

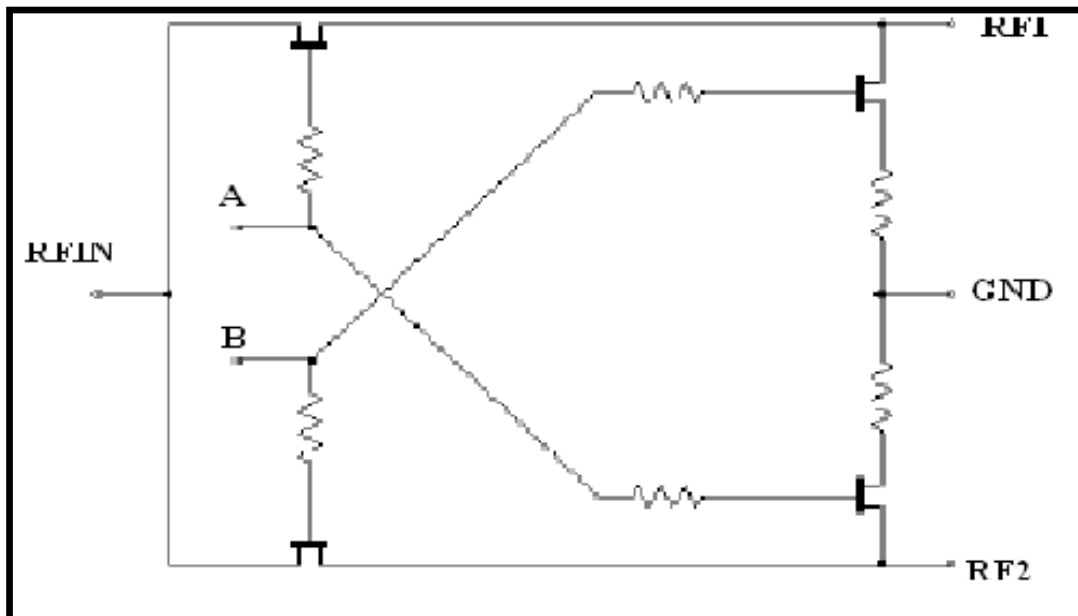
### Product Description

The RBS681 is a high performance Gallium Arsenide single pole double through broad band RF switch suitable for use in broadband communications and instrumentation applications. The isolated port of the switch is terminated with a 50 ohm load. The switch is controlled by the application of complimentary 0V/-5V or 0/-8V signals to the control lines in accordance with the truth table below.

### Features

- Broadband performance
- Low Insertion Loss; 0.6 dB typ at 1 GHz
- Ultra low DC power consumption
- 50  $\Omega$  output terminations

### Functional Block Diagram



## Specifications

### Absolute Maximum Ratings

Name	Description
Max Control Voltage	-8 V
RF I/P Power	+33 dBm
Operating Temperature Range	-40 to +85° C

### Electrical Performance

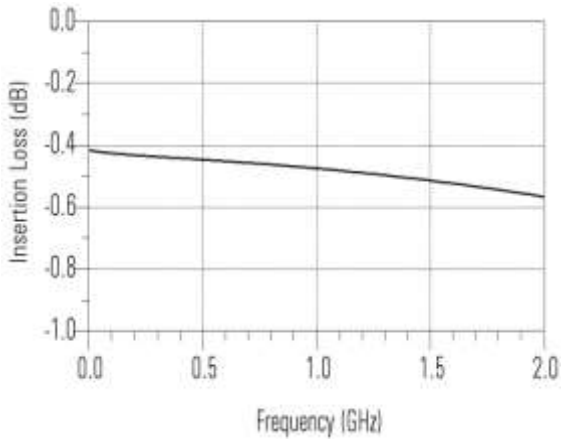
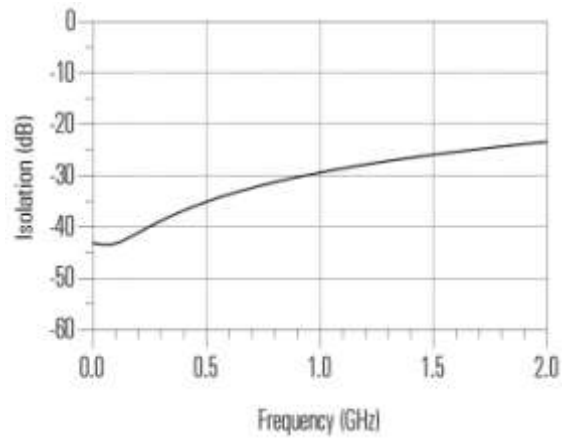
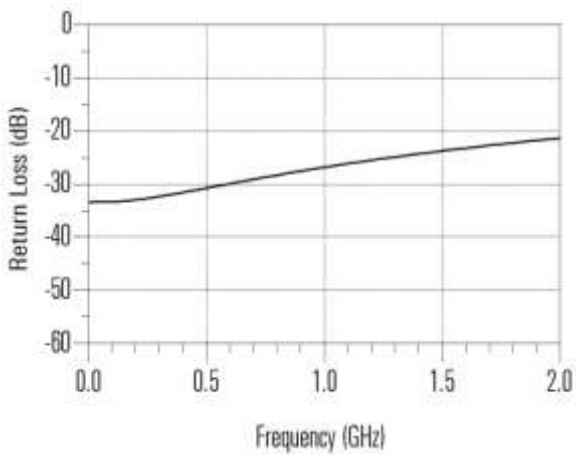
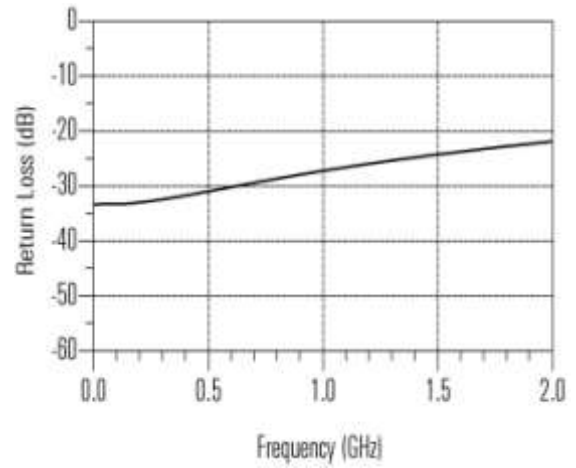
### Typical performance at 25°C

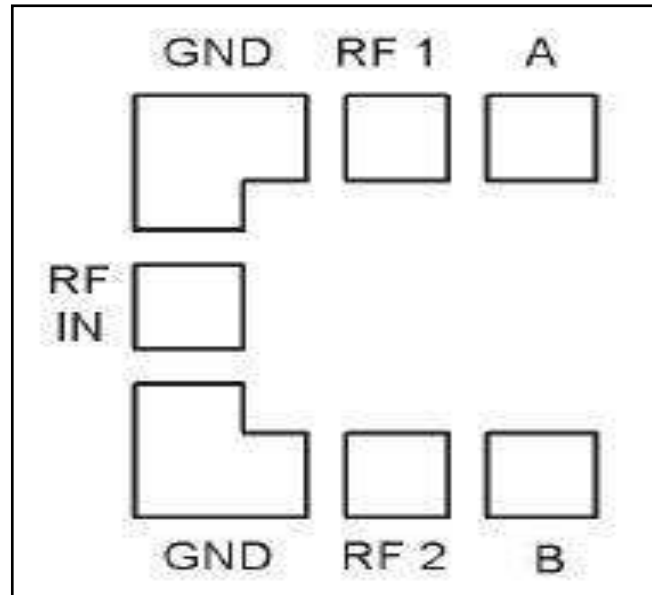
Ambient temperature = 25±3°C, Zo = 50 Ω, Control voltage = 0V/-5V unless otherwise stated

Parameter	Condition	Min.	Typ.	Max.	Units
Insertion Loss <sup>1</sup>	DC – 0.5 GHz	-	0.45	0.6	dB
	0.5 – 2 GHz	-	0.6	1.0	dB
Isolation <sup>1</sup>	DC – 0.5 GHz	33	35	-	dB
	0.5 – 2 GHz	23	24	-	dB
Input Return Loss <sup>2</sup>	DC – 0.5 GHz	30	32	-	dB
	0.5 – 2 GHz	21	22	-	dB
Output Return Loss <sup>2</sup>	DC – 0.5 GHz	30	32	-	dB
	0.5 – 2 GHz	21	22	-	dB
P1dB power compression point <sup>3</sup>	0/-5 V control; 50 MHz	19	21.5	-	dBm
	0/-5 V control; 2 GHz	21	23	-	dBm
	0/-8 V control; 50 MHz	21	23	-	dBm
	0/-8 V control; 2 GHz	29	31	-	dBm
Switching Speed	50% control to 10%90% RF	-	2.2	-	ns

### Notes

1. Insertion loss and Isolation measured between RF Input and any output.
2. Return Loss measured in low loss switch state.
3. Input power at which insertion loss compresses by 1dB.

**Preliminary Data**
**Insertion Loss**

**Isolation**

**Input Return Loss**

**Output Return Loss**


**Chip Outline Diagram**


Die size: 1.0 X 1.5 mm  
 Minimum Bond pad size: 120  $\mu$ m x 120  $\mu$ m  
 Die thickness: 200  $\mu$ m

**Switching Truth Table**

A	B	RFIN-RF1	RFIN-RF2
0 V	-5 V	Low Loss	Isolated
-5 V	0 V	Isolated	Low Loss

<http://www.rfarrays.com>

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### Product Preview

The document contains information from the product concept specification. RF Arrays Inc. reserves the right to change information at any time without notification.

### Preliminary Information

The document contains information from the design target specification. RF Arrays Inc. reserves the right to change information at any time without notification.

### Production testing may not include testing of all parameters.

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