

SAC3404

GaAs MMIC Digital Attenuator
DC~12GHz

Rev 2.1

Features

- Frequency: DC~12GHz
- RMS of Attenuation Accuracy: 1dB
- Insertion Loss: 2.2dB
- Positive Voltage Control
- Die Size: 1.4mm×1.25mm×0.1mm

Typical Applications

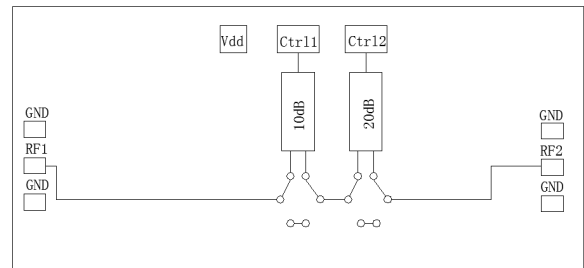
- EW
- Cellular Infrastructure
- SATCOM
- Beamforming Modules
- Test Equipment and Sensors

General Description

SAC3404 is a broadband 2-bit GaAs digital attenuator MMIC chip. Covering DC to 12GHz, the insertion loss is less than 2.2dB typically. The attenuator bit values are 10dB and 20dB for a total attenuation of 30dB. 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	—	1.4	—	:1
Output VSWR	—	1.5	—	:1
Insertion Loss	—	-2.2	—	dB
A_{TT} -Phase Error	0	—	45	°
Attenuation Accuracy	-0.5	—	1.5	dB
RMS of Attenuation Accuracy	—	1	—	dB

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

Attenuation	Ctrl1	Ctrl2
REF	0	0
10dB	1	0
20dB	0	1
30dB	1	1

Absolute Maximum Ratings

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

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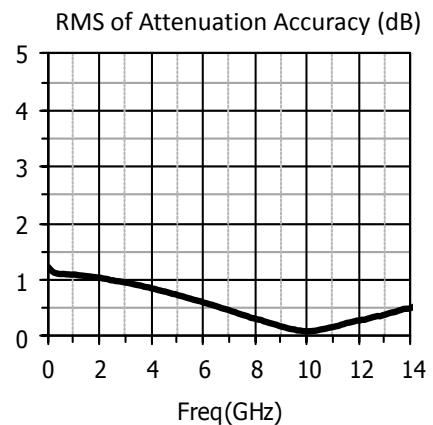
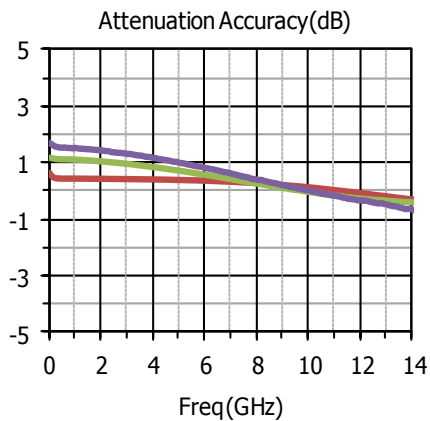
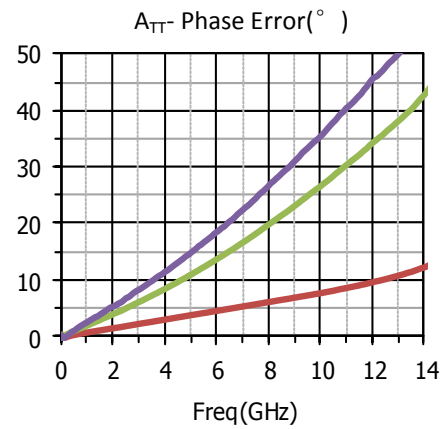
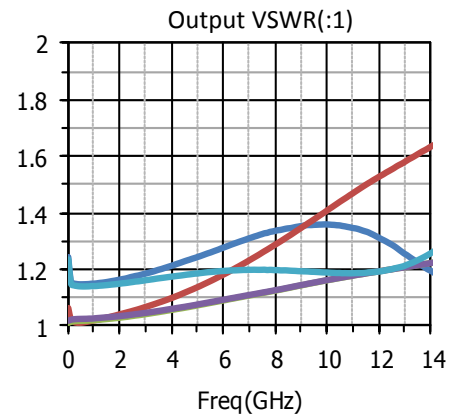
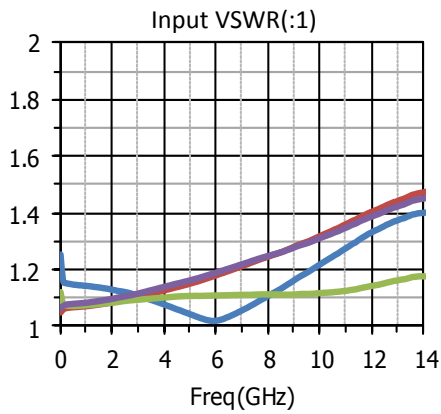
Control Voltage

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

Power Supply

V_D	I_D
-5V	2.5mA

Typical Performance Curve



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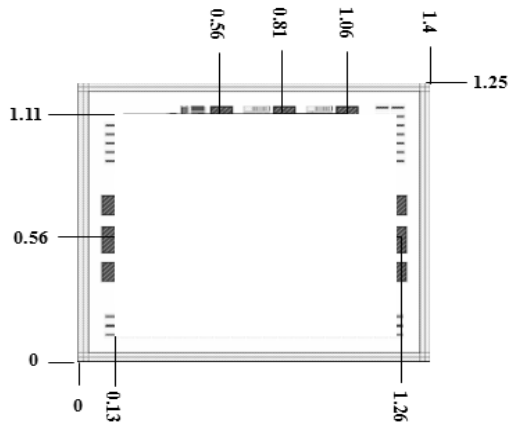
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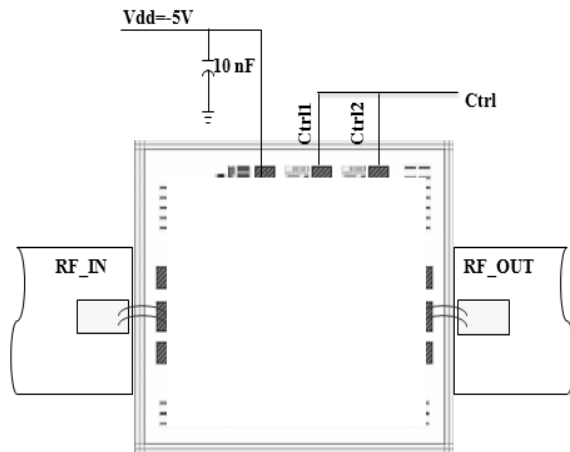
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Die Outline
(all dimensions in mm)



Assembly Diagram



Attention:

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