

FEATURES

- Full V, E, and W-band coverage
- Good return loss >15 dB
- 2.5 dB insertion loss

DESCRIPTION

The gSSS0013 is a Single Pole Single Throw Switch with wideband characteristics. It features good insertion loss and excellent isolation up into the W-band. The return loss is also good across the entire band 40 to +110 GHz.

It may also be used as a voltage variable attenuator.

TYPICAL APPLICATIONS

- 60 GHz UWB wireless communication.
- V-, E- and W-band point to point communication links.
- 77 GHz automotive radar
- Instrumentation for V to W-band applications
- Other 40 to 110 GHz applications

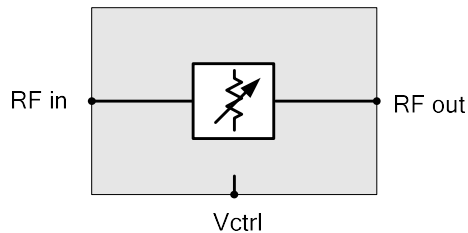


Figure 1. Block diagram of gSSS0013

ELECTRICAL PERFORMANCE

Table 1. Electrical performance $T_A=25^{\circ}\text{C}$

Parameter	Min	Typ	Max	Unit
RF Frequency	40		110+	GHz
Insertion loss		2.5		dB
Dynamic range/isolation		25		dB
Power consumption		0		mW
OIP3		TBD		dBm
Input return loss	>12			dB
Output return loss	>10			dB

MEASURED PERFORMANCE

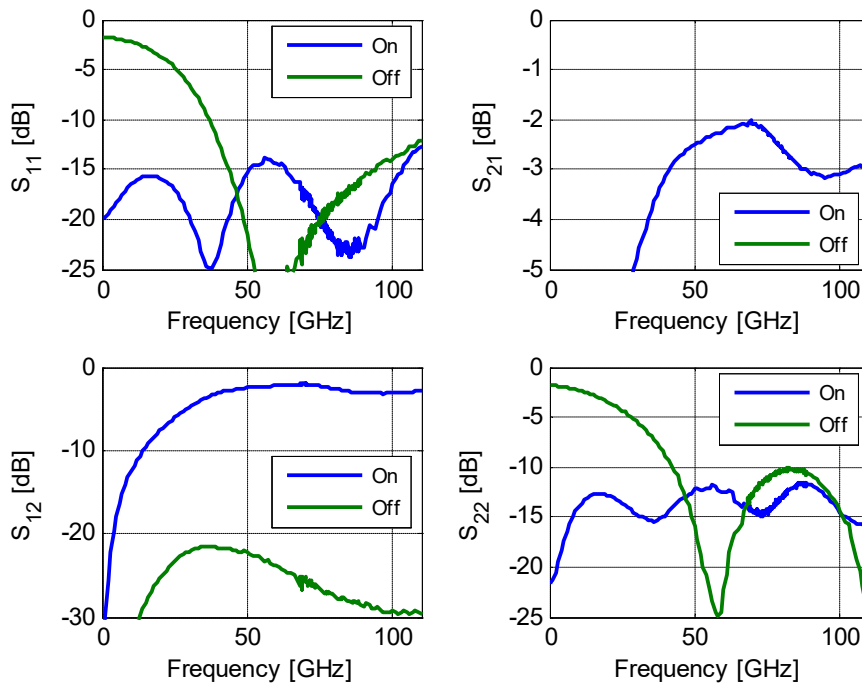


Figure 1. (Upper Left) Input return loss, (Upper Right) Min insertion loss, (Lower Left) Output return loss, (Lower Right) Insertion loss (On/Off) from 0 to 110 GHz.

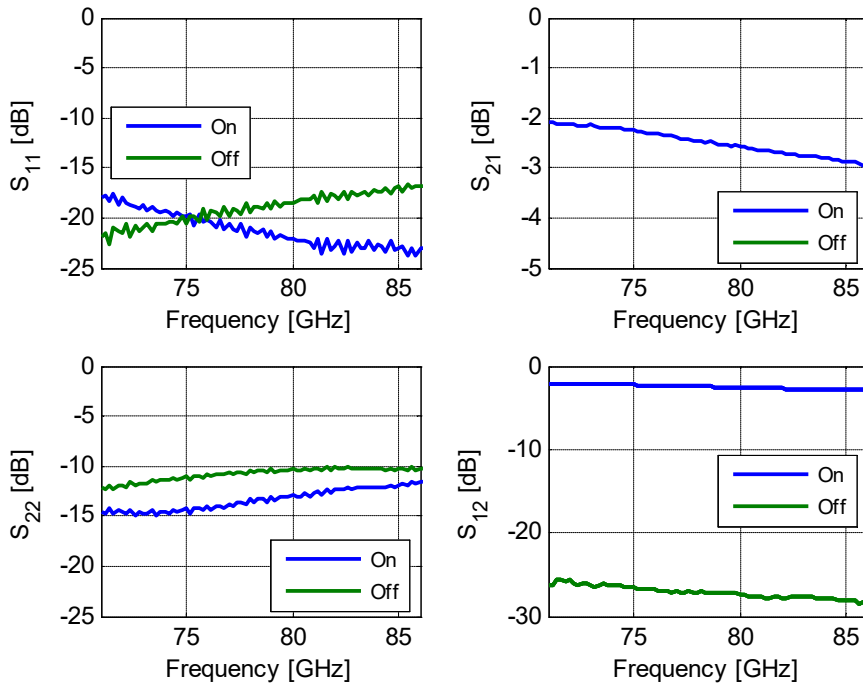


Figure 2. (Upper Left) Input return loss, (Upper Right) Min insertion loss, (Lower Left) Output return loss, (Lower Right) Insertion loss (On/Off) from 70 to 87 GHz.

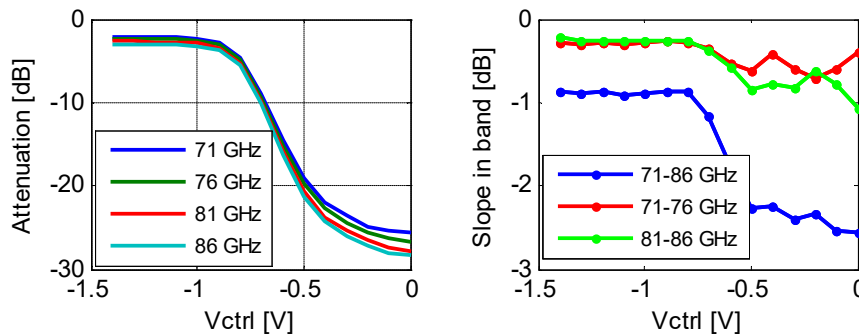


Figure 3. (Left) Attenuation vs control voltage at 71 to 86 GHz. (Right) In-band slope at different attenuations settings from 71 to 86 GHz.

RECOMMENDED OPERATING CONDITIONS

Bias should first be applied to the gates (VG...) followed by the drains (VD...). The gate voltages must be adjusted within the min/max range indicated in **Error! Reference source not found.**-5 to obtain the specified drain currents. The drain currents are stated with all input signals off.

Table 2. Electrical settings on connector P1

Connector P1	Pad No.	Interface	I/O
GND	1		Ground
RF	2	$Z_0 = 50 \text{ Ohm}$, AC coupled	Output/ Input
GND	3		Ground

Table 3. Electrical settings on connector P2

Connector P1	Pad No.	Interface	I/O
GND	4		Ground
RF	5	$Z_0 = 50 \text{ Ohm}$, AC coupled	Input/ Output
GND	6		Ground

Table 4. Electrical settings on connector P3

Connector P2	Pad No.	Bias settings (V/mA)			I/O
		Min	Typ	Max	
VCTRL	7	-1.5	-	0	Input
GND	8				Ground

ABSOLUTE MAXIMUM RATINGS

Table 5. Absolute Maximum Ratings

Gate bias voltage	-2 to + 0.7 V
Drain bias voltage	4.5 V
Max input power	+ 15 dBm
Operating temperature	-40 to + 85 C
Storage temperature	-65 to +150 C

OUTLINE DRAWING

Distances are in μm . Drawing is also available in dxf-file format on the web. The substrate thickness is $50 \mu\text{m}$ (GaAs).

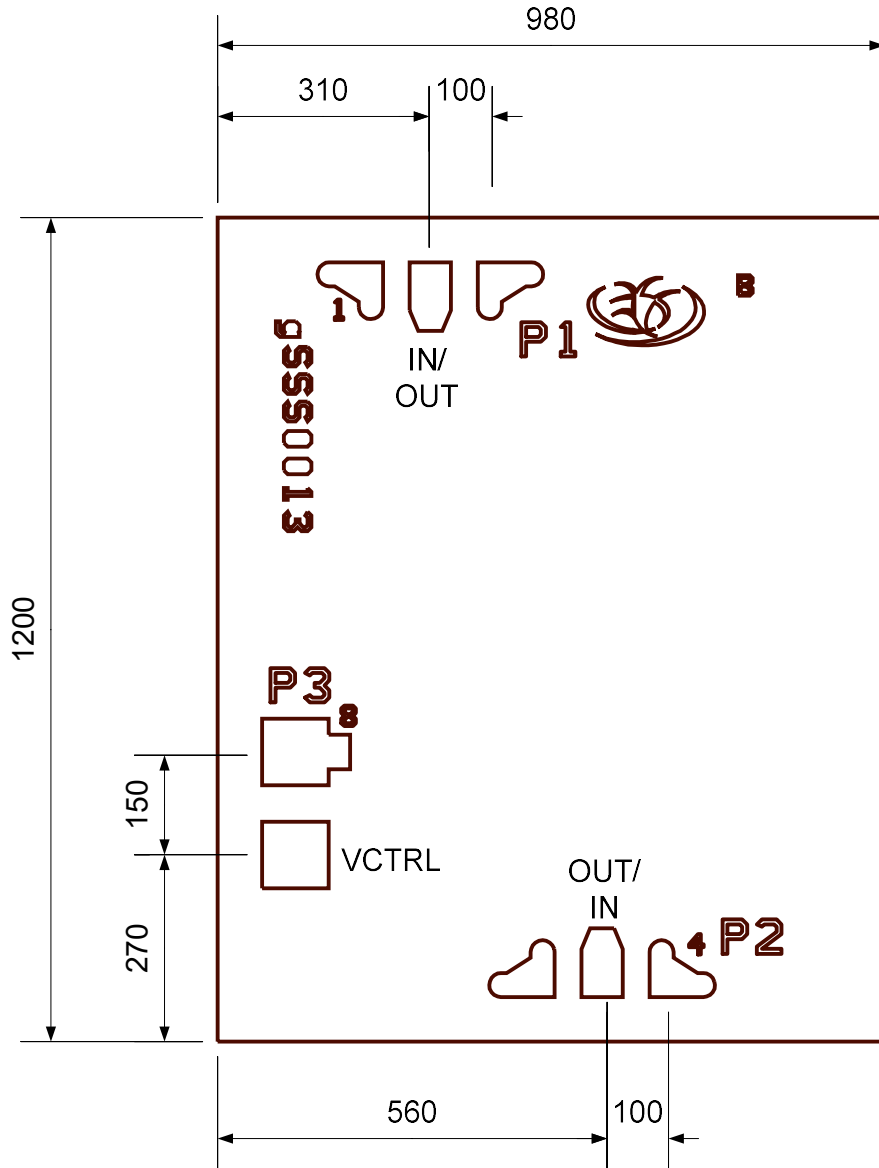


Figure 4. Outline drawing of the gSSS0013B.