

Features

- Frequency: DC~12GHz
- RMS of Attenuation Accuracy: 0.5dB
- Insertion Loss: 1.5dB
- Positive Voltage Control
- Die Size: 1.78mm×1.21mm×0.1mm

Typical Applications

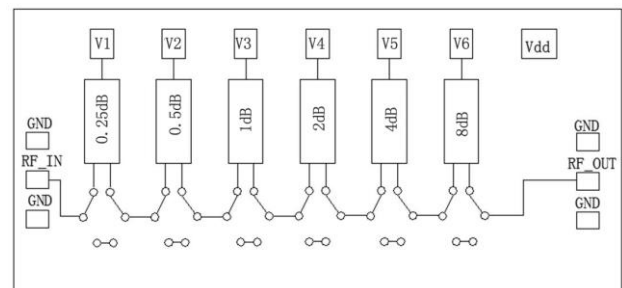
- EW
- Cellular Infrastructure
- SATCOM
- Beamforming Modules
- Test Equipment and Sensors

General Description

SAC3406A is a broadband 6-bit GaAs digital attenuator MMIC chip. Covering DC to 12GHz, the insertion loss is less than 2.3 dB typically. The attenuator bit values are 0.25dB, 0.5dB, 1dB, 2dB, 4dB and 8dB for a total attenuation of 15.75dB. Three TTL 0/+5V inputs are used to select each attenuation state.

The chip offers full passivation for increased reliability and moisture protection.

Functional Diagram



Electrical Performance ($T_A=+25^{\circ}\text{C}$, $V_D=-5\text{V}$, Control Voltage=0/+5V, $Z_0=50\Omega$)

Parameter	Min.	Typ.	Max.	Units
Frequency	DC~12			GHz
Input VSWR	—	1.3	1.6	:1
Output VSWR	—	1.2	1.5	:1
Insertion Loss	—	-1.5	-2.3	dB
A_{TT} -Phase Error	-3	—	2.5	°
Attenuation Accuracy	-0.6	—	1	dB
RMS of Attenuation Accuracy	—	0.5	1	dB

Truth Table (0 : 0V, 1 : +5V)

Attenuation	V1	V2	V3	V4	V5	V6
REF	0	0	0	0	0	0
0.25dB	5	0	0	0	0	0
0.5dB	0	5	0	0	0	0
1dB	0	0	5	0	0	0
2dB	0	0	0	5	0	0
4dB	0	0	0	0	5	0
8dB	0	0	0	0	0	5
15.75dB	5	5	5	5	5	5

SAC3406A



GaAs MMIC Digital Attenuator
DC~12GHz

Rev 1.4

Control Voltage

State	Bias
Low	0~0.5V
High	4.5~5.5V

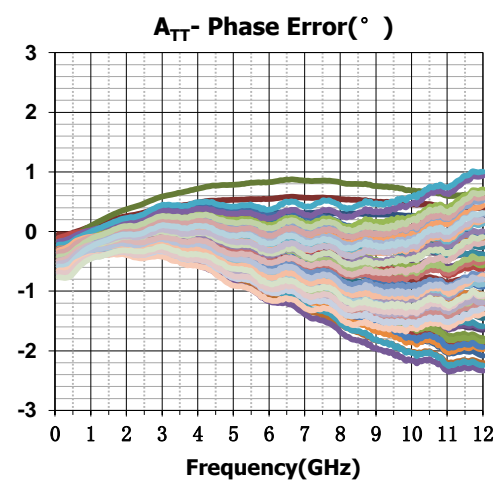
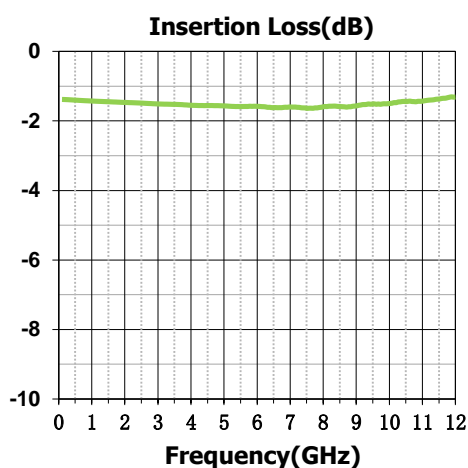
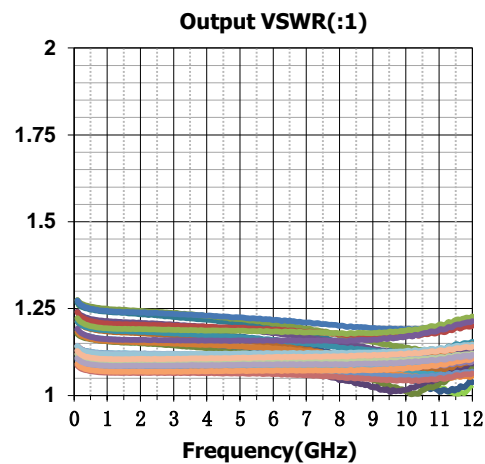
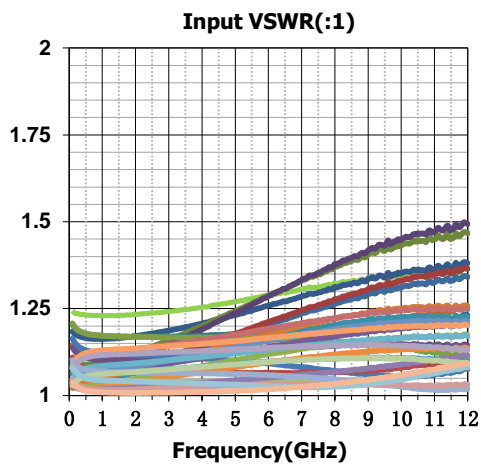
Absolute Maximum Ratings

Maximum Input Power	Maximum Input Voltage
+23dBm	-8V
Operating Temperature	Storage Temperature
-55°C~+85°C	-65°C~+150°C

Power Supply

V _D	I _D
-4.5~-4.75V	6mA max.

Typical Performance Curve



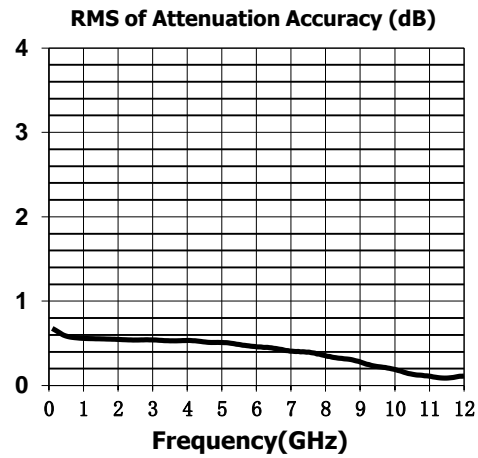
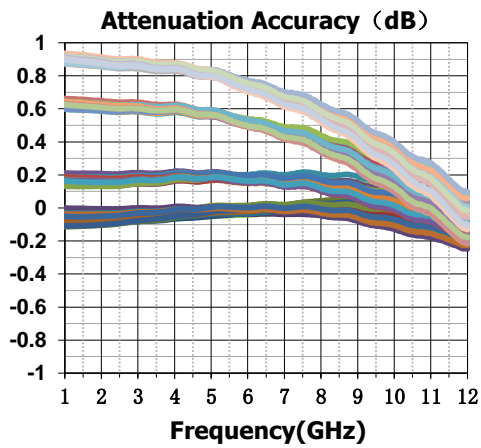
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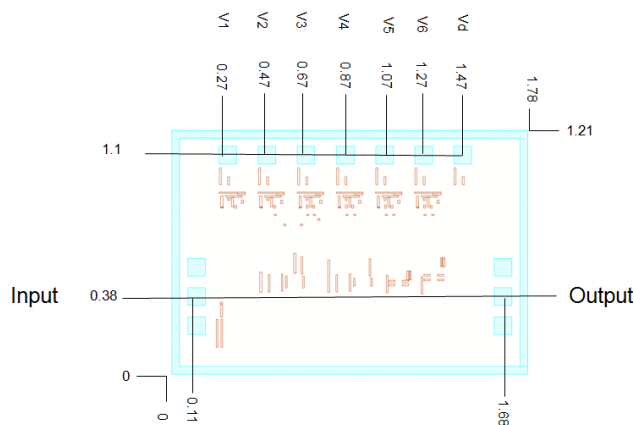
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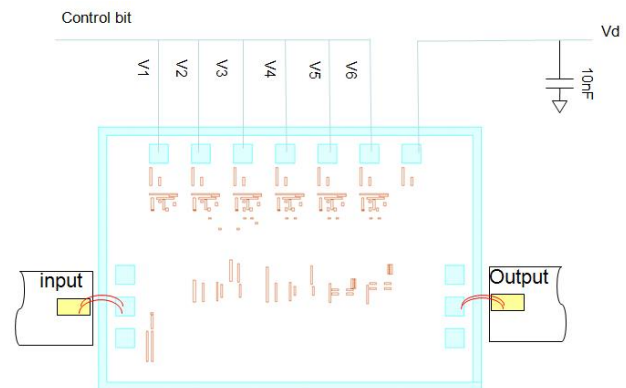
Rev 1.4



Die Outline
(all dimensions in mm)



Assembly Diagram



Attention:

GaAs MMIC devices are susceptible to damage from electrostatic discharge. Proper precautions should be observed during handling, assembly and test.