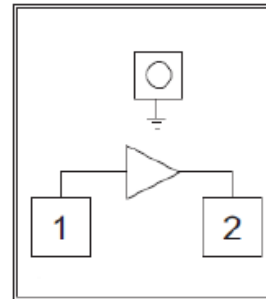


**Features**

- Operating Frequency: DC-12GHz
- Small Signal Gain: 16dB
- Noise Figure: 4.5dB
- P-1dB: 13dBm
- Current: 55mA
- 50Ohm input/output
- Die Size: 0.62 x 0.62 x 0.1 mm

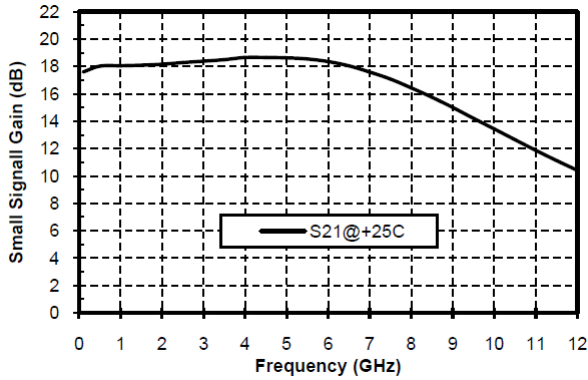
**Functional Block Diagram**

**Typical Applications**

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

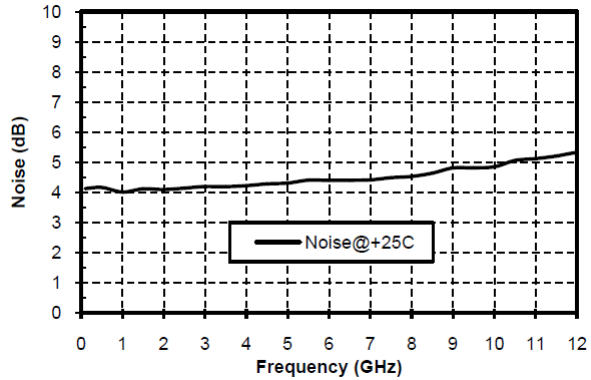
**Electrical Specifications**
**TA = +25°C, VCC=+5V, R<sub>BIAS</sub>=12Ω**

Parameters	Min.	Typ.	Max.	Units
<b>Frequency</b>	<b>DC - 12</b>			<b>GHz</b>
<b>Small Signal Gain</b>	<b>10.5</b>	<b>16</b>	<b>18</b>	<b>dB</b>
<b>Input Return Loss</b>		<b>25</b>		<b>dB</b>
<b>Output Return Loss</b>		<b>15</b>		<b>dB</b>
<b>Reverse Isolation</b>		<b>21</b>		<b>dB</b>
<b>P-1dB</b>	<b>8</b>	<b>13</b>	<b>15.5</b>	<b>dBm</b>
<b>Psat</b>	<b>11</b>	<b>14.5</b>	<b>17</b>	<b>dBm</b>
<b>Noise Figure</b>		<b>4.5</b>		<b>dB</b>
<b>Static Current</b>		<b>55</b>		<b>mA</b>
<b>Device Voltage, Vbias</b>	<b>4.0</b>	<b>4.35</b>	<b>4.65</b>	<b>V</b>

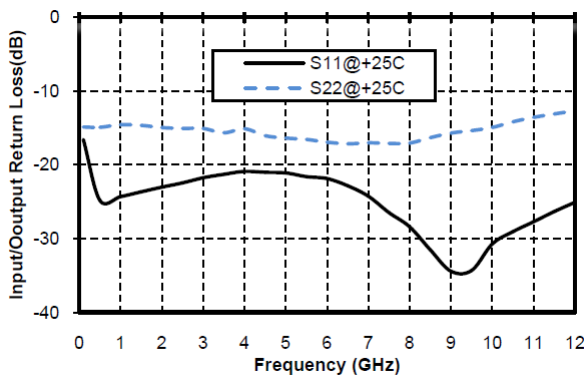
Gain vs. Frequency



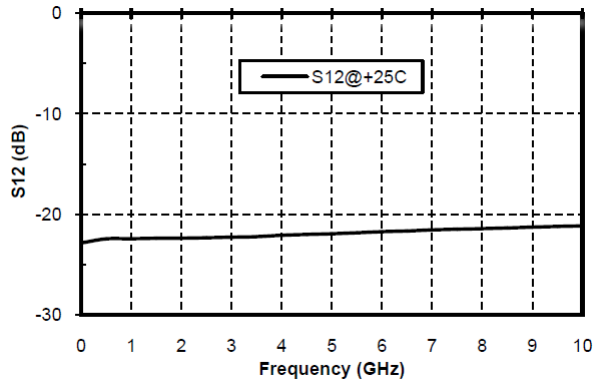
Noise Figure vs. Frequency



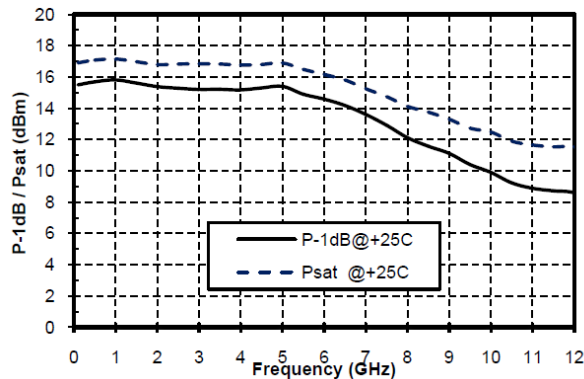
Input/Output Return Loss vs. Frequency



Reverse Isolation vs. Frequency



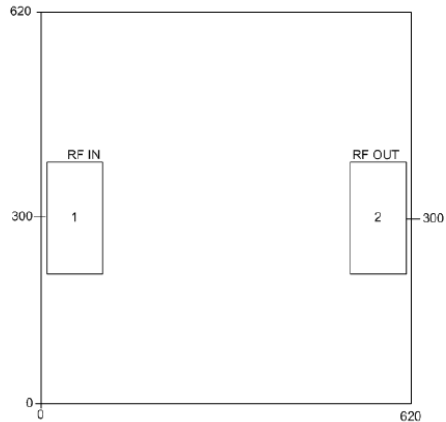
P-1dB/Psat vs. Frequency



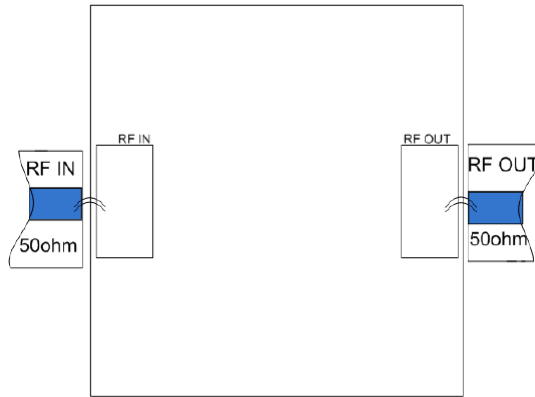


### Outline Drawing(Die):

All Dimensions in um



### Assembly Drawing(Die):



### Pad Description

PAD	Function	Description
1	RF IN	RF input, external DC-blocking capacitor required
2	RF OUT	RF output and DC bias, bias the current by external choke inductor at output terminal , external DC-blocking capacitor required
Die Bottom	GND	Die bottom must be connected to RF/DC ground



### Recommended bias circuit

	Device		Frequency (MHz)				
			10	4000	8000	12000	
	L1	10μH	270nH	270nH	270nH		
	C1, C2	0.01μF	0.01μF	0.01μF	0.01μF		
	V <sub>CC</sub> (V)	5	6	7	8	9	10
	R <sub>BIAS</sub> (Ω)	12	31	50	70	89	108

\*Note: R<sub>BIAS</sub> can be changed with different application condition,  $R_{BIAS} = (V_{CC} - V_{BIAS}) / I_{BIAS}$

#### Notes:

1. Die thickness: 100um
2. Typical bond pad is 100\*100 μm<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. RF input power: +25dBm
2. Operating Current: 80mA
3. Storage temperature: -65°C to +150°C
4. Operating temperature: -55°C to +85°C