XT3301

GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER
0.9~1.3GHz

Rev 2.0

Features

- Frequency：0.9～1.3GHz
- RMS of Phase Accuracy：1°
- Low Insertion Loss：5dB
- Positive Voltage Control：0/+5V
- Die Size：3.8mm×1.25mm×0.1mm

Typical Applications

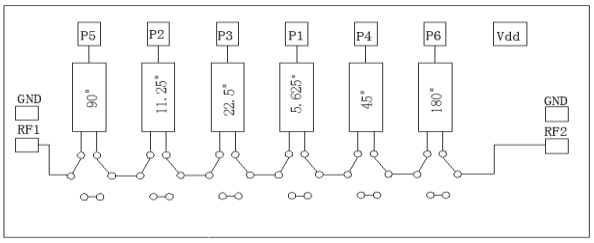
- Radar and ECM
- RF/ Microwave radio
- Military and Space
- Beamforming Modules
- Phase Cancellation

General Description

XT3301 is a 6-bit digital phase shifter which works from 0.9 to 1.3 GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

XT3301 features very low RMS phase error of 1 degree and extremely low insertion loss with variation of ±0.5dB across all phase states. This high accuracy phase shifter is controlled with positive control logic 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	0.9～1.3			GHz
Input VSWR	—	1.3	—	:1
Output VSWR	—	1.3	—	:1
Insertion Loss	—	-5	—	dB
IL Variation	-0.5	—	0.3	dB
Phase Accuracy	-0.5	—	2	°
RMS of Phase Accuracy	—	1	-	°

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

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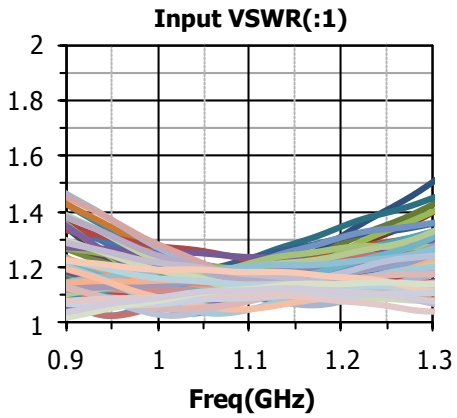
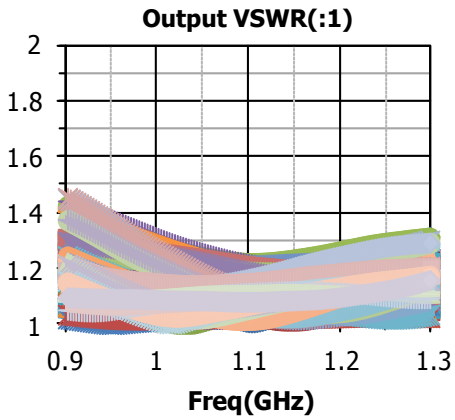
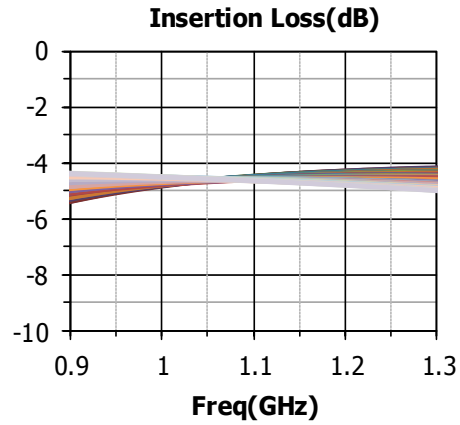
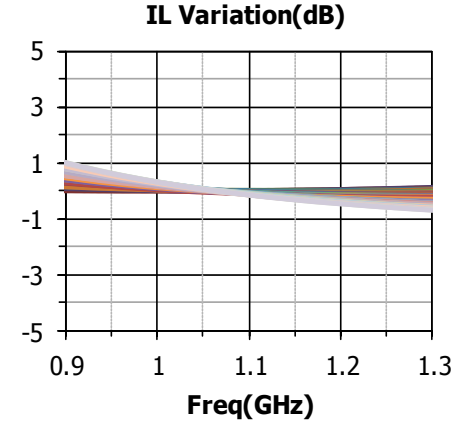
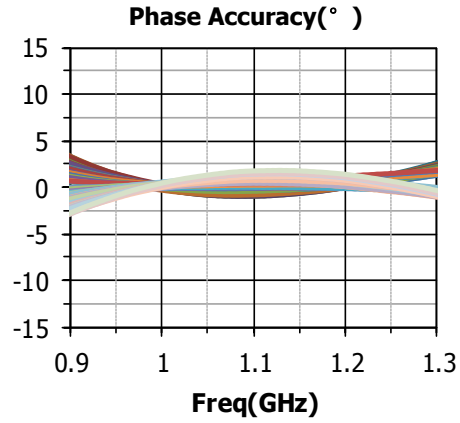
Typical Performance Curve

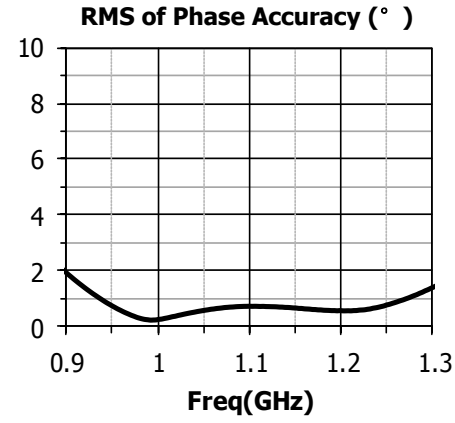












Absolute Maximum Ratings

Maximum Input Power	+18dBm	Operating Temperature	-55℃～+85℃
Maximum Input Voltage	-8V~+0.5V	Storage Temperature	-65℃～+150℃

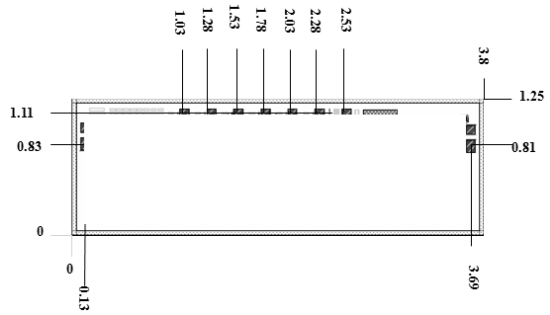
Logic Voltage

State	Bias
LOW	0~ 0.2V
HIGH	4.5~ 5.5V

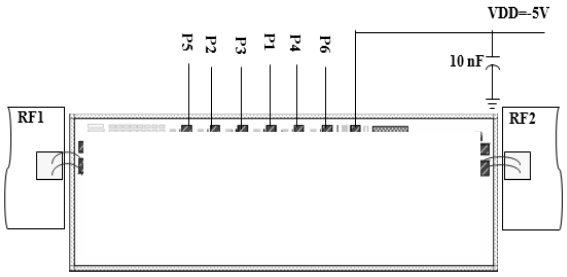
Power Supply

V_D	I_D
-5V	8mA

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.