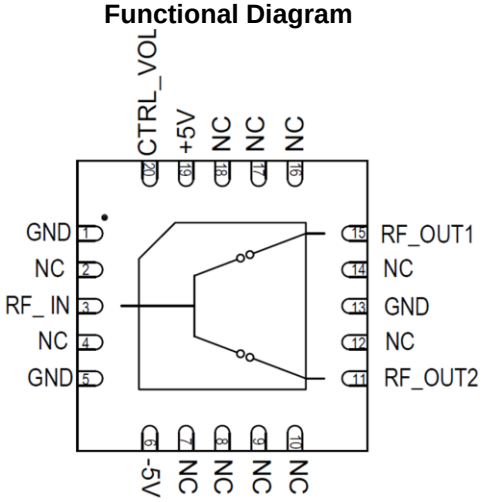
DC-7GHz SPDT Non-Reflective Switch

Features

- **Operating Frequency DC to 7 GHz**
- **Insertion Loss ~1.2 dB Typ**
- **High Isolation 45 dB Typ**
- **Input Return Loss > 12 dB**
- **Output Return Loss >12 dB**
- **P1dB 23 dBm**
- **Package Size :4mm×4mm×0.8mm**

Functional Diagram



Typical Applications

- **Cellular system**
- **Base stations**
- **Broadband Telecom**
- **Test Equipments**

Description

The ASL 8011P4 is a wide band Non-Reflective single pole; double throw (SPDT) MMIC chip covering from DC to 7GHz. The Switch offers high isolation and low insertion loss. The switch features 45dB isolation and 1.2dB Insertion Loss (Typ). The Input power for 1dB compression is 23dBm. The Switch operates on +5V/-5V supplies with minimal DC power consumption and is controlled using TTL compatible voltage levels. To minimize board area the design offered in a low profile (4mm×4mm) QFN Package.

Absolute Maximum Ratings (1)

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 [1] @ T_A = 25 °C, 0/+5V Control, Z_o =50 Ω

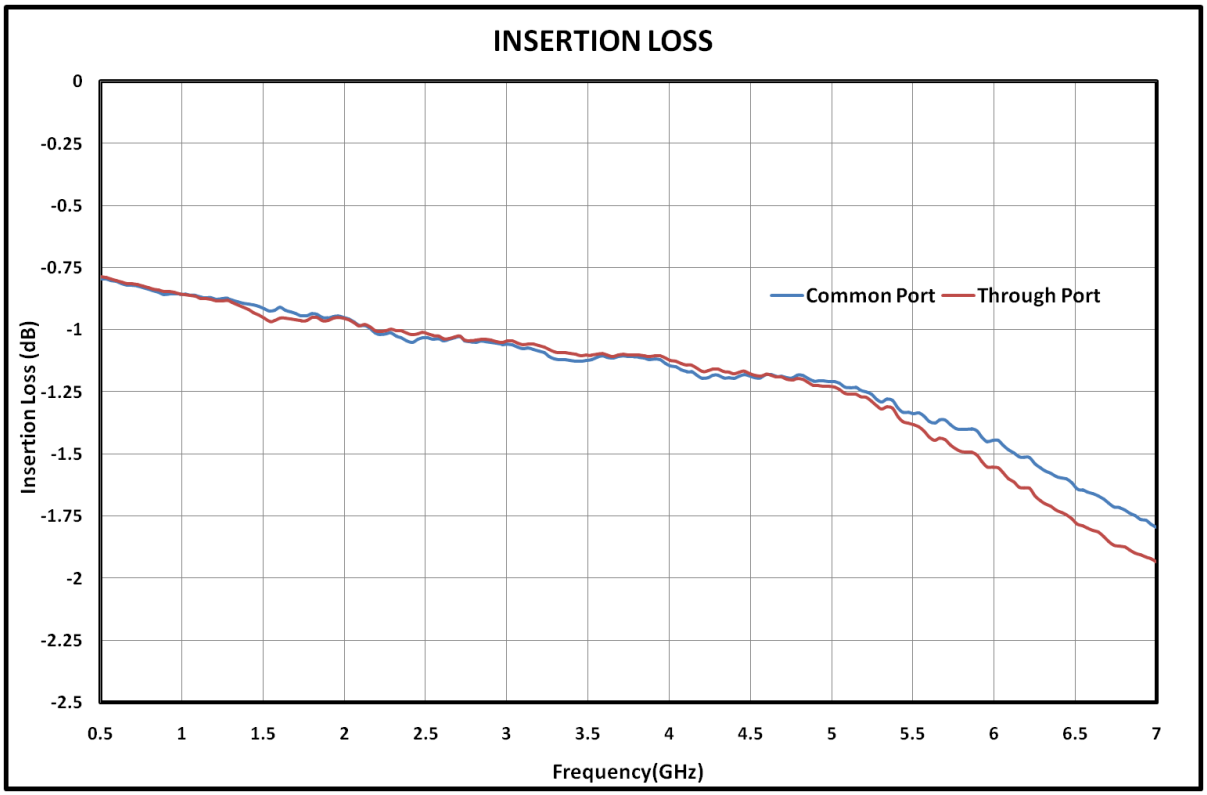
Parameter	Min.	Typ.	Max.	Units
Frequency Range	0.5	--	7	GHz
Insertion Loss	--	1.2	2.0	dB
Isolation	38	45	--	dB
Input Return Loss	--	12	--	dB
Output Return Loss	--	12	--	dB
Input Power for 1dB Compression Point	--	23	--	dBm
Bias Voltage	+5,-5			V
Control Voltage ON OFF	TTL Compatible +3.5 to +5 0 to +0.5			V

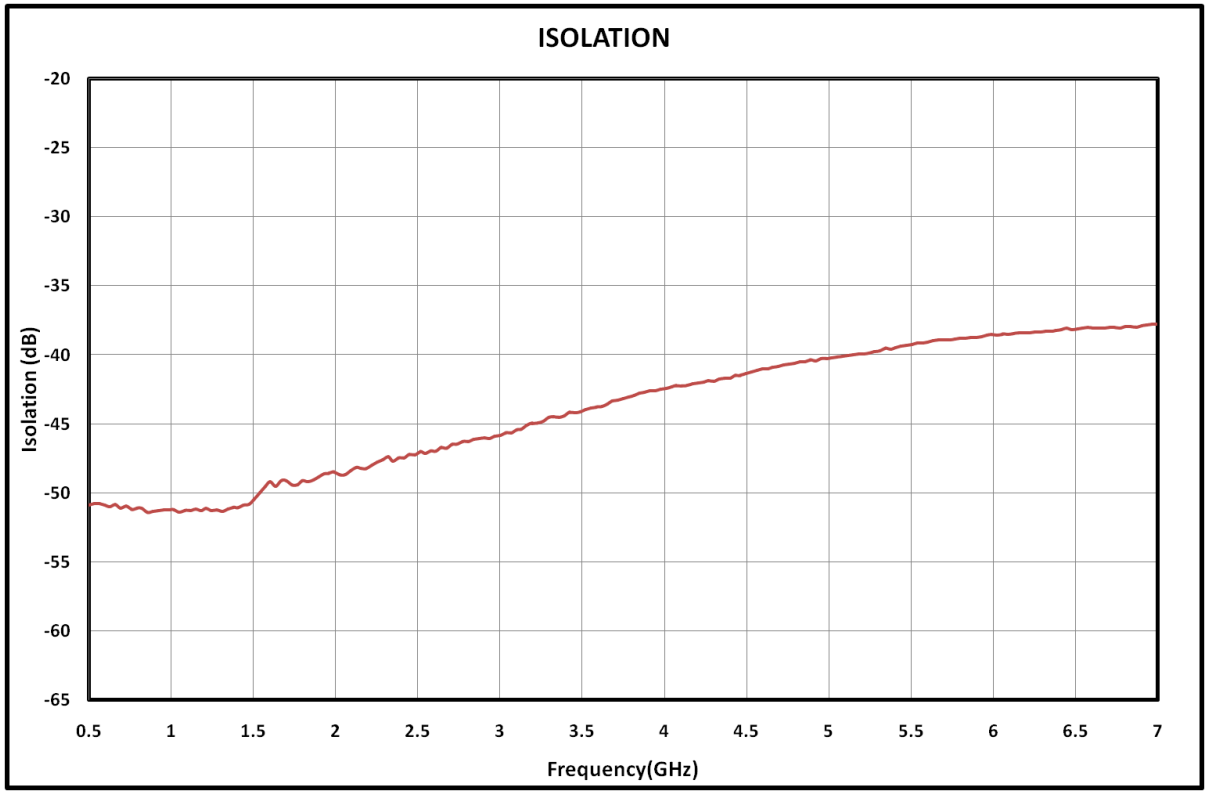
Note:

1. The above mentioned electrical specifications are measured in 50ohm 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. The above mentioned electrical specifications are measured in 50ohm line test fixture board.

Test fixture data

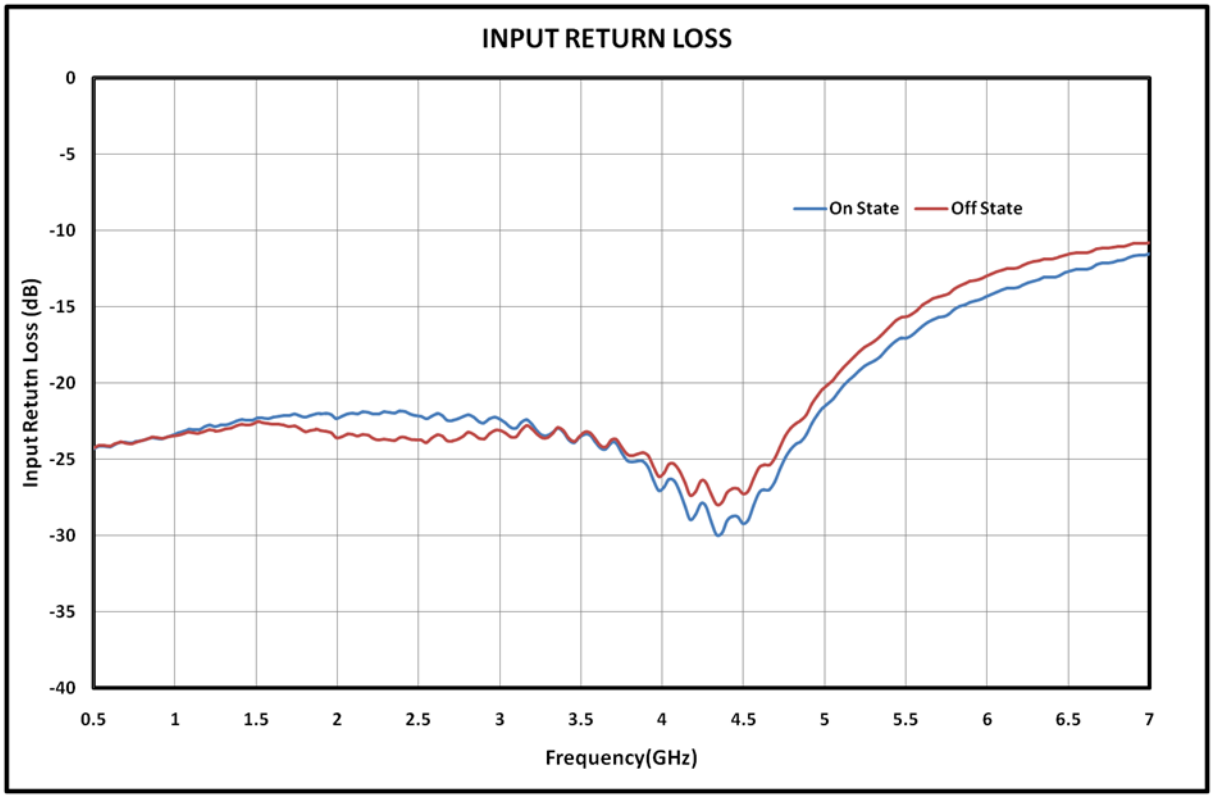
Driver Bias +5V ,-5V ; Control 0/+5V;T_A = 25 ^oC

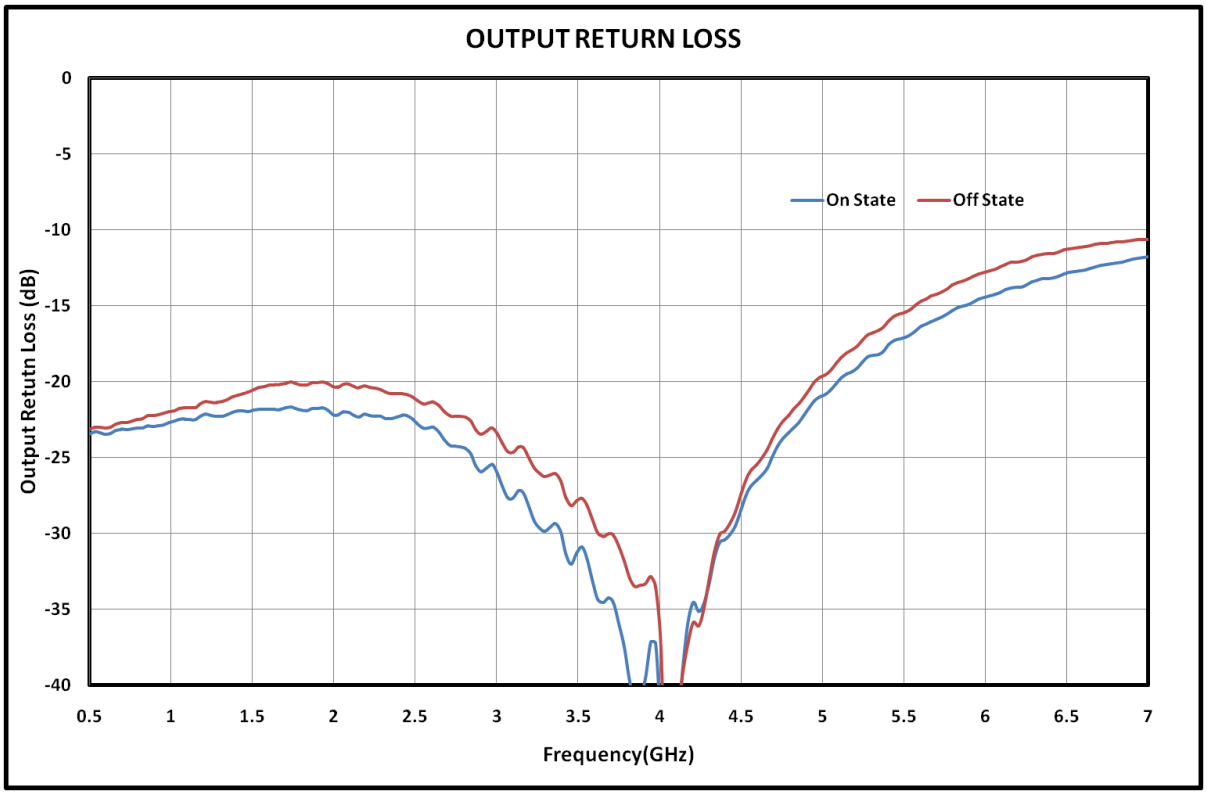




Test fixture data

Driver Bias +5V ,-5V ; Control 0/+5V;T_A = 25 ^oC





Test fixture data

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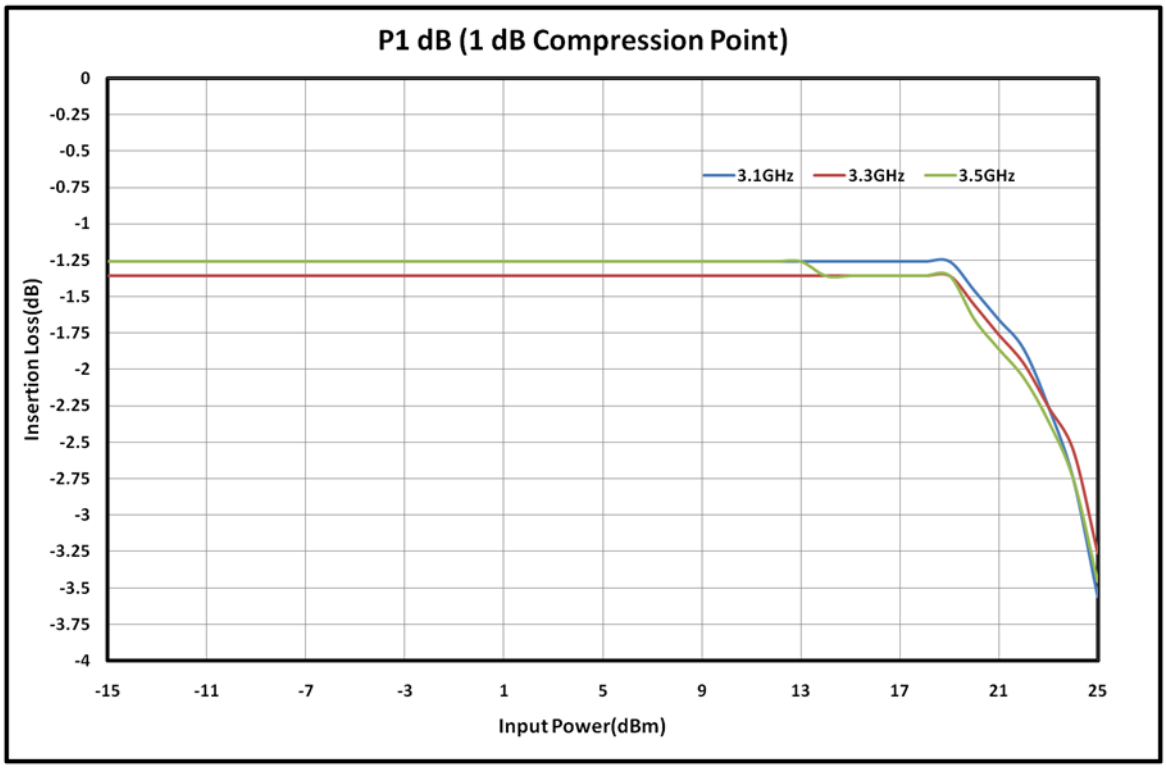
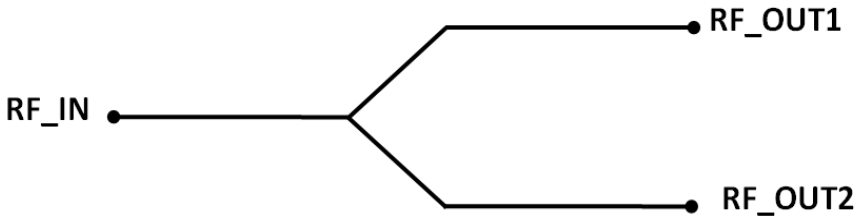


Truth Table

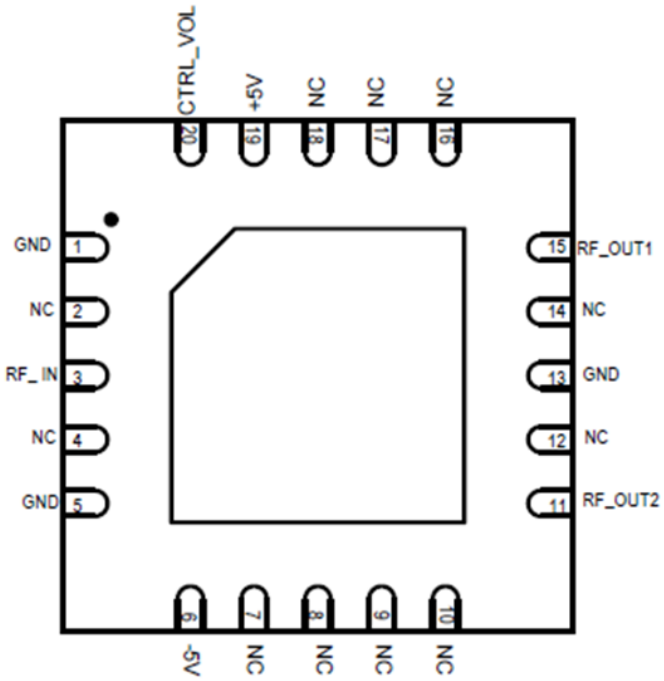


Control Voltages

State	Bias Conditions
Low “0”	0 to 0.5V
High “1”	3.5V to 5.0V

Control Voltage	RF _IN to RF_OUT1	RF _IN to RF_OUT2
Low “0”	ON	OFF
High “1”	OFF	ON

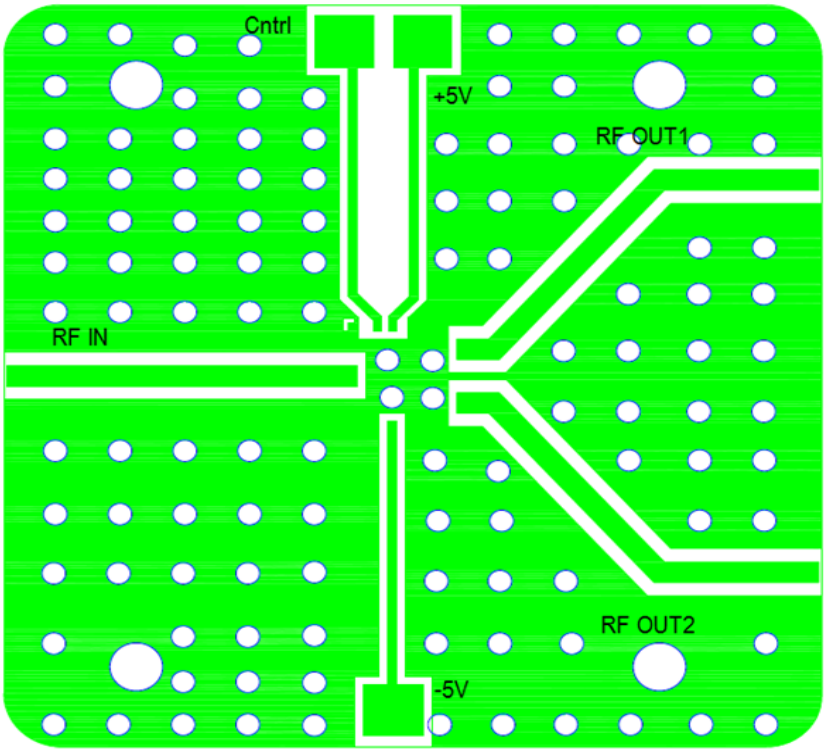
Pin Configuration



Pin Designations

SYMBOL	PIN NO.	DESCRIPTION
GND	1,5,13	Ground
NC	2,4,7,8,9,10,12,14,16,17,18	No Connection
RF_IN	3	RF Input
-5V	6	Supply Voltage
RF_OUT2	11	RF Output 2
RF_OUT1	15	RF Output 1
+5V	19	Supply Voltage
CTRL_VOL	20	Control Voltage

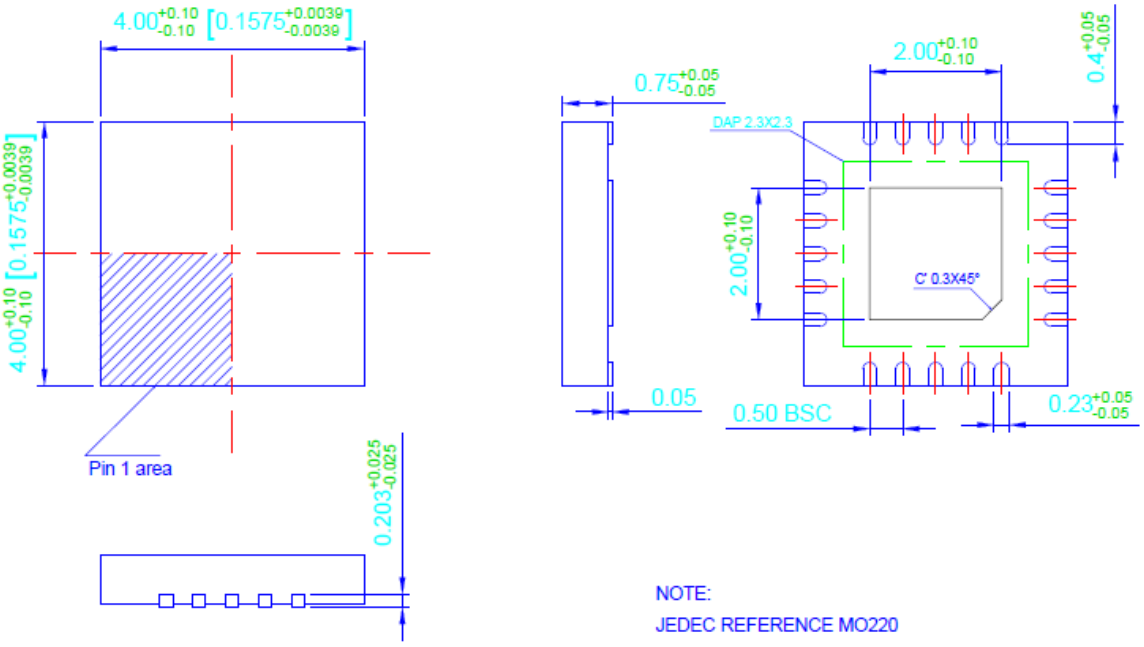
Test Board Pattern



Note:

1. Input and output 50 ohm lines are on 10mil RT Duroid5880 substrate.

Package Outline



All Units are in Millimeters

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