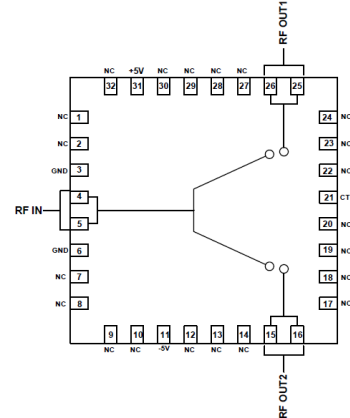


## DC – 6.5 GHz SPDT Reflective Switch

### Features

- ◆ Frequency Range: DC – 6.5 GHz
- ◆ Low Insertion Loss ~ 1.5dB (Typ)
- ◆ High Isolation ~ 40dB
- ◆ Input Return Loss > 10 dB
- ◆ Output Return Loss > 10 dB
- ◆ On chip TTL Driver
- ◆ 28 Lead 5X5 mm QFN Package

### Functional Diagram



### Typical Applications

- ◆ Cellular system
- ◆ Base stations
- ◆ Broadband Telecom
- ◆ Test Equipment's

### Description

The ASL8003P5 is a wideband Reflective single-pole; double throw (SPDT) MMIC chip covering DC to 6.5GHz. The Switch offers high Isolation and Low Insertion Loss. The Switch features typical 40 dB Isolation and 1.7 dB Insertion Loss. The Switch offers a high speed switching due to the presence of an on-chip TTL Driver. The input power for 1dB compression is 20dBm. The switch operates on +5V/-5V supplies with minimal DC power consumption and is controlled using TTL compatible voltage levels.

### Absolute Maximum Ratings <sup>(1)</sup>

Parameter	Absolute Maximum	Units
RF input Power ( common Port)	25	dBm
RF input Power (Toggle ports)	25	dBm
Positive supply Voltage	+6	V
Negative supply voltage	-6	V
Control voltage	-0.5 to +5.5	V
Operating Temperature	-55 to +85	°C
Storage Temperature	-65 to +150	°C

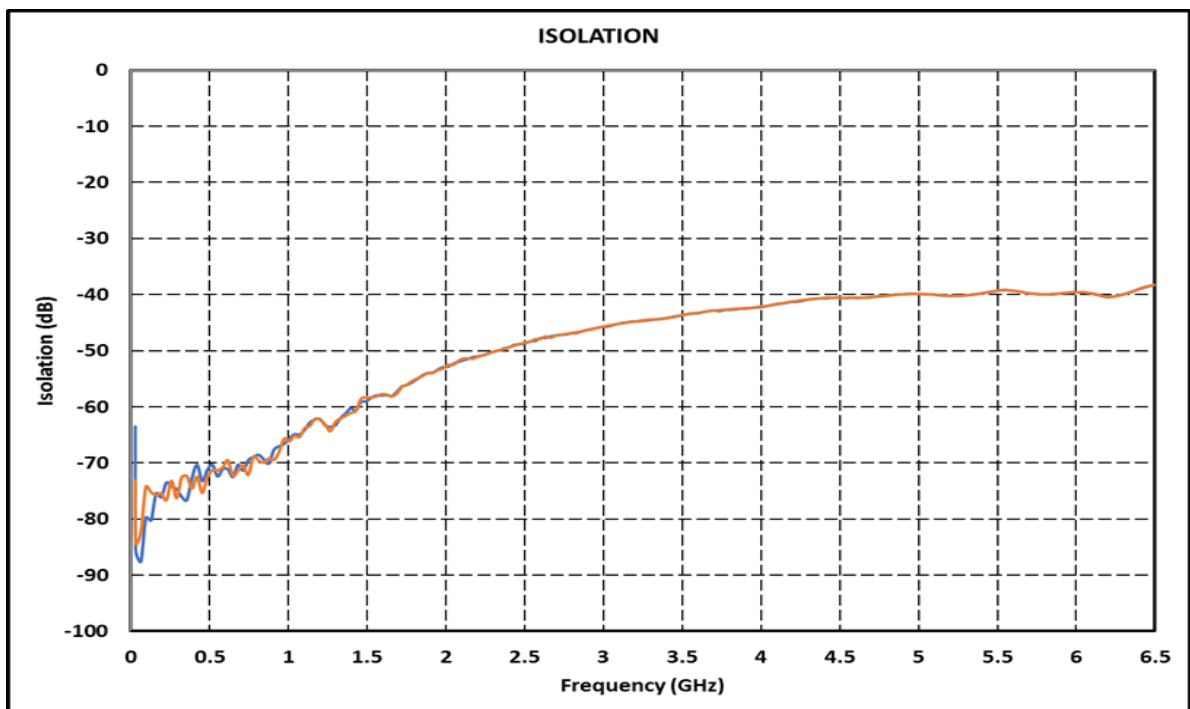
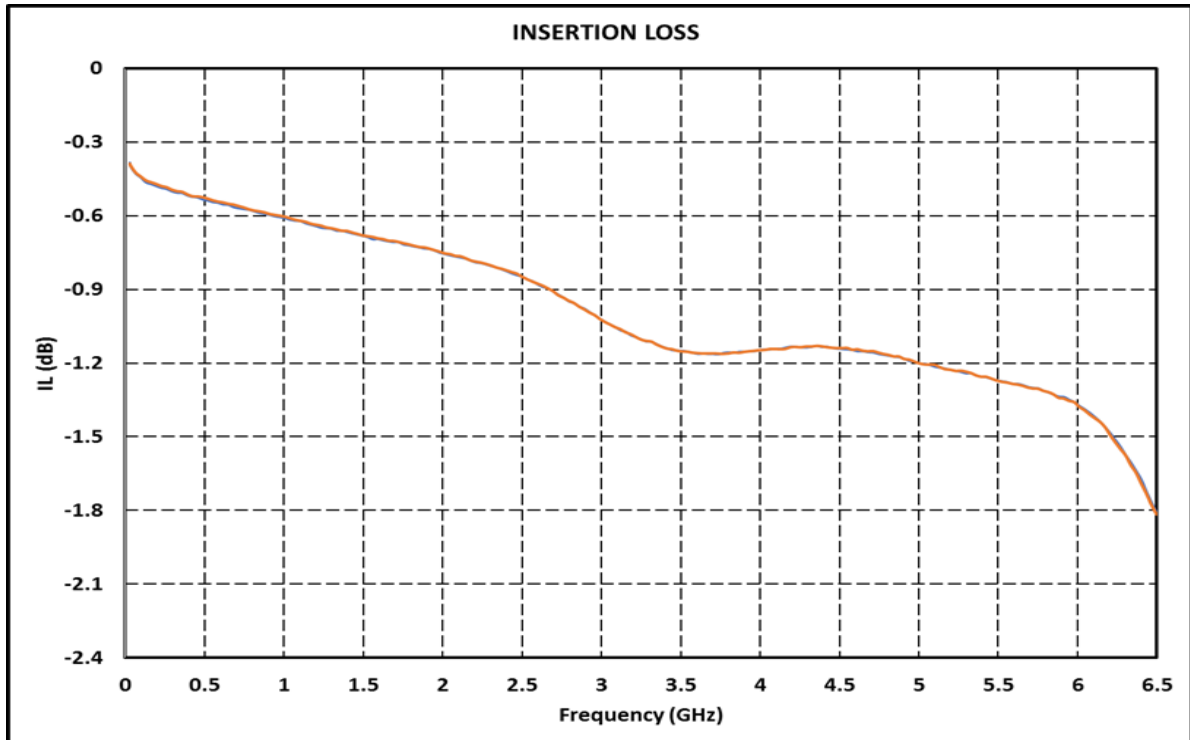
1. Operation beyond these limits may cause permanent damage to the component

**Electrical Specifications <sup>(1)</sup> @ T<sub>A</sub> = 25 °C, 0/+5V control, Z<sub>o</sub> =50 Ω**

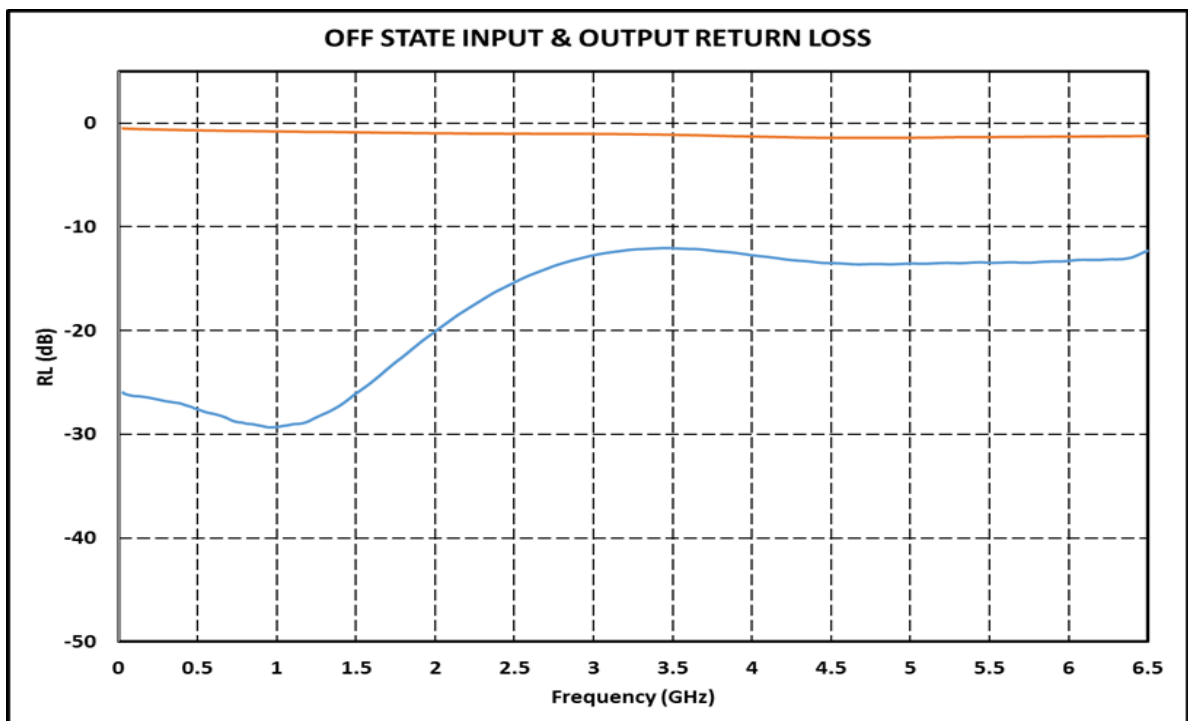
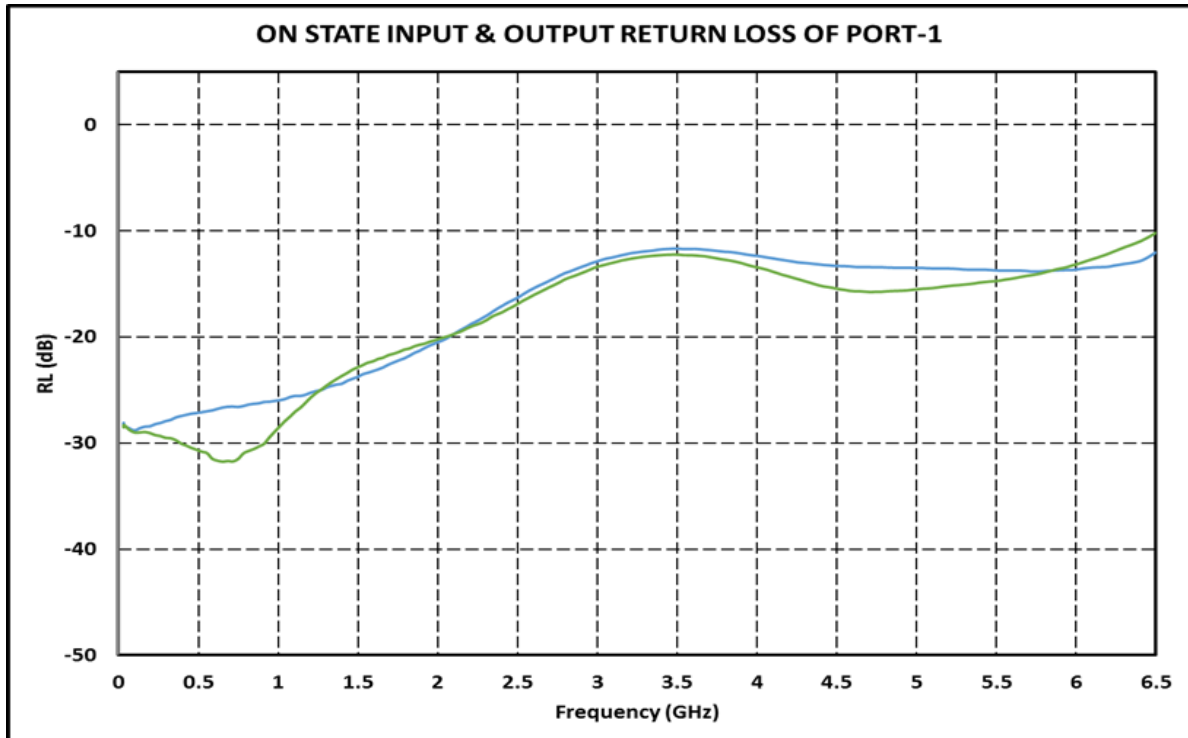
Parameter	Min.	Typ.	Max.	Units
Frequency	0.1	-	6.5	GHz
Insertion Loss	-	1.5	1.9	dB
Isolation	35	40	-	dB
Input Return Loss	10	15	-	dB
Output Return Loss	10	15	-	dB
Input Power for 1dB compression (P1dBin)	-	20	-	dBm
Bias Voltage	+5,-5			Volts
Control Voltage	0/+5			Volts
Switching Speed	<50			ns

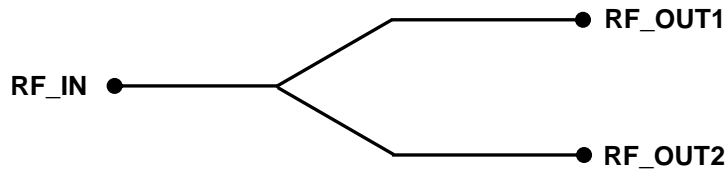
**Note:**

1. The above-mentioned electrical specifications are measured in 50-ohm line PCB test fixture broad.
2. The RF input & output ports are DC coupled.
3. For reliable operation, external DC blocking capacitors are required at the RF input & output ports.
4. The switch draws very negligible current approximately of 1mA on +5V power supply.

**Test fixture data**Driver Bias +5V,-5V; Control 0/+5V;  $T_A = 25\text{ }^\circ\text{C}$ 

**Test fixture data**

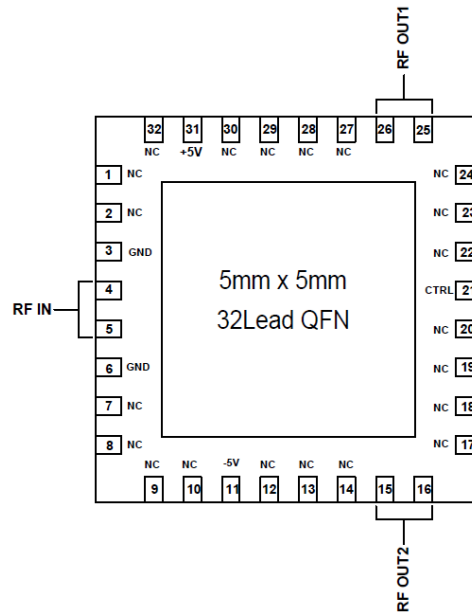
 Driver Bias +5V,-5V; Control 0/+5V;  $T_A = 25\text{ }^\circ\text{C}$ 


**Truth Table**

**Control Voltages**

State	Bias Conditions
Low "0"	0 to 0.5V
High "1"	3.3V to 5.0V

Control Voltage	RF_IN to RF_OUT1	RF_IN to RF_OUT2
Low "0"	ON	OFF
High "1"	OFF	ON

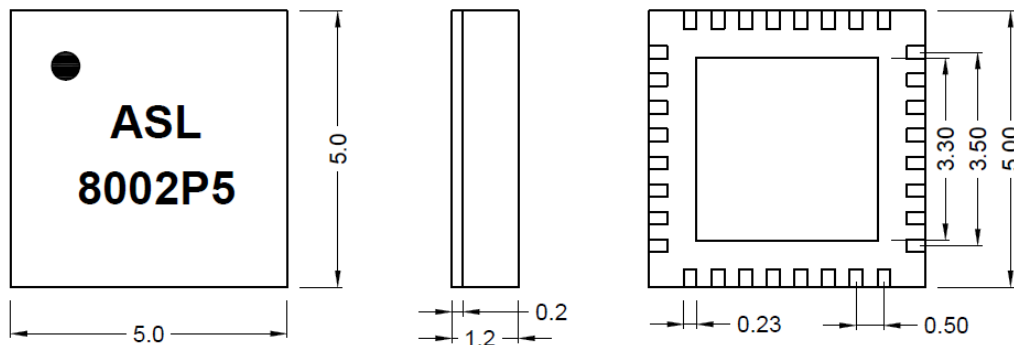
## Pin Configuration



## Pin Designations

Symbol	Pin No.	Description
GND	3,6	Ground
NC	1,2,7,8,9,10,12,13,14,17,18,19,20, 22,23,24,27,28,29,30,32	No Connection
RF In	4,5	RF Input
-5V	11	Supply voltage
RF_OUT2	15,16	RF output 2
+5V	31	Supply voltage
CTRL_VOL	21	control voltage
RF_OUT1	25,26	RF output 1

## Package Outline

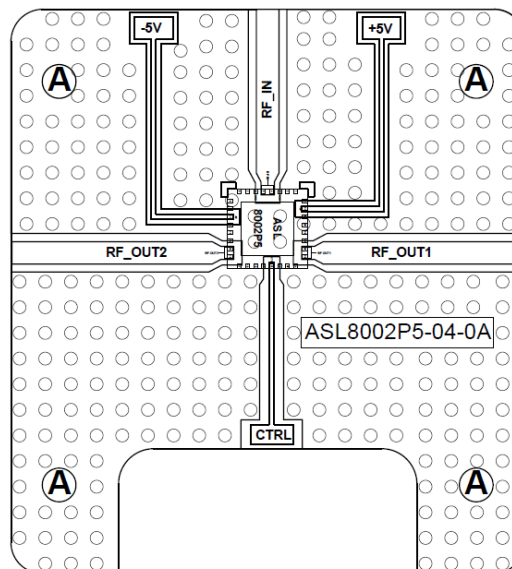


TOP VIEW

BOTTOM VIEW

All units are in millimeters

## Recommended Assembly Diagram



**Note:**

1. Input and output 50-ohm lines are on RT Duroid 5880 substrate.



**GaAs MMIC devices are susceptible to Electrostatic discharge. Proper precautions should be observed during handling, assembly & testing**

All information and Specifications are subject to change without prior notice