

XT3407



GaAs MMIC Digital Attenuator
DC~12GHz

Rev 2.0

Features

- Frequency: DC~12GHz
- RMS of Attenuation Accuracy: 0.5dB
- Insertion Loss: 2.8dB
- Positive Voltage Control
- Die Size: 1.79mm×1.24mm×0.1mm

Typical Applications

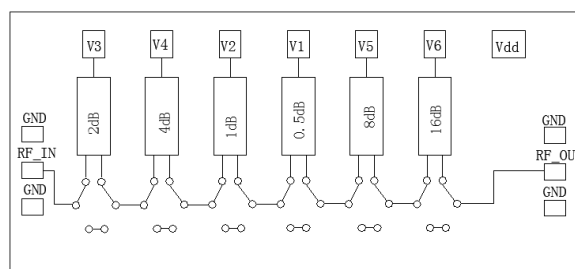
- EW
- Cellular Infrastructure
- SATCOM
- Beamforming Modules
- Test Equipment and Sensors

General Description

XT3407 is a broadband 6-bit GaAs IC digital attenuator MMIC chip. Covering DC to 12GHz, the insertion loss is less than 2.8dB typically. The attenuator bit values are 0.5dB, 1dB, 2dB, 4dB, 8dB, 16dB for a total attenuation of 31.5dB. 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
Output VSWR	—	1.4	—	:1
Insertion Loss	—	-2.8	—	dB
A_{TT} -Phase Error	-15	—	40	°
Attenuation Accuracy	-2	—	2	dB
RMS of Attenuation Accuracy	—	0.5	—	dB

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

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

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Control Voltage

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

Power Supply

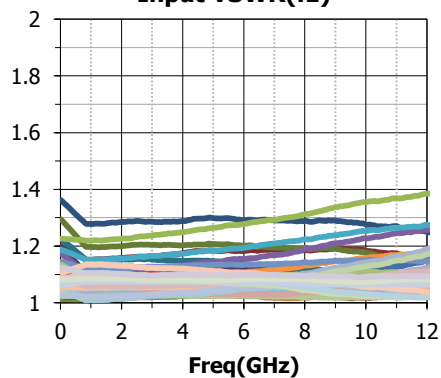
V _D	I _D
-5V	8mA

Absolute Maximum Ratings

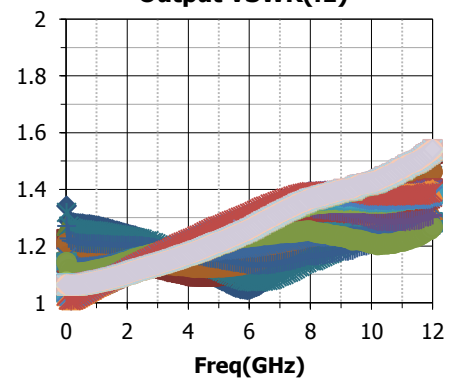
Maximum Input Power	Maximum Input Voltage
+23dBm	-8V
Operating Temperature	Storage Temperature
-55℃~+85℃	-65℃~+150℃

Typical Performance Curve

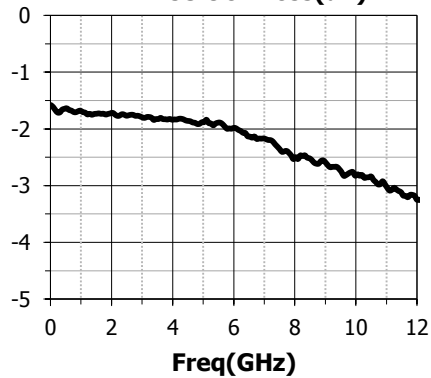
Input VSWR(:1)



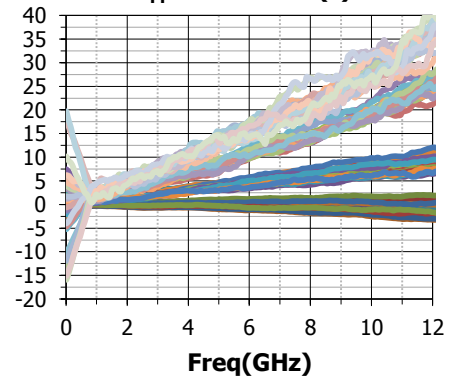
Output VSWR(:1)



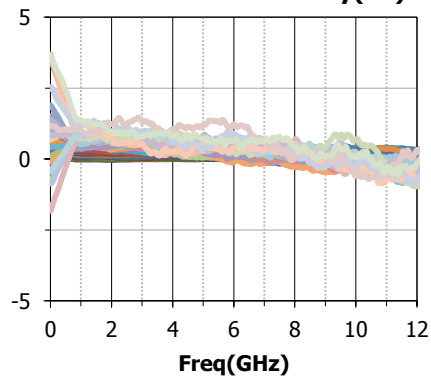
Insertion Loss(dB)



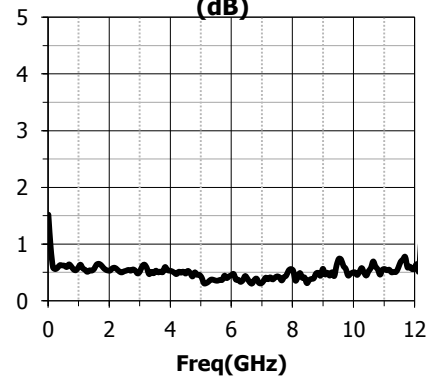
A_{TT}-Phase Error(°)



Attenuation Accuracy(dB)



RMS of Attenuation Accuracy (dB)



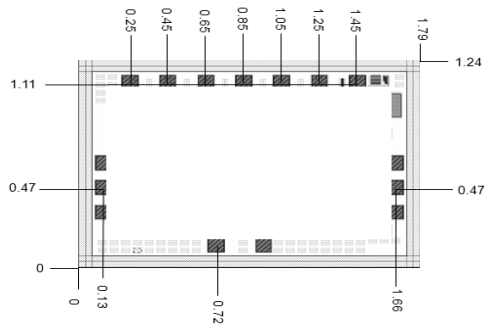
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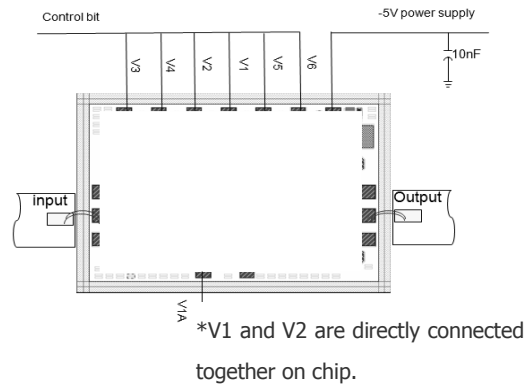
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Die Outline
(all dimensions in mm)



Assembly Diagram



Attention:

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