SPDT Switch

PRODUCT DATASHEET RFSW20

Features:

- RF Frequency: 2 - 20 GHz
- Insertion Loss: 1.1 dB
- Common Port Return Loss: 12.5 dB
- ON Port Return Loss: 12 dB
- Isolation: 53.9 dB
- Output P1dB: 28.2 dBm
- DC supply current: 3 mA
- 0.1um GaAs pHEMT Technology
- Die Size: 1.15mm * 1.45mm

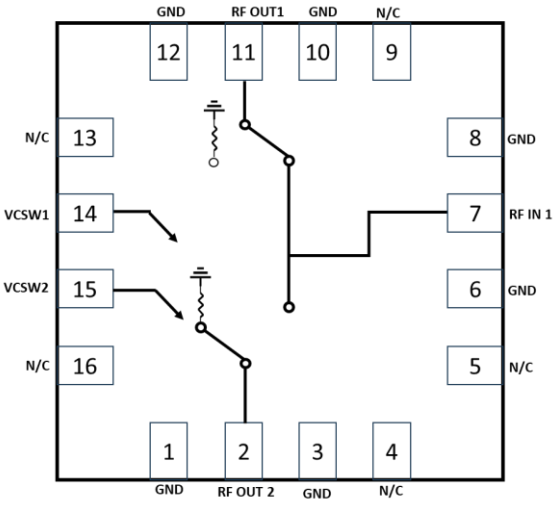
Applications:

- Antenna switching (Tx/Rx)
- RF signal routing
- Backup / redundancy switching
- Frequency band selection
- Test and measurement routing

Deliverables:

- Sample Ready Die
- Product Datasheet

Functional Block Diagram:



Pin Configuration:

Pin No.	Pin Name	Description
1,3,6,8,10,12	GND	Ground
7	RF_IN1	RF_ Input
11	RF_OUT1	RF_Output1
2	RF_OUT2	RF_Output2
4,5,9,13,16	N/C	Not Connected
14	VCSW1	Control Voltage Switch1
15	VCSW2	Control Voltage Switch2

Description:

RFSW20 is an SPDT (Single Pole Double Throw) switch designed to operate over a wide frequency range of 2 GHz to 20 GHz. The switch is optimized for signal routing applications and delivers a typical insertion loss of 1.1 dB across the operating band.

All RF ports are internally matched to 50 ohms, and integrated on-chip DC blocking capacitors are provided at the input and output to ensure reliable bias isolation and simplified external matching.

The Technology used to design the SPDT Switch is a 0.1um GaAs pHEMT Process.

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Electrical Specification:

Freq= 2 - 20 GHz, ID= 3 mA, Zo=50 Ω

Parameters	Test Condition	Units	Typ.
Insertion Loss	2 GHz	dB	1.8
	10 GHz		1.1
	20 GHz		1.5
Common Port Return Loss	2 GHz	dB	6.15
	10 GHz		12.5
	20 GHz		14.15
ON Port Return Loss	2 GHz	dB	6.2
	10 GHz		12
	20 GHz		20.6
IP1dB	2 GHz	dB	24.7
	10 GHz		28.2
	20 GHz		26.5
Isolation	2 GHz	dB	51.3
	10 GHz		53.9
	20 GHz		32.7
Operating Bias Conditions			
Drain Current (Id)	-	mA	3
ON Control Voltage (VCSW)	-	V	5
OFF Control Voltage (VCSW)	-	V	-2.5

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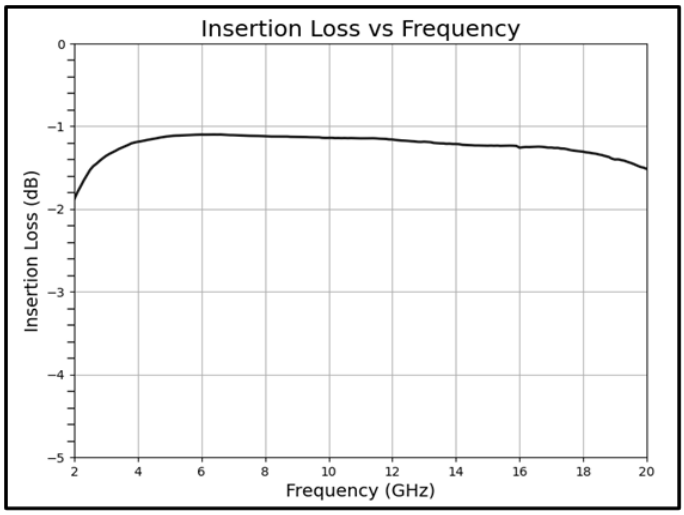
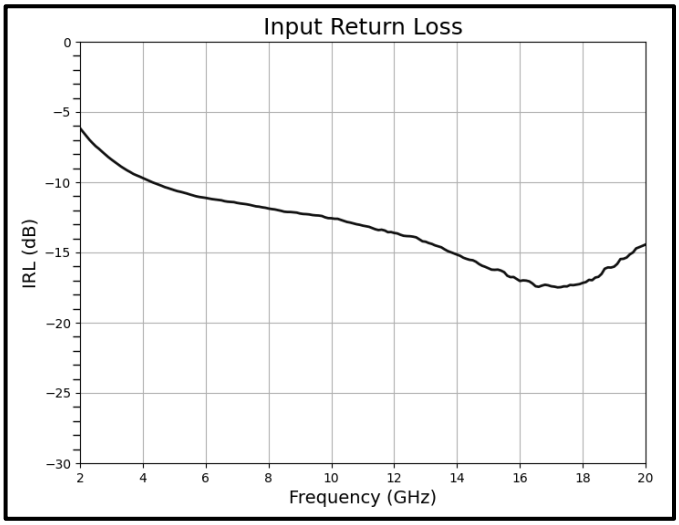
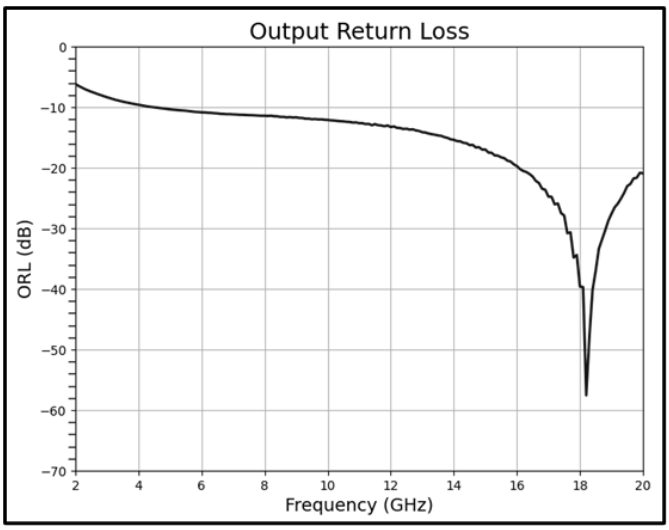
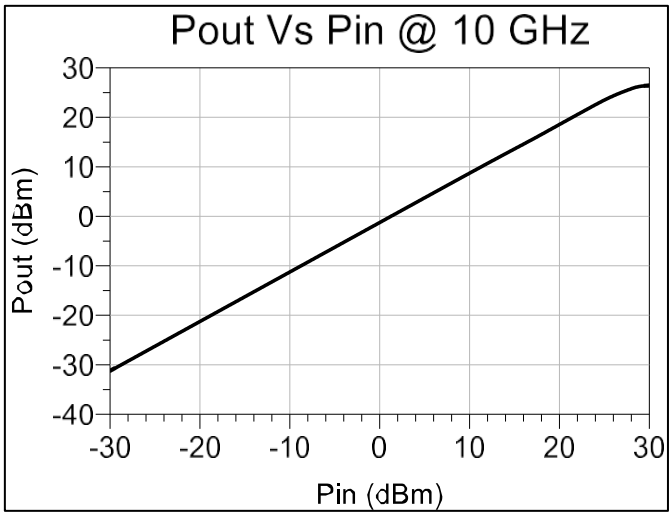
Wafer Level Measured Results (ON State):









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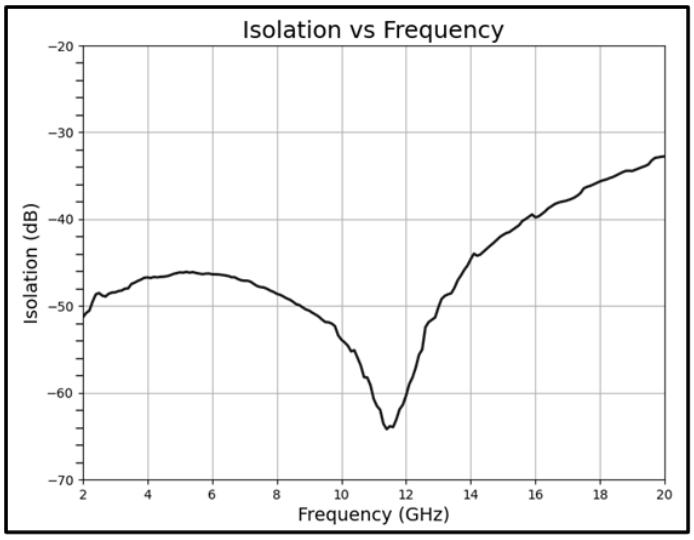
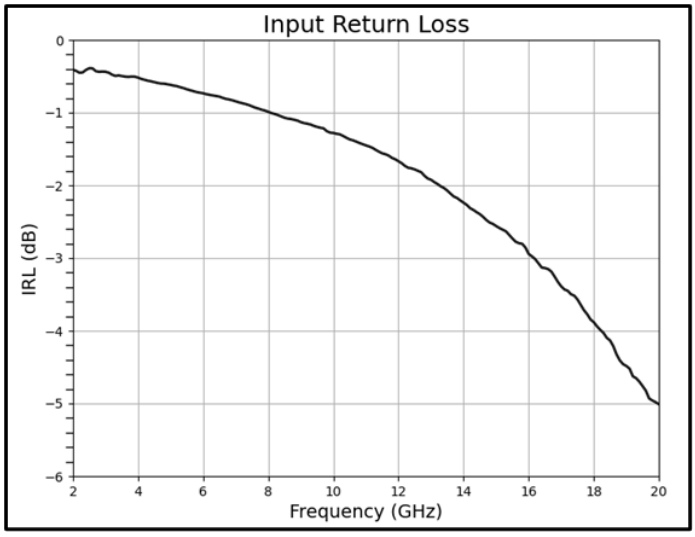
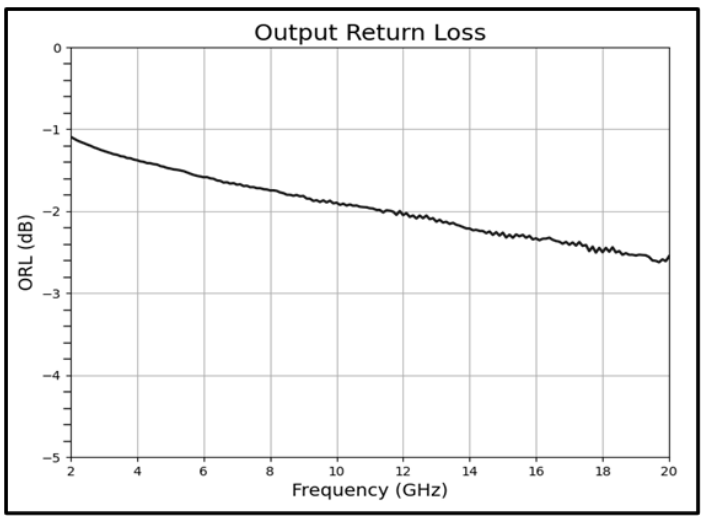
Wafer Level Measured Result (OFF State):







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