Standard Circuit

GDA-2550
GaAs MMIC Voltage Variable Attenuator Chip

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=OV~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

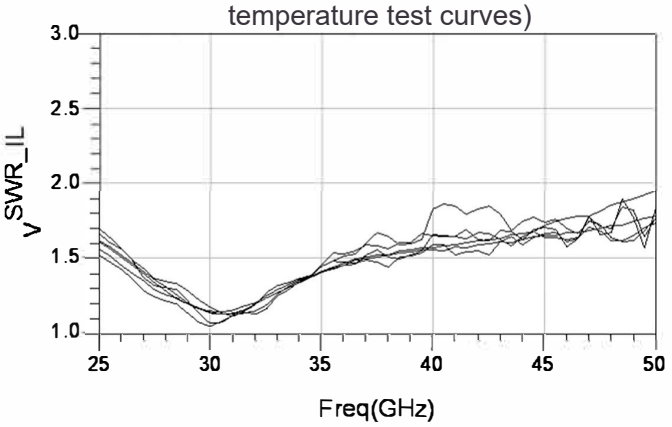
Control Voltage Range	-10V～+10V
Max Input Power	+18dBm
Storage Temperature	-65℃～+150℃
Operating Temperature	-55℃～+125℃

Typical Curve

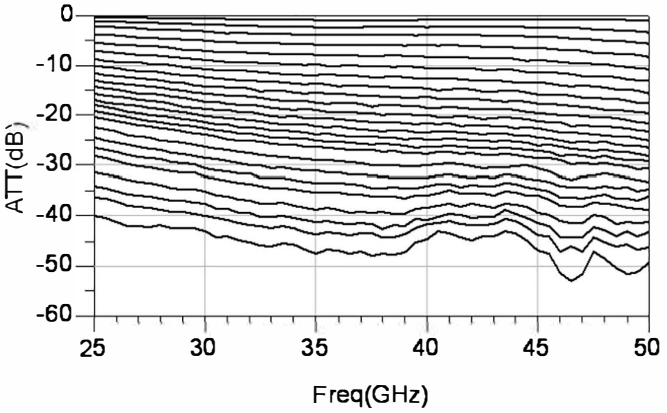
In order to provide users with a more intuitive understanding of the performance indicators of the chip, the following are curve graphs for each indicator.

On state Insertion Loss vs. Fequency

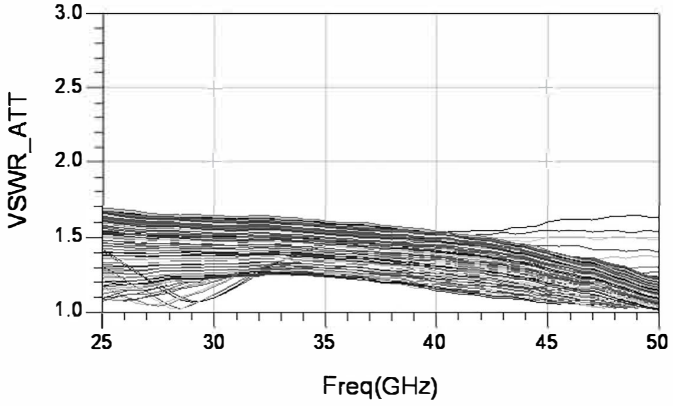
On State Input-Output Standing Wave VS Frequency (including high and low temperature test curves)



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



Room Temperature Attenuation State Input and Output Standing Wave VS Frequency (0 7V-5V)

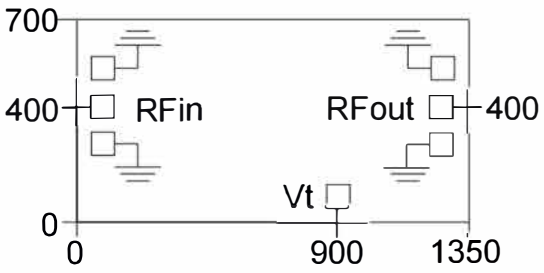


Truth Table(Freq@45GHz)

Vt(V)	Typical attenuation value/bias current(dB/mA)		
	-55℃	25℃	125℃
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

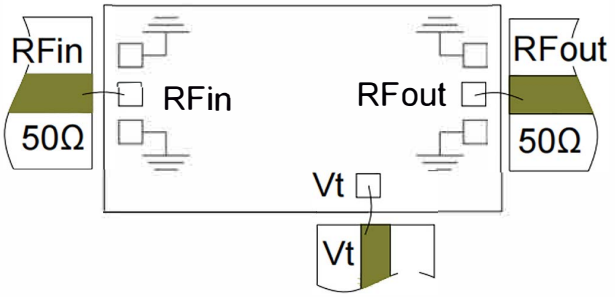
Note: The test condition is to connect a 1.9k ohm resistor to the Vt port

External Dimensions



Note: All dimensions are in micrometers (μm); Input/ output pressure point size 80x80 μm², control pressure point size 80x80 μm²

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 μ m diameter gold wire) for input and output, and keep the bonding wires as short as possible, not longer than 300 μ m.
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.