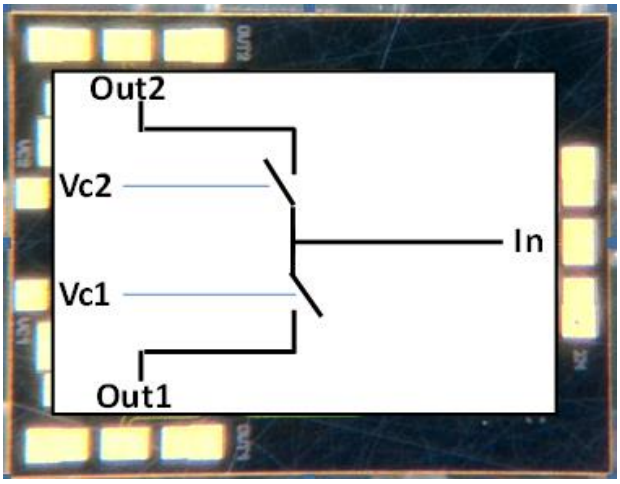
MECGANWBSPDT

DC-20 GHz GaN HEMT SPDT



Product Description

MECGANWBSPDT is a 0.25µm GaN HEMT Wide Band GHz SPDT Switch designed and tested by MEC for DC - 20 GHz Band applications.

In the frequency range from DC to 12 GHz MECGANWBSPDT provides less than 1.4 dB of small signal insertion loss and more than 50 dB of isolation. In the frequency range from 12 to 20 GHz provides less than 1.7 dB of small signal insertion loss and more than 45 dB of isolation.

The maximum input power handling of the MECWBSPDT is 40 dBm.

Main Features

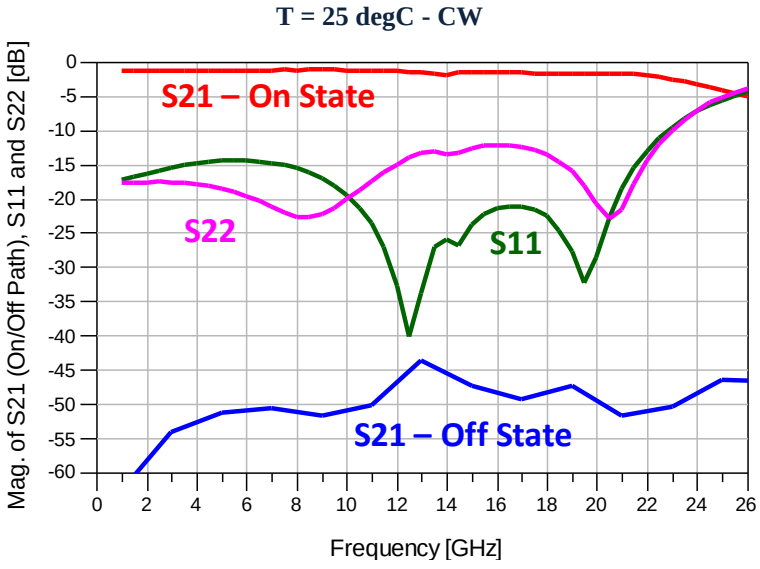
- 0.25µm GaN HEMT Technology
- DC – 20 GHz full performance Frequency Range
- Insertion Loss @ 12 GHz = 1.4 dB
- Insertion Loss @ 20 GHz = 1.7 dB
- Isolation @ 12 GHz > 50 dB
- Isolation @ 20 GHz > 45 dB
- P1dB > 33 dBm
- Input Power Handling = 40 dBm
- Reflective

- Bias: Vc = 0/ -30V
- Chip Size: 1.50 x 2.00 x 0.10 mm^3

Typical Applications

- Commercial and Military Radar
- Communications
- Test Instrumentation

Measured Data



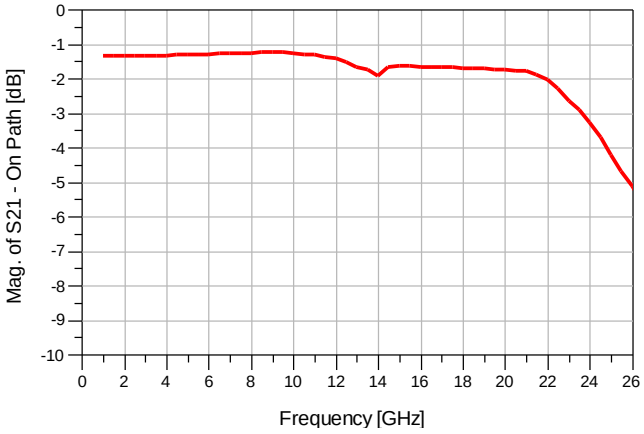
Main Characteristics

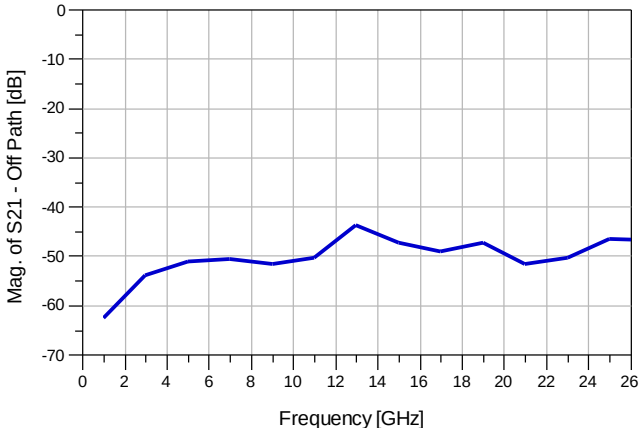
Test Conditions: T_{base_plate} = 25°C, Reception (Vc1 = -30 V, Vc2 = -0 V) - CW

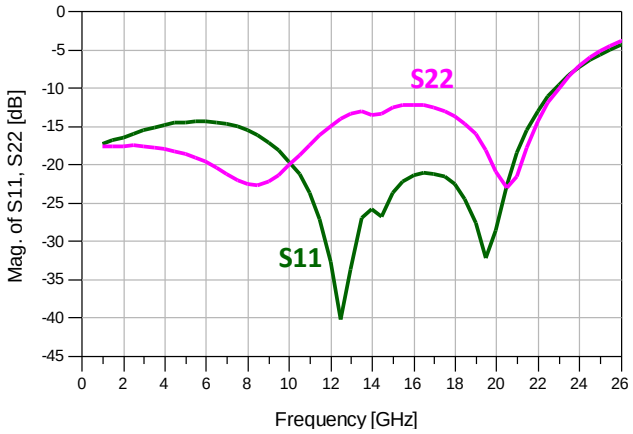
Parameter	Min	Typ	Max	Unit
Operating frequency	DC		22	GHz
Insertion Loss - On State	1.4		2	dB
Isolation - Off State		45		dB
Input Return Loss		15		dB
Output Return Loss		15		dB
Return Loss @ Off State Port (Reflective)	-2		-1	dB
P1dB		33		dBm
Input Power Handling		40		dBm
Gate Control Voltage Vc1	-30 (0)		-25 (1)	V
Gate Control Voltage Vc2	0 (-30)		1 (-25)	V
Control Current			0.5	mA

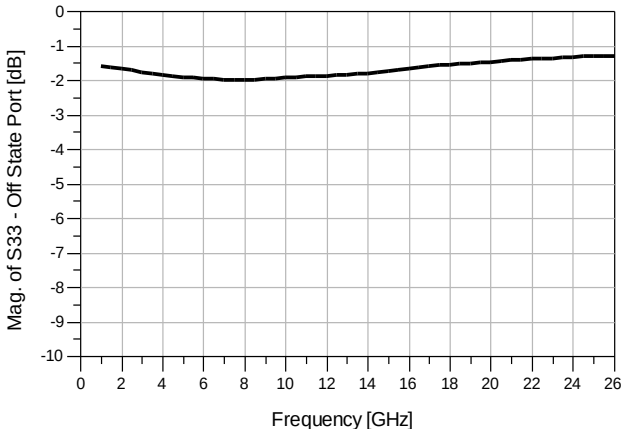
Insertion Loss, Isolation and Return Loss

Test Conditions: T_{base_plate} = 25°C, Vc1 = 0 V, Vc2 = -30 V - CW





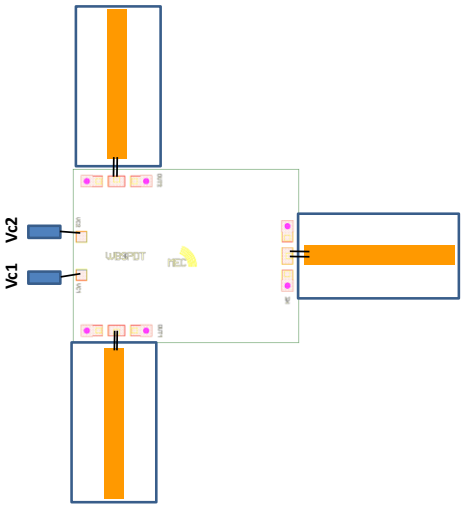




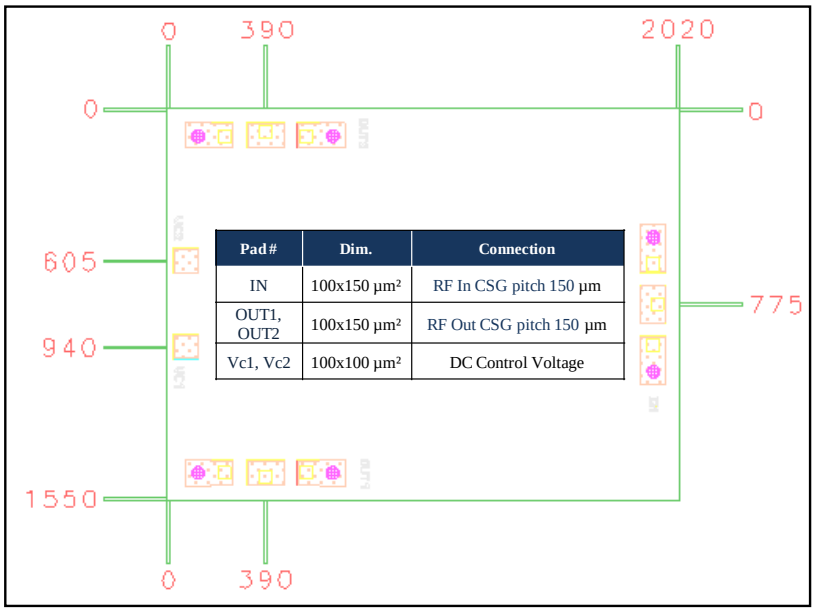
Function Table

RF path Selected	Vc1	Vc2
Out1	0 V	-30 V
Out2	-30 V	0 V

Bond Pad Configuration & Assembly Recommendations



Bond Pad #	Connection	External Components
IN, Out1 and Out2	**2** Bonding Wires L_bond = 0.3nH	
Vc1, Vc2	L_bond ≤ 1 nH	No external components required (Internal Series Resistance: Rs=4kΩ)



Pad #	Dim.	Connection
IN	100x150 µm²	RF In CSG pitch 150 µm
OUT1, OUT2	100x150 µm²	RF Out CSG pitch 150 µm
Vc1, Vc2	100x100 µm²	DC Control Voltage

Eutectic Die bond using AuSn (80/20) solder is recommended.

The backside of the die is the Source (ground) contact.

Thermosonic ball or wedge bonding are the preferred connection methods.

Gold wire must be used for connections.

Bias Procedure

Bias-Up

1. Vc1 and Vc2 sets to Control Voltage.
2. Apply RF signal.

Bias-Down

1. Turn off RF signal.
2. Turn off Vc1, Vc2.

Contact Information

For additional technical Information and Requirements:

Email**:** **contact.mec@mec-mmic.com** Tel: **+39 0516333403**

For sales Information and Requirements:

Email**:** **sales@mec-mmic.com** Tel: **+39 0516333403**

Notice