CHARACTERISTICS

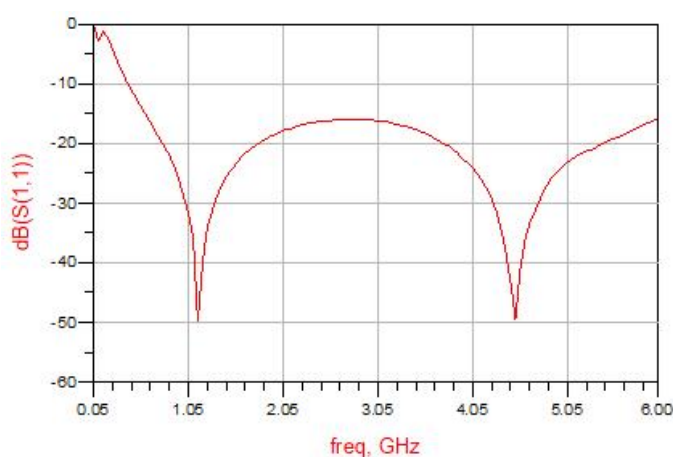
Insertion Loss TX



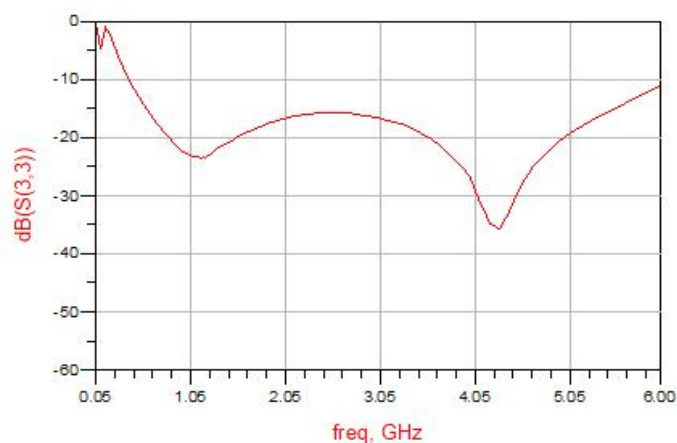
Isolation TX



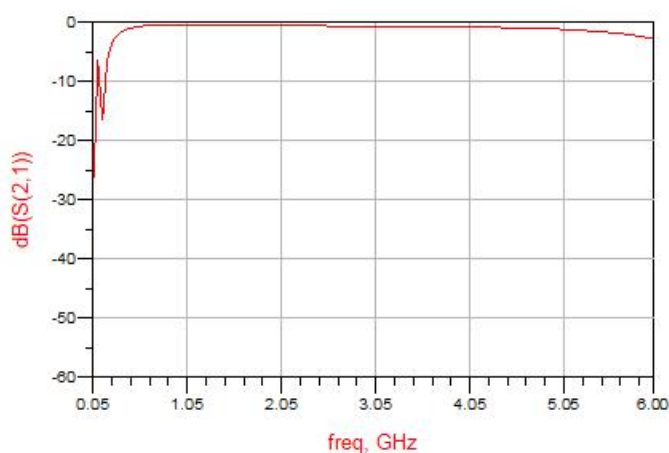
TX Return Loss - Input



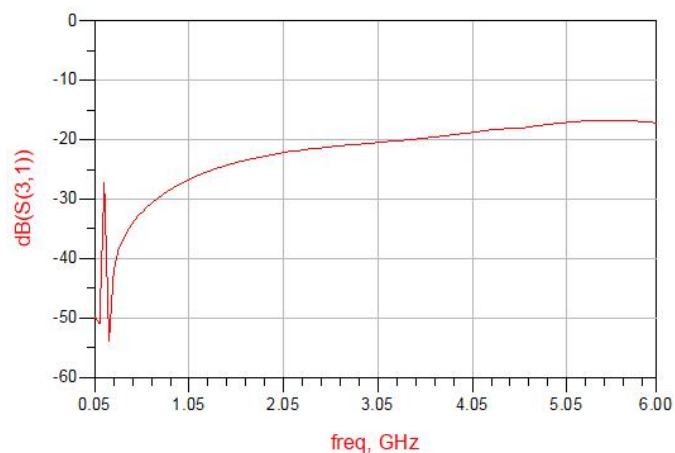
TX Return Loss - Output



Insertion Loss RX



Isolation RX



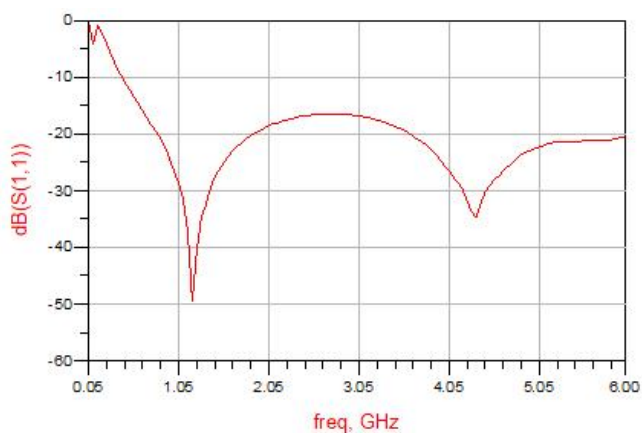
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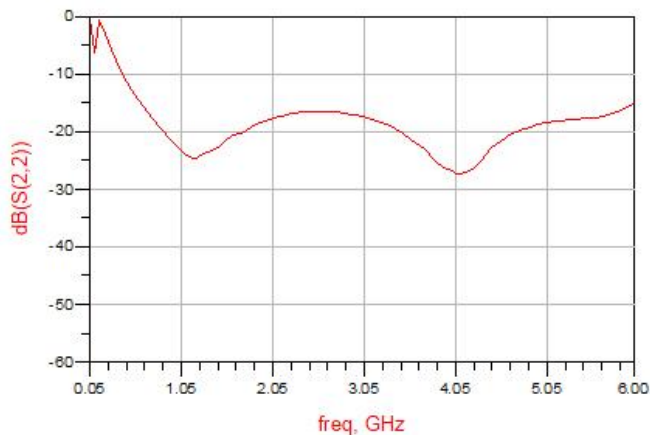
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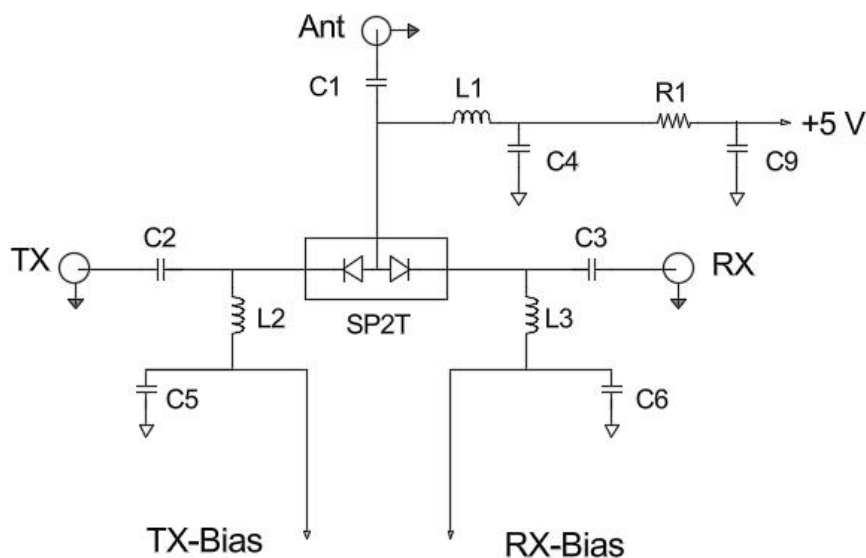
RX Return Loss - Input



RX Return Loss - Output



Bias Schematic



Parts List

Component	Value	Package
C1~C3	27pF	0402HQ
C4	1000P	0402
C5、C6	50P	0402
L1~L3	47nH	0402
C9	0.1UF	0402
R1	120R	0603

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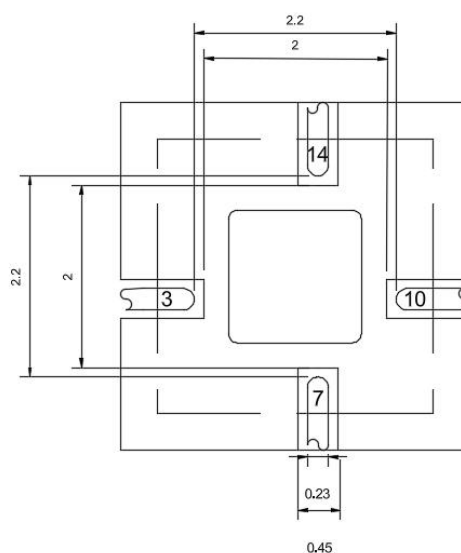
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Bias Table

Switch State	TX Bias	RX Bias	ANT Bias
TX-ANT Isolation	+28 V	GND	+5 V
TX-ANT Insertion Loss	GND	+28 V	+5 V
RX-ANT Isolation	GND	+28 V	+5 V
RX-ANT Insertion Loss	+28 V	GND	+5 V

RECOMMENDED LAND PATTERN



ORDERING INFORMATION

Device	Package	Reel	Shipping
MG-MASW-000825	3*3	7"	1000 Reel

Revision	Description	Date
Rev0	Preliminary	2025/2/26

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