

Performance Characteristics

- Frequency range: 25GHz~50GHz
- Insertion loss: 4.5dB
- Attenuation: 0~40dB
- On state input/gradually emerging standing wave: 1.9/1.6
- Chip size: 1.35mm x 0.70mm x 0.10mm

Product Introduction

The chip covers a frequency range of 25GHz~50GHz, with an insertion loss of less than 5.0dB and an attenuation range of 0-40dB. It integrates a power on network and DC isolation capacitors at the input and output terminals, with a switching speed of less than 20ns.

Electrical Parameters (TA=+25 °C. Vt=0V~5V)

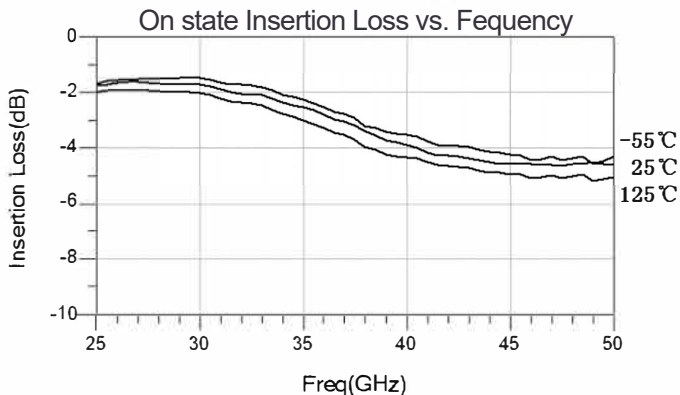
| Index | Min | Typ | Max | Unit |
|-------------------------------|-------|------|-----|------|
| Frequency Range | 25-50 | | | GHz |
| Insertion Loss | | 4.5 | 5 | dB |
| Attenuation | | 0~40 | | dB |
| On State Input Standing Wave | | 1.9 | 2.1 | - |
| On State Output Standing Wave | | 1.6 | 1.8 | - |
| Input 1dB compression power | | 15 | | dBm |

Use Restriction Parameters

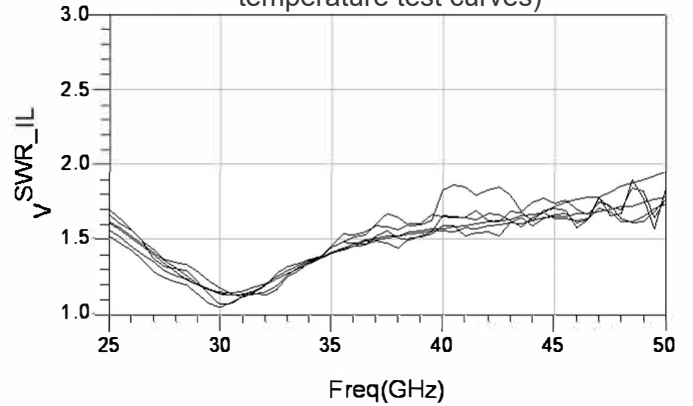
| | |
|-----------------------|-----------------|
| Control Voltage Range | -10V~+10V |
| Max Input Power | +18dBm |
| Storage Temperature | -65 °C ~+150 °C |
| Operating Temperature | -55 °C ~+125 °C |

Typical Curve

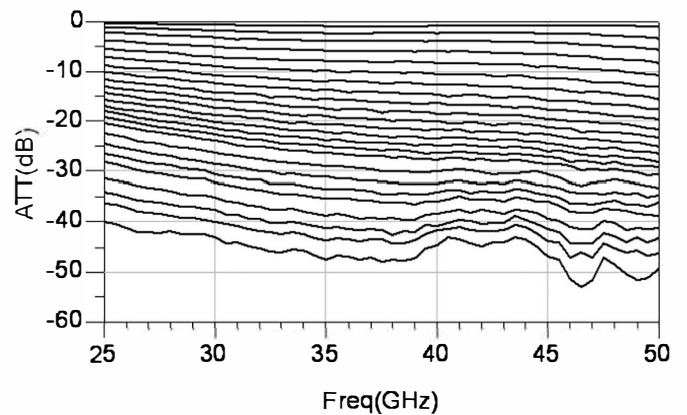
In order to provide users with a more intuitive understanding of the performance indicators of the chip, the following are curve graphs for each indicator.



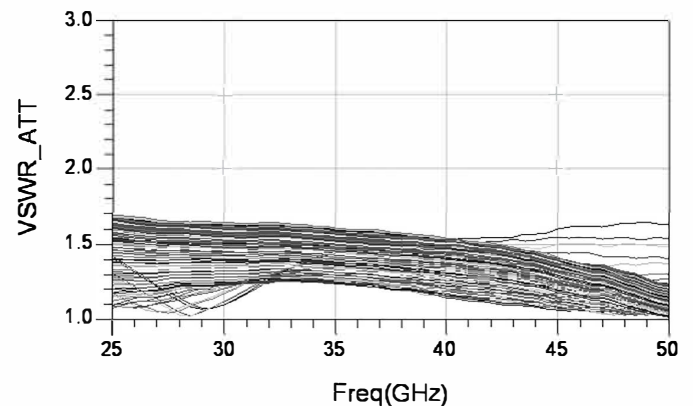
On State Input-Output Standing Wave VS Frequency (including high and low temperature test curves)



Room Temperature Attenuation State VS Frequency (0.7V-5V)



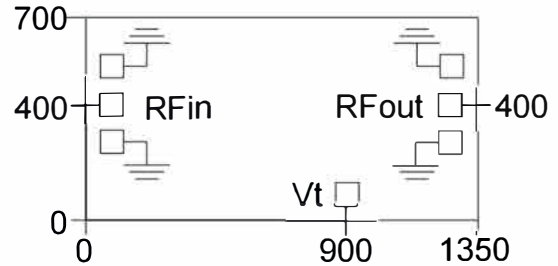
Room Temperature Attenuation State Input and Output Standing Wave VS Frequency (0.7V-5V)



Truth Table(Freq@45GHz)

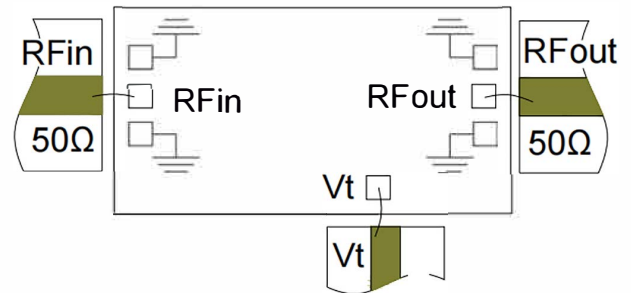
| Vt(V) | Typical attenuation value/bias current(dB/mA) | | |
|-------|---|--------|--------|
| | -55°C | 25°C | 125°C |
| 0 | 0/0 | 0/0 | 0/0 |
| 0.2 | 0/0 | 0.1/0 | 0.2/0 |
| 0.4 | 0.2/0 | 0.3/0 | 0.6/0 |
| 0.6 | 0.3/0 | 0.6/0 | 1.8/0 |
| 0.8 | 0.8/0 | 2.2/0 | 5.0/0 |
| 1.0 | 2.7/0 | 6.3/0 | 8.6/0 |
| 1.2 | 8.2/0 | 11.3/0 | 12.2/0 |
| 1.4 | 13.4/0 | 15.4/0 | 15.8/0 |
| 1.6 | 18.3/0 | 19.2/0 | 18.9/0 |
| 1.8 | 19.7/0 | 22.3/0 | 21.2/0 |
| 2.0 | 22.5/0 | 25.4/0 | 23.9/1 |
| 2.2 | 26.2/1 | 28.2/1 | 26.0/1 |
| 2.4 | 28.3/1 | 29.9/1 | 28.2/1 |
| 2.6 | 31.3/1 | 32.6/1 | 30.6/1 |
| 2.8 | 33.9/1 | 34.2/1 | 30.4/1 |
| 3.0 | 35.6/1 | 35.8/1 | 33.3/1 |
| 3.2 | 37.9/1 | 37.2/1 | 34.5/1 |
| 3.4 | 38.4/1 | 38.1/1 | 35.8/1 |
| 3.6 | 40.5/1 | 39.4/1 | 36.8/1 |
| 3.8 | 40.8/1 | 40.4/1 | 37.9/1 |
| 4.0 | 42.0/1 | 41.4/1 | 38.3/2 |
| 4.2 | 43.3/2 | 42.3/2 | 39.5/2 |
| 4.4 | 44.4/2 | 42.7/2 | 40.3/2 |
| 4.6 | 45.4/2 | 43.6/2 | 40.7/2 |
| 4.8 | 45.4/2 | 44.7/2 | 41.6/2 |
| 5.0 | 46.3/2 | 44.9/2 | 41.3/2 |

External Dimensions



Note: All dimensions are in micrometers (μm); Input/output pressure point size $80 \times 80 \mu\text{m}^2$, control pressure point size $80 \times 80 \mu\text{m}^2$

Suggested Assembly Diagram



Note:

- 1) Assemble and use in a purified environments
- 2) GaAs material is very brittle and the chip surface is easily damaged (do not touch the surface), so caution must be taken when using it.
- 3) Use 2 bonding wires (25 μm diameter gold wire) for input and output, and keep the bonding wires as short as possible, not longer than 300 μm .
- 4) The input and output have DC blocking capacitors.
- 5) Use 80/20 gold tin sintering, with a sintering temperature not exceeding 300°C and a sintering time as short as possible, not exceeding 30 seconds.
- 6) This product is a static sensitive device, so be careful to prevent static electricity during storage and use.
- 7) Store in a dry and nitrogen environment.
- 8) Do not attempt to clean the surface of the chip using dry or wet chemical methods.
- 9) It is recommended to connect a resistor of 1k ohms or more to the Vt port during use to prevent power supply voltage fluctuations from affecting the stability of the attenuation state.
- 10) Please contact the supplier if you have any questions.

Note: The test condition is to connect a 1.9k ohm resistor to the Vt port