SAC3408BSPQ4

GaAs MMIC Digital Attenuator
DC~12GHz

Rev 1.5

Features

- Frequency：DC~12GHz
- RMS of Attenuation Accuracy：1dB
- Insertion Loss：2.8dB
- Positive Voltage Control
- Size：4mm×4mm×1.2mm

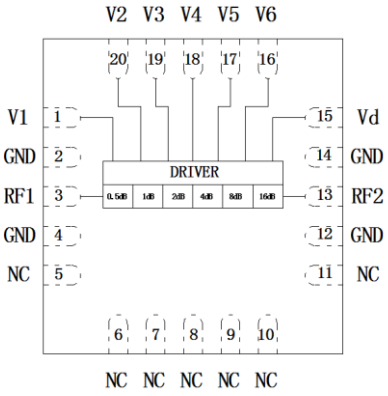
Typical Applications

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

General Description

SAC3408BSPQ4 is a broadband 6-bit GaAs digital attenuator MMIC chip. Covering DC to 12GHz, the insertion loss is less than 3.5 dB typically. The attenuator bit values are 0.5dB, 1dB,2dB,4dB,8dB and 16dB for a total attenuation of 31.5dB. Three LV-TTL compatible inputs are used to select each attenuation state

Functional Diagram



Electrical Performance (T_A=+25℃,V_s=-5V,Control Voltage=0/+5V,Z_0=50Ω)

Parameter	Min.	Typ.	Max.	Units
Frequency		DC~12		GHz
VSWRi	-	1.3	1.6	:1
VSWRo	-	1.3	1.6	:1
Insertion Loss	-	-2.8	-3.5	dB
ATT-Phase Error	-3	-	8	°
Attenuation Accuracy	-1	-	3.5	dB
RMS of Attenuation Accuracy	-	1	2	dB

Truth Table (0：0V, 1：+5V)

Attenuation	V1	V2	V3	V4	V5	V6
REF	0	0	0	0	0	0
0.5dB	5	0	0	0	0	0
1dB	0	5	0	0	0	0
2dB	0	0	5	0	0	0
4dB	0	0	0	5	0	0
8dB	0	0	0	0	5	0
16dB	0	0	0	0	0	5
31.5dB	5	5	5	5	5	5

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Control Voltage

State	Bias
Low	0~0.3V
High	3~5.5V

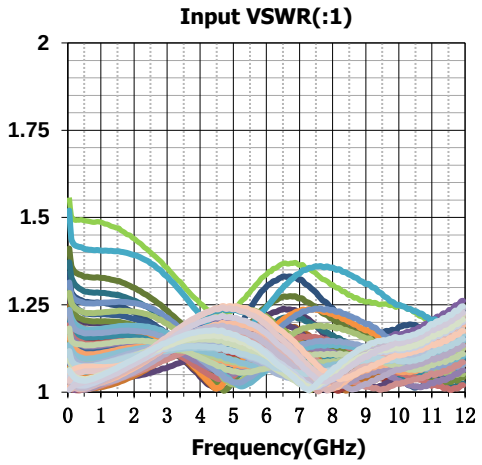
Absolute Maximum Ratings

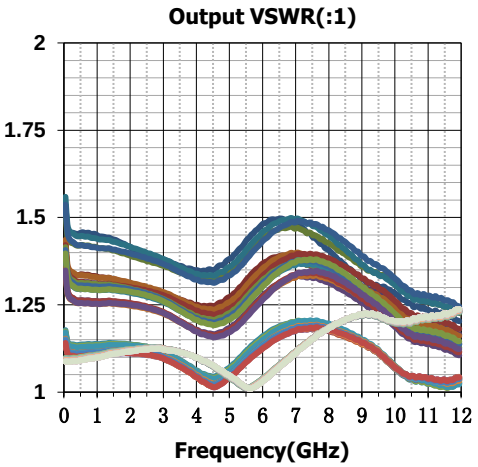
Maximum Input Power	Storage Temperature
+23dBm, f>500MHz	-55℃~+150℃
Operating Temperature	
-55℃~+85℃	

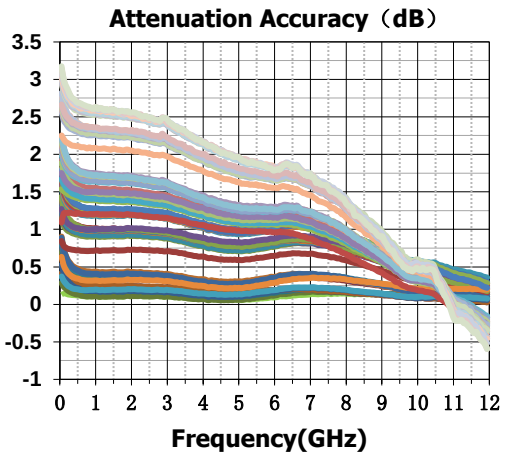
Power Supply

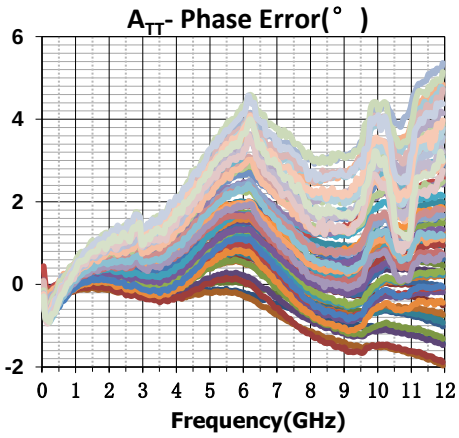
V_s	I_s
-5V	8mA

Typical Performance Curve









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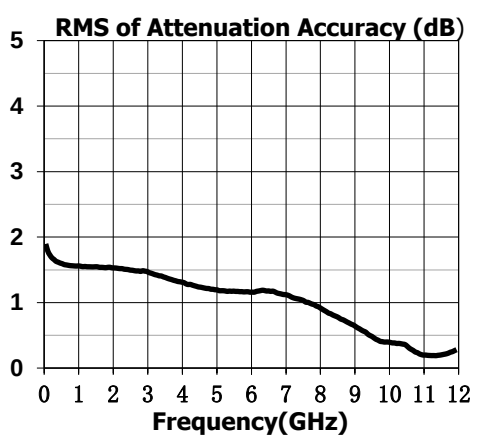
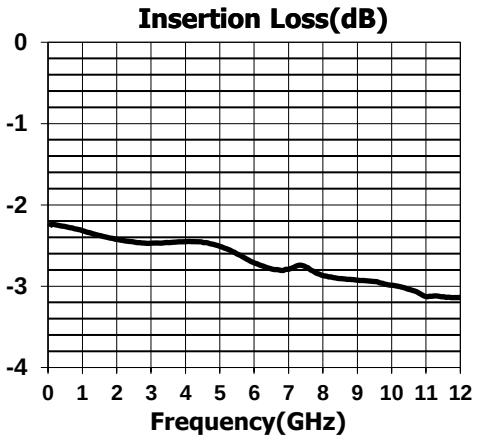
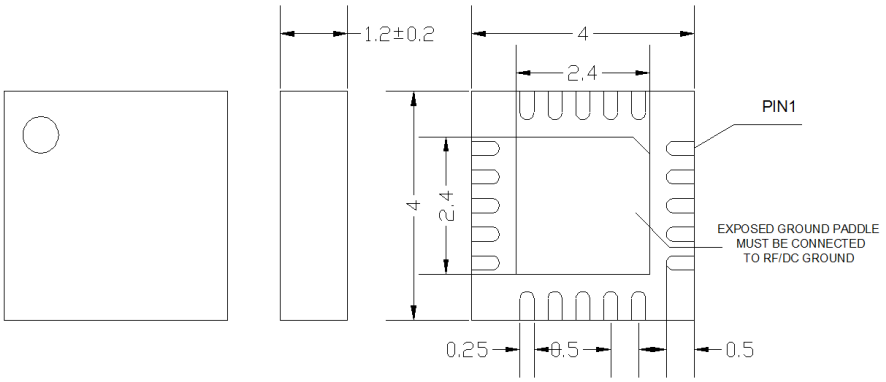




Outline Drawing
(All dimensions in mm)



Attention:

1. The moisture resistant grade of SAC3408BSPQ4 is 2a, the storage environment ≤30° C/60% RH, the surrounding workshop life is 4 weeks;
2. After un-packing, it is necessary to bake the parts for 6 hours in 125+/-5 degree environment before soldering;
3. GaAs MMIC devices are susceptible to damage from Electrostatic Discharge. Proper precautions should be observed during handling, assembly and test;
4. The RFIN and RFOUT ports are DC coupled.