# XT3303Q5

GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER
2.2～2.6GHz

Rev 1.4

## Features

- Frequency：2.2～2.6GHz
- RMS of Phase Accuracy：1.0°
- Low Insertion Loss：4.8dB
- Positive Voltage Control
- Package Size：QFN 5mm×5mm×1.2mm

## Typical Applications

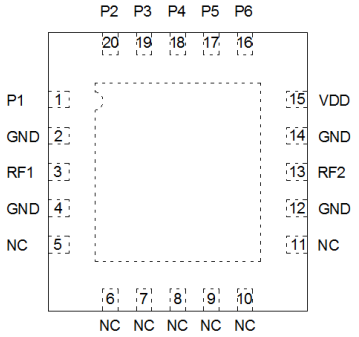
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming
- Phase Cancellation

## General Description

XT3303Q5 is a 6-bit digital phase shifter which works from 2.2 to 2.6GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

XT3303Q5 features very low RMS phase error of 0.8 degrees and extremely low insertion loss variation of ±0.5 dB across all phase states. This high accuracy phase shifter is controlled with positive control voltage of 0/+5V.

## Functional Diagram




## Electrical Performance ( $T_A$=+25℃ , $V_D$=-5V,Control Voltage=0/+5V,$Z_O$=50Ω )

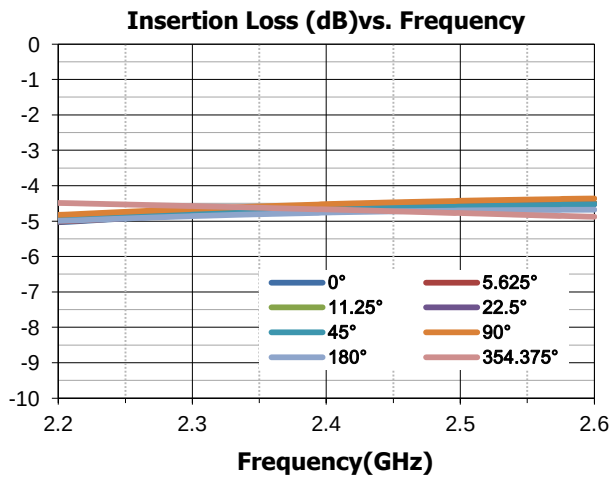
| Parameter | Min. | Typ. | Max. | Units |
|---|---|---|---|---|
| Frequency | | 2.2～2.6 | | GHz |
| Input VSWR | — | 1.3 | — | :1 |
| Output VSWR | — | 1.3 | — | :1 |
| Insertion Loss | — | -4.8 | — | dB |
| IL Variation | -0.5 | — | 0.5 | dB |
| Phase Accuracy | -1 | — | 1 | ° |
| RMS of Phase Accuracy | — | 1.0 | — | ° |

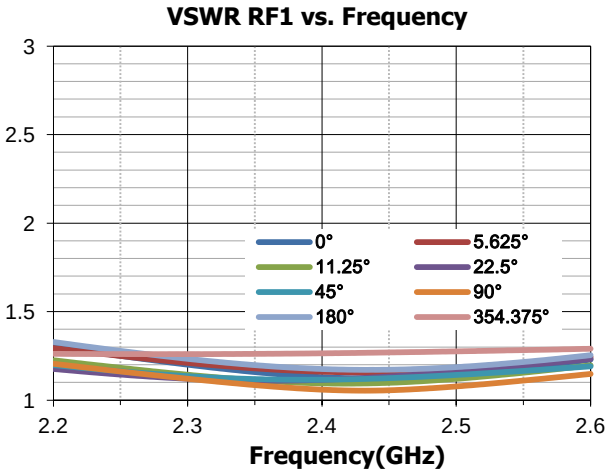
## Truth Table ( 0 : 0V , 1 : +5V )

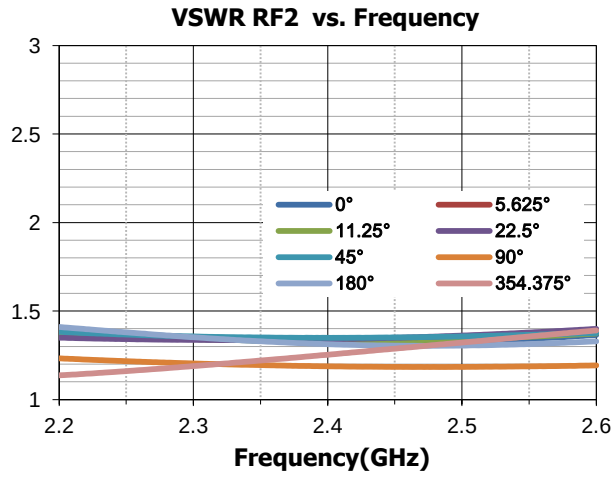
| Phase | P1 | P2 | P3 | P4 | P5 | P6 |
|---|---|---|---|---|---|---|
| **REF** | 0 | 0 | 0 | 0 | 0 | 0 |
| -5.625° | 1 | 0 | 0 | 0 | 0 | 0 |
| -11.25° | 0 | 1 | 0 | 0 | 0 | 0 |
| -22.5° | 0 | 0 | 1 | 0 | 0 | 0 |
| -45° | 0 | 0 | 0 | 1 | 0 | 0 |
| -90° | 0 | 0 | 0 | 0 | 1 | 0 |
| -180° | 0 | 0 | 0 | 0 | 0 | 1 |
| -354.375° | 1 | 1 | 1 | 1 | 1 | 1 |

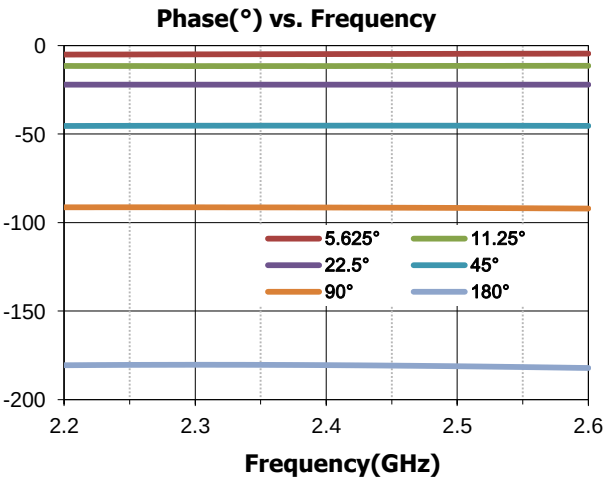

Chengdu Fairchild Technology Co., Ltd.
Add.: 4F, Block B, No.98 Tiancai road, Hi-Tech(West)Zone, Chengdu.
Cel.: 18381641733 Tel.: +86-28-8792 9948, +86-28-8793 2498 Fax: 028-8793 3348
E-mail: sales@fairchild-tech.com. Web.: www.fairchild-tech.com
WeChat: R18381641733.

## Typical Performance Curve



## Absolute Maximum Ratings

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

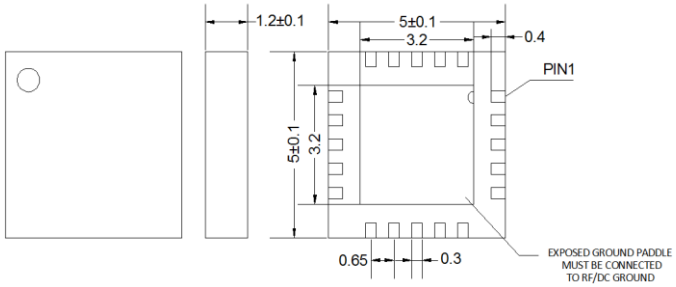
## Control Voltage

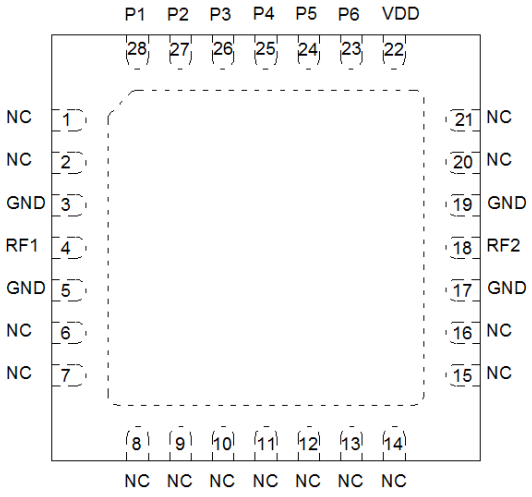
| State | Bias |
|---|---|
| Low | 0~ 0.2V |
| High | 4.5~ 5.5V |

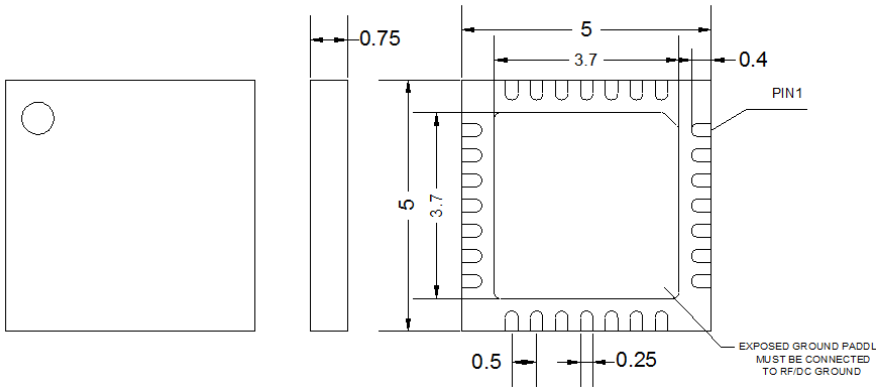
## Power Supply

| $V_D$ | $I_D$ |
|---|---|
| -5V | 8mA |

## Outline Drawing
**(all dimensions in mm)**






**Attention:**

1. The moisture resistant grade of products 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.



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E-mail: sales@fairchild-tech.com. Web.: www.fairchild-tech.com
WeChat: R18381641733.