

XT3405



GaAs MMIC Digital Attenuator
12~18GHz

Rev 2.0

Features

- Frequency: 12~18GHz
- RMS of Attenuation Accuracy: 1.5dB
- Insertion Loss: 3.8dB
- Positive Voltage Control
- Die Size: 1.79mm×1.25mm×0.1mm

Typical Applications

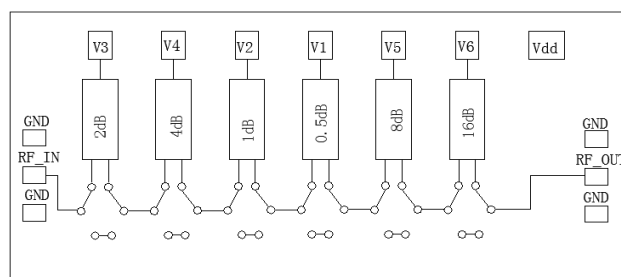
- EW
- Cellular Infrastructure
- SATCOM
- Beamforming Modules
- Test Equipment and Sensors

General Description

XT3405 is a broadband 6-bit GaAs digital attenuator MMIC chip. Covering 12 to 18GHz, the insertion loss is less than 3.8 dB typically. The attenuator bit values are 0.5dB, 1dB, 2dB, 4dB, 8dB and 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	12~18			GHz
Input VSWR	—	1.45	—	:1
Output VSWR	—	1.5	—	:1
Insertion Loss	—	-3.8	—	dB
A_{TT} -Phase Error	-3	—	8	°
Attenuation Accuracy	-0.5	—	2.5	dB
RMS of Attenuation Accuracy	—	1.5	—	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	0~0.2V
High	4.5~5.5V

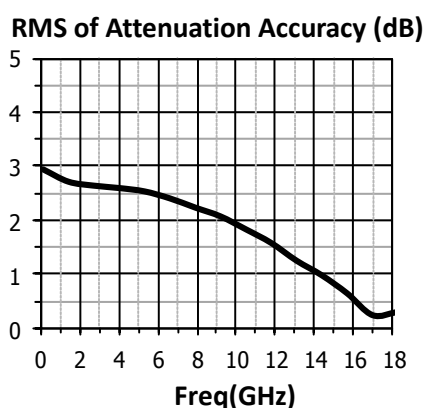
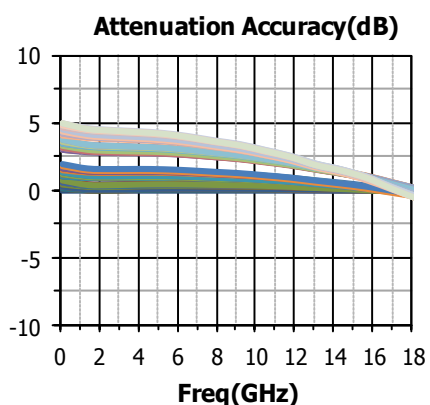
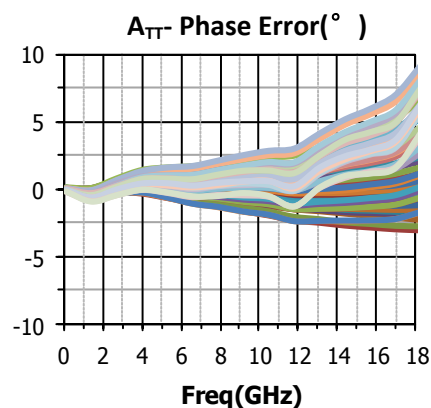
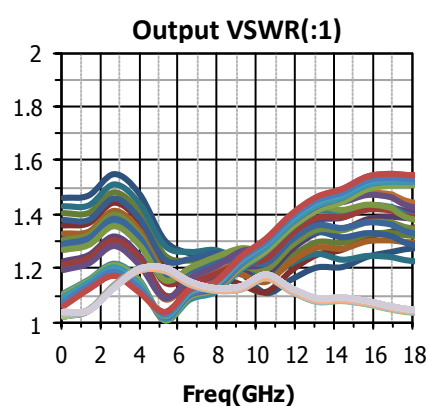
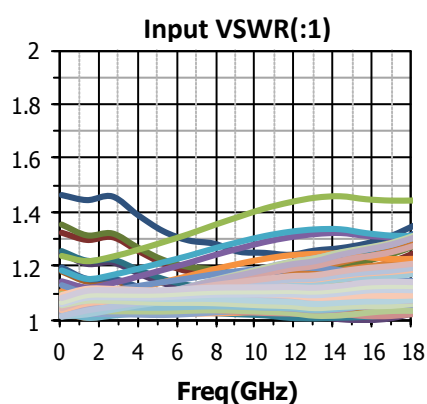
Power Supply

V _D	I _D
-5V	8mA

Absolute Maximum Ratings

Maximum Input Power	Maximum Input Voltage
+23dBm	-8V~+0.5V
Operating Temperature	Storage Temperature
-55°C~+85°C	-65°C~+150°C

Typical Performance Curve



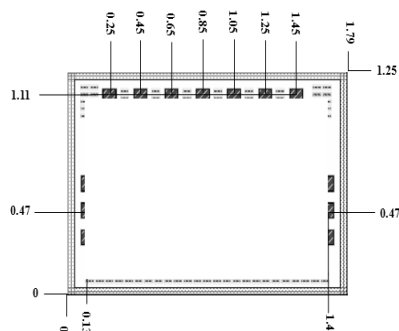
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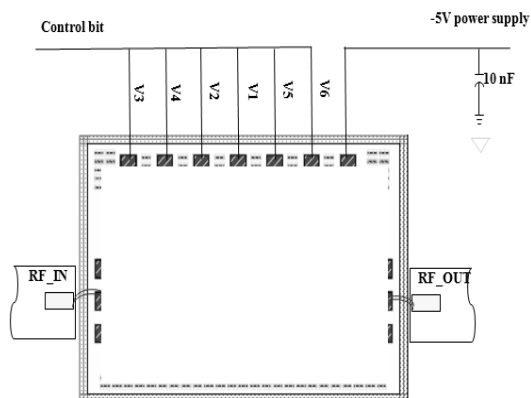
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Die Outline
(all dimensions in mm)



Assembly Diagram



Attention:

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