

## Product Description

The RBS631 is a high performance Gallium Arsenide single pole four through broad band RF switch. It is suitable for use in broadband communications and instrumentation applications. A short circuit reflective termination is presented at the isolated outputs of the switch. Control is effected by the application of complimentary 0V and -5V levels to the control lines in accordance with the truth table below.

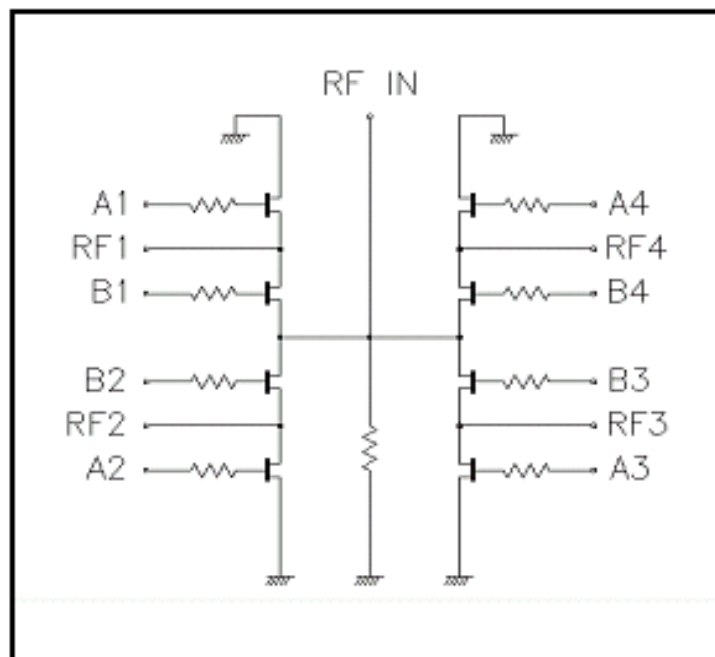
## Features

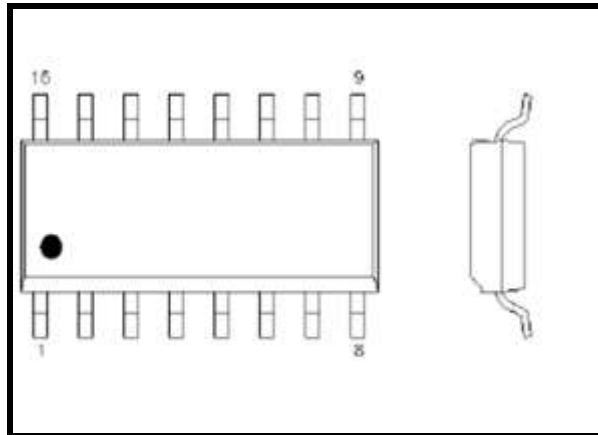
- Broadband performance
- Low Insertion Loss; 0.7dB typ at 1 GHz
- Ultra low DC power consumption
- Fast switching speed; 2.2nS typical
- Package: SO16 Surface Mount Package

## Applications

- GSM Dual Band Handsets
- Antenna Switch Modules
- Military Radio Systems
- Space Equipments

## Functional Block Diagram



**Outline Drawing**

**Pin Configuration**

Pin No.	Name	Description
1	A4	DC Control Voltage (0/-5V) to ON/OFF RF4
2	RF4	RF Port
3	Ground	RF Ground
4	RFIN	RF Port
5	Ground	RF Ground
6	RF1	RF port
7	A1	DC Control Voltage (0/-5V) to ON/OFF RF1
8	B1	DC Control Voltage (0/-5V) to ON/OFF RF1
9	B2	DC Control Voltage (0/-5V) to ON/OFF RF2
10	A2	DC Control Voltage (0/-5V) to ON/OFF RF2
11	RF2	RF port
12	Ground	RF Ground
13	RF3	RF port
14	A3	DC Control Voltage (0/-5V) to ON/OFF RF3
15	B3	DC Control Voltage (0/-5V) to ON/OFF RF3
16	B4	DC Control Voltage (0/-5V) to ON/OFF RF4

## Specifications

### Absolute Maximum Ratings

Name	Description
Max Control Voltage	-8 V
RF I/P Power	+30 dBm
Operating Temperature Range	-40 to +85° C

### Electrical Performance

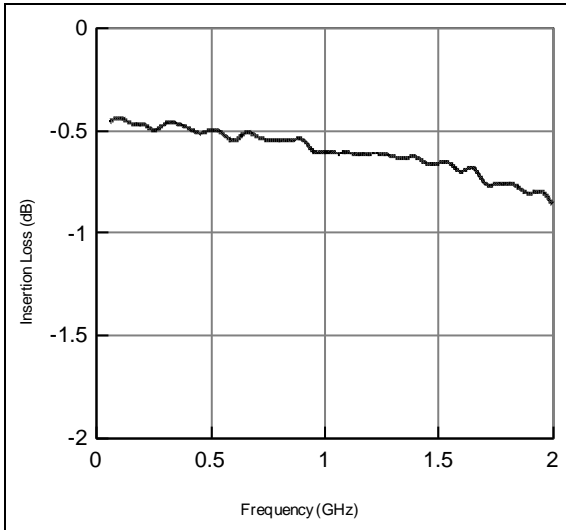
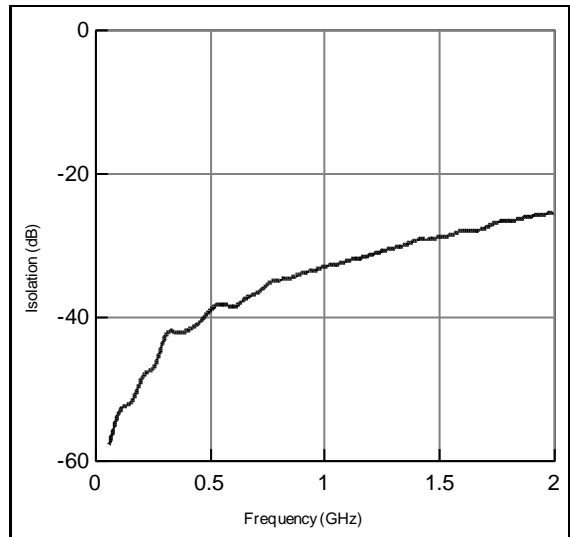
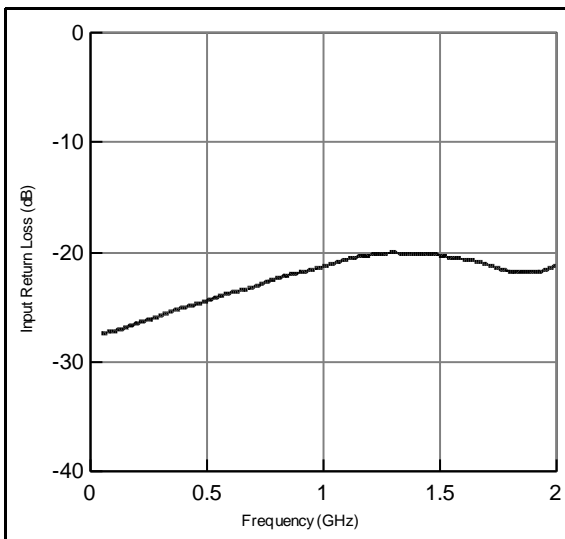
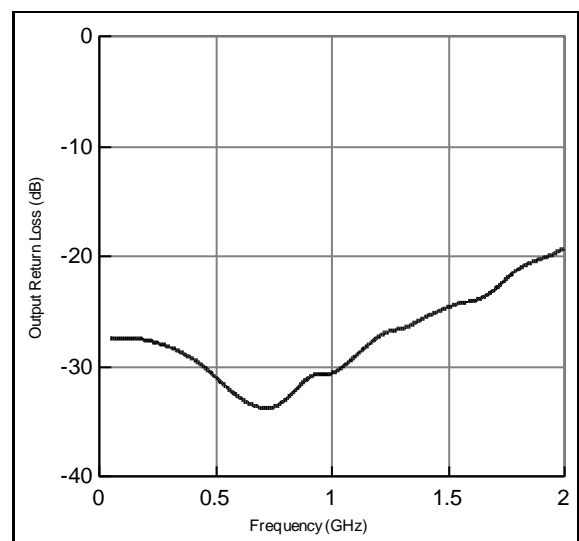
### Typical performance at 25°C

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 – 1 GHz	-	0.7	0.9	dB
	1 – 2 GHz	-	0.9	1.1	dB
Isolation <sup>1</sup>	DC – 1 GHz	25	30	-	dB
	1 – 2 GHz	22	26	-	dB
Input Return Loss <sup>2</sup>	DC – 1 GHz	20	28	-	dB
	1 – 2 GHz	16	22	-	dB
Output Return Loss <sup>2</sup>	DC – 1 GHz	22	28	-	dB
	1 – 2 GHz	16	22	-	dB
P1dB power compression point <sup>3</sup>	0/-5 V control; 50 MHz	-	21	-	dBm
	0/-5 V control; 2 GHz	-	26	-	dBm
	0/-8 V control; 50 MHz	-	22	-	dBm
	0/-8 V control; 2 GHz	-	30	-	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.

**Measured Data**

**Insertion Loss**

**Isolation**

**Input Return Loss**

**Output Return Loss**

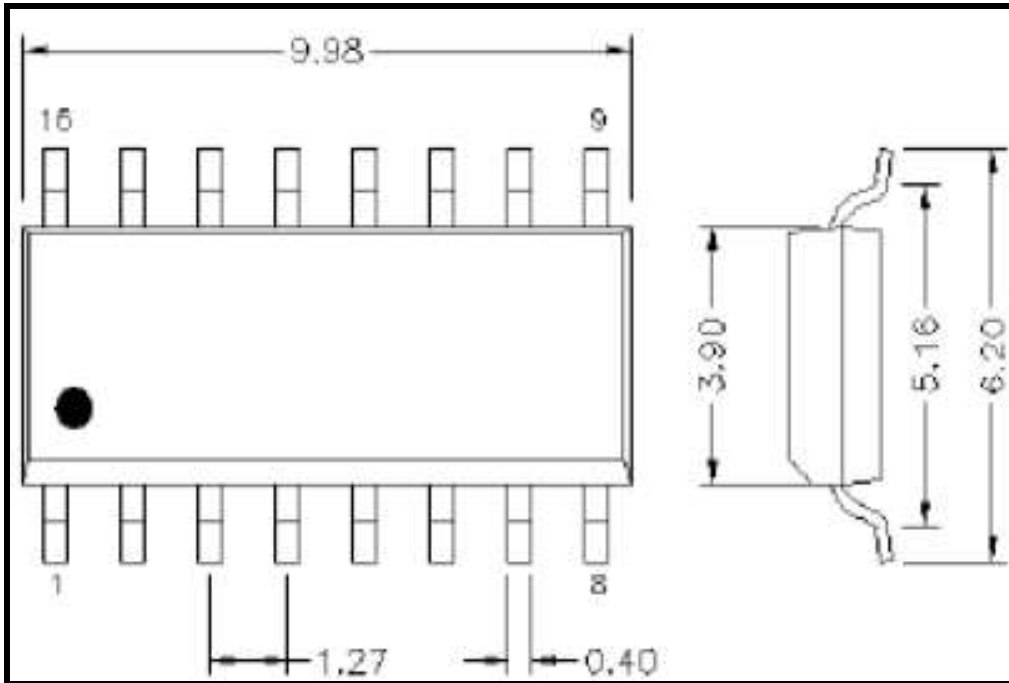
**Package Pin Out**

Pin	Function	Pin	Function	Pin	Function	Pin	Function
1	A4	5	Ground	9	B2	13	RF3
2	RF4	6	RF1	10	A2	14	A3
3	Ground	7	A1	11	RF2	15	B3
4	RFIN	8	B1	12	Ground	16	B4

**Switching Truth Table**

Control Pin Voltage (V)								Path From RF IN to			
A1	B1	A2	B2	A3	B3	A4	B4	RF1	RF2	RF3	RF4
-5	0	0	-5	0	-5	0	-5	Low Loss	Isolated	Isolated	Isolated
0	-5	-5	0	0	-5	0	-5	Isolated	Low Loss	Isolated	Isolated
0	-5	0	-5	-5	0	0	-5	Isolated	Isolated	Low Loss	Isolated
0	-5	0	-5	0	-5	-5	0	Isolated	Isolated	Isolated	Low Loss

Package Drawings



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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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