

# XT3402Q4



GaAs MMIC Digital Attenuator(package)  
DC~6GHz

Rev 1.1

## Features

- Frequency: DC~6GHz
- RMS of Attenuation Accuracy: 0.8dB
- Low Insertion Loss: 2.6dB
- Positive Voltage Control
- Package Size: 4mm×4mm×1.2mm

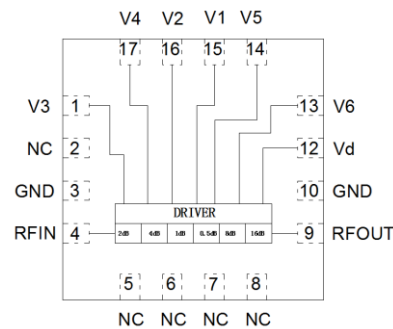
## Typical Applications

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

## General Description

XT3402Q4 is a broadband 6-bit GaAs digital attenuator MMIC chip. Covering DC to 6 GHz, the insertion loss is less than 2.6dB 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.

## 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~6 |      |      | GHz   |
| Input VSWR                  | —    | 1.4  | —    | :1    |
| Output VSWR                 | —    | 1.4  | —    | :1    |
| Insertion Loss              | —    | -2.8 | —    | dB    |
| $A_{TT}$ -Phase Error       | -3   | —    | 2.5  | °     |
| Attenuation Accuracy        | -0.3 | —    | 1.0  | dB    |
| RMS of Attenuation Accuracy | —    | 0.8  | —    | 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  |



Chengdu Fairchild Technology Co., Ltd.

Add.: 4F, Block B, No.98 Tiancai road, Hi-Tech(West)Zone, Chengdu.  
Cel.: 18381641733 Tel.: +86-28-8792 9948, +86-28-8793 2498 Fax: 028-8793 3348  
E-mail: sales@fairchild-tech.com. Web.: www.fairchild-tech.com  
WeChat: R18381641733.

## Absolute Maximum Ratings

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

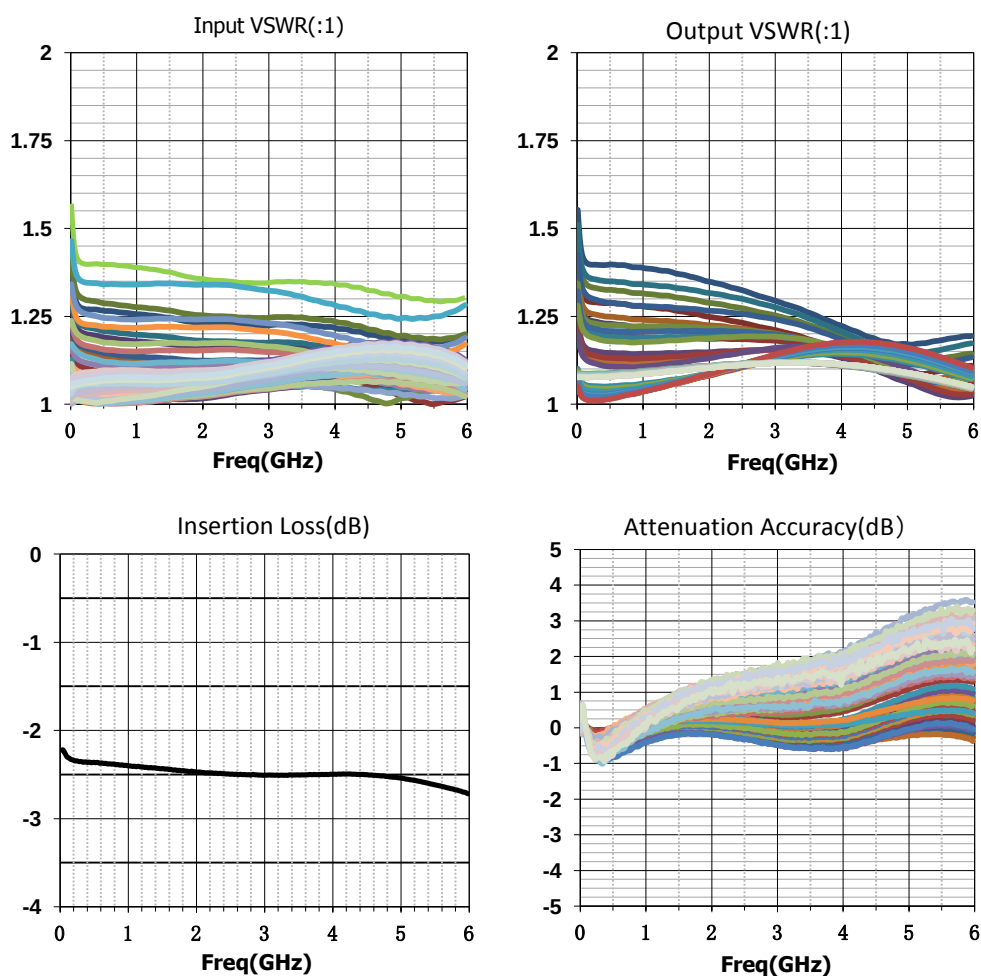
## Control Voltage

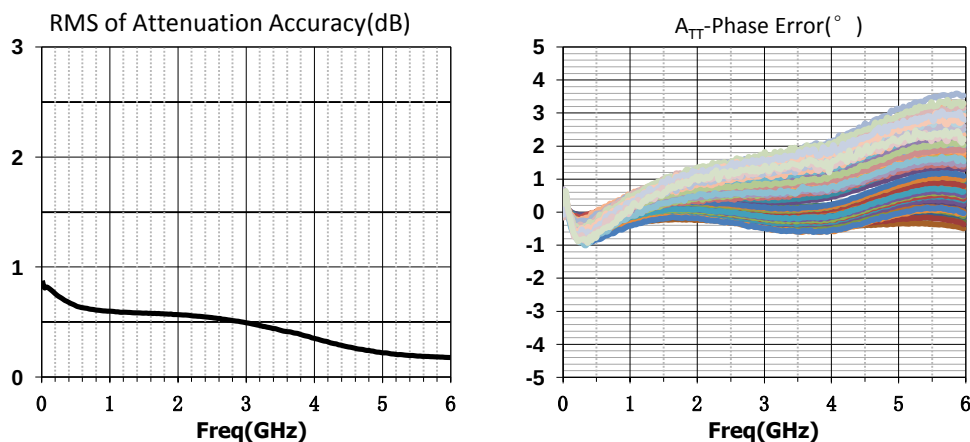
| State | Bias     |
|-------|----------|
| Low   | 0~0.5V   |
| High  | 4.5~5.5V |

## Power Supply

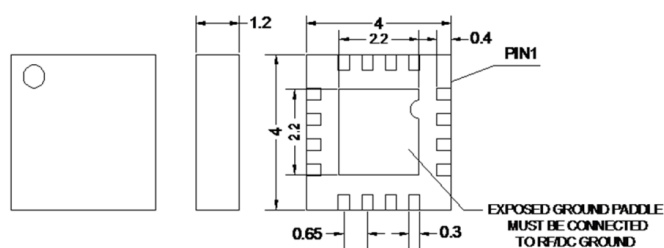
| V <sub>D</sub> | I <sub>D</sub> |
|----------------|----------------|
| -5V            | 8mA            |

## Typical Performance Curve

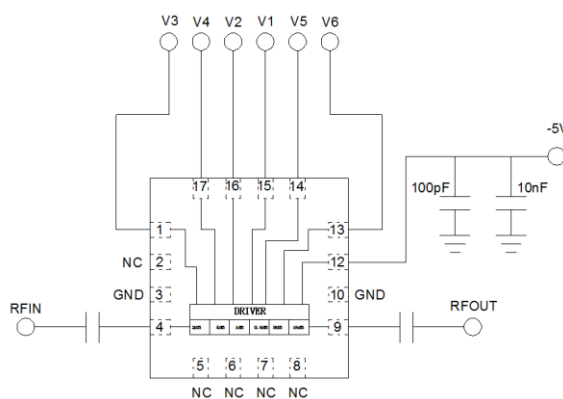




## Outline Drawing (all dimensions in mm)



## Assembly Diagram



### Attention:

1. The moisture resistant grade of products is 2A, the storage environment  $\leq 30^{\circ}\text{C}/60\%\text{RH}$ . The surrounding workshop Life is 4 weeks.
2. After un-packing, It is necessary to bake the parts for 6 hours in  $125\pm 5$  degree environment before soldering.