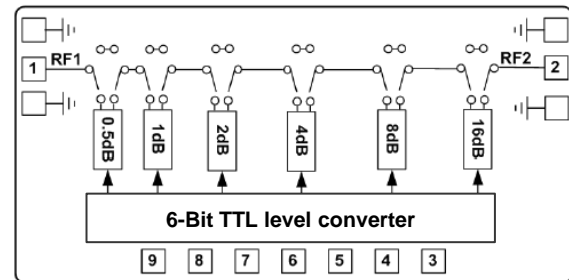


**Features**

- Integrated 6-Bit TTL level converter circuit
- Attenuation Range: 0.5dB ~ 31.5dB
- Attenuation Accuracy:  $\pm 0.4$ dB
- Insertion Loss : 3dB
- Attenuation Additional Phase Shift:  $\pm 4^\circ$
- Power Supply: +5V @ 6mA
- Die Size: 2.06 x 1.1 x 0.1 mm

**Functional Block Diagram**

**Typical Applications**

- Test Instrumentation
- Microwave Radio & VSAT
- Military & Space
- Telecom Infrastructure
- Fiber Optics

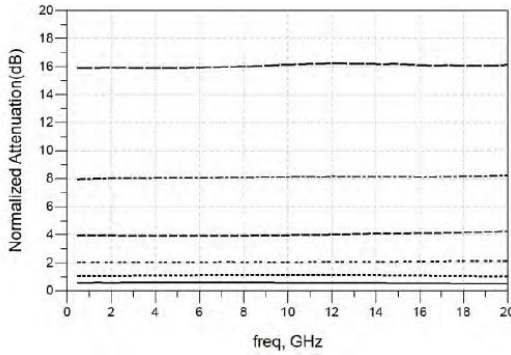
**Electrical Specifications**

TA = +25°C, VCTL = 0/+5V, VDD=+5V

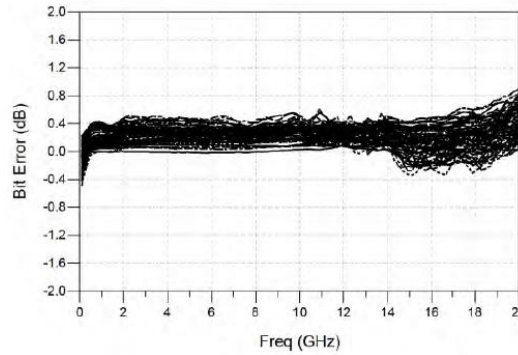
Parameters	Min.	Typ.	Max.	Units
Frequency	0.5-18			GHz
Insertion Loss		3	3.5	dB
Attenuation Accuracy		$\pm 0.4$		dB
Attenuation Additional Phase Shift		$\pm 4$		$^\circ$
Return Loss		15		dB
Input power 1dB Compression @1-18GHz		24		dBm
Switching Speed		30		ns



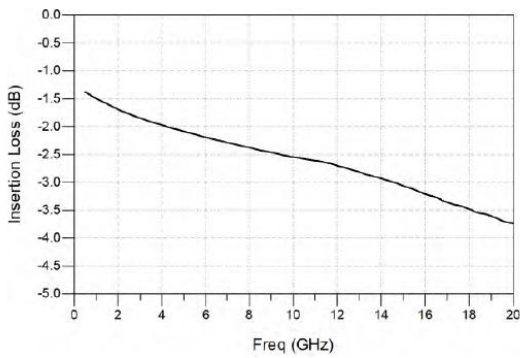
### Basic State Attenuation



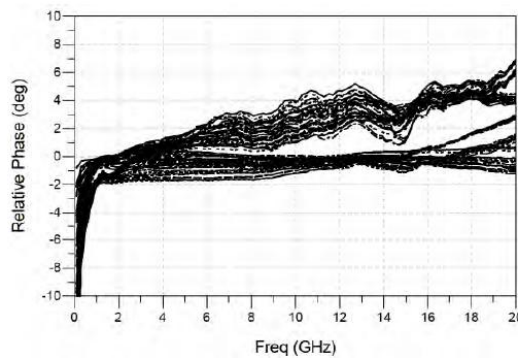
### All State Attenuation Accuracy



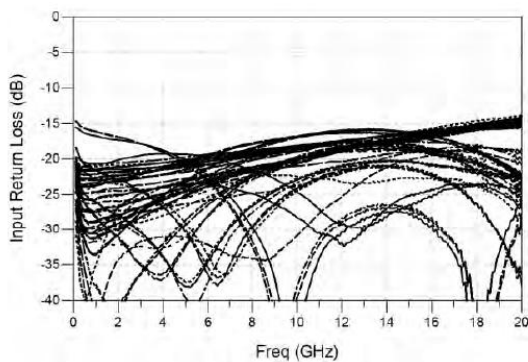
### Insertion Loss



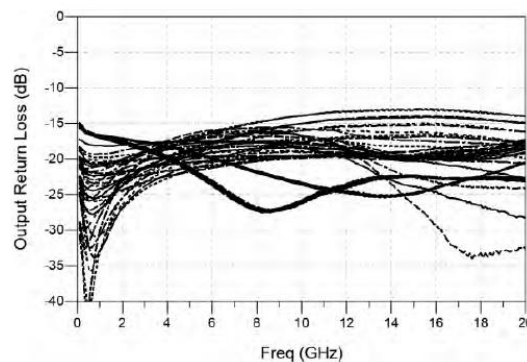
### All State Attenuation Additional Phase Shift



### Input Return Loss



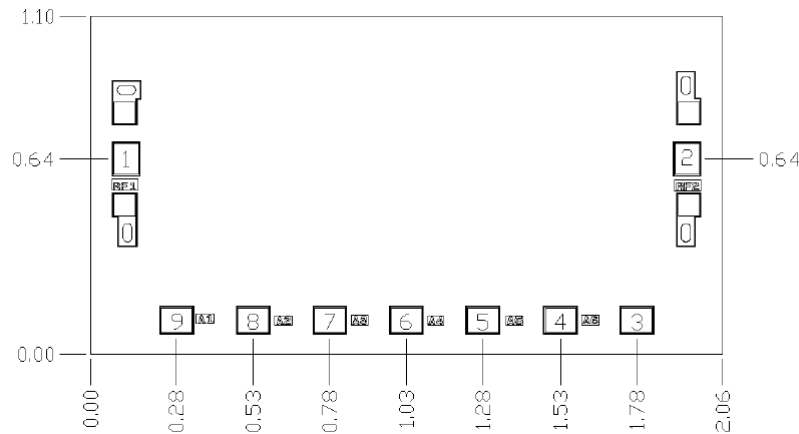
### Output Return Loss





### Outline Drawing:

All Dimensions in mm



### Pad Description

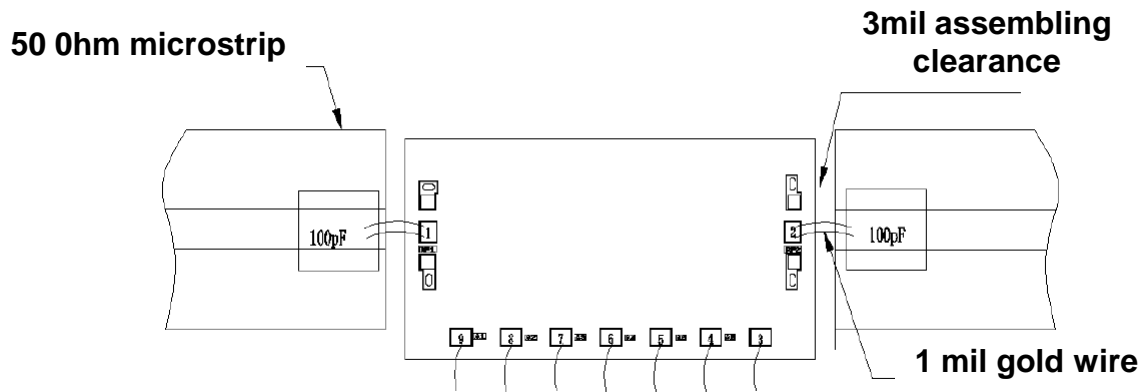
PAD	Function	Description
1, 2	RF1, RF2	This pad is RF port, blocking capacitor is required externally.
3	VDD	This pad is TTL level converter power supply, connected to +5V.
4	16dB Attenuation Control Bit A6	When A6=0V, 16dB Attenuator OFF When A6=5V, 16dB Attenuator ON
5	8dB Attenuation Control Bit A5	When A5=0V, 8dB Attenuator OFF When A5=5V, 8dB Attenuator ON
6	4dB Attenuation Control Bit A4	When A4=0V, 4dB Attenuator OFF When A4=5V, 4dB Attenuator ON
7	2dB Attenuation Control Bit A3	When A3=0V, 2dB Attenuator OFF When A3=5V, 2dB Attenuator ON
8	1dB Attenuation Control Bit A2	When A2=0V, 1dB Attenuator OFF When A2=5V, 1dB Attenuator ON
9	0.5dB Attenuation Control Bit A1	When A1=0V, 0.5dB Attenuator OFF When A1=5V, 0.5dB Attenuator ON
Die Bottom	GND	Die bottom must be connected to RF/DC ground

**True Table**

State	0.5dB	1dB	2dB	4dB	8dB	16dB
	A1	A2	A3	A4	A5	A6
Reference State	0	0	0	0	0	0
0.5dB	1	0	0	0	0	0
1dB	0	1	0	0	0	0
2dB	0	0	1	0	0	0
4dB	0	0	0	1	0	0
8dB	0	0	0	0	1	0
16dB	0	0	0	0	0	1

"0" level range: 0~0.8V, "1" level range: 2.3~5V

**Assembly Drawing**



**Notes:**

1. Die thickness: 100um
2. Typical bond pad is 100\*80µm<sup>2</sup>
3. Bond pad metalization: Gold
4. Backside metalization: Gold
5. Backside of the die (GND)
6. No connection required for unlabeled bond pads

**Maximum Ratings:**

1. Power Supply: +6V
2. RF input power: +24dBm
3. Storage temperature: -65°C to +150°C
4. Operating temperature: -55°C to +85°C