XT3307

GaAs MMIC 6-BIT DIGITAL PHASE SHIFTER
8～12GHz

Rev 2.0

Features

- Frequency：8～12GHz
- RMS of Phase Accuracy：2°
- Low Insertion Loss：8dB
- Positive Voltage Control
- Die Size：3.8mm×1.25mm×0.1mm

Typical Applications

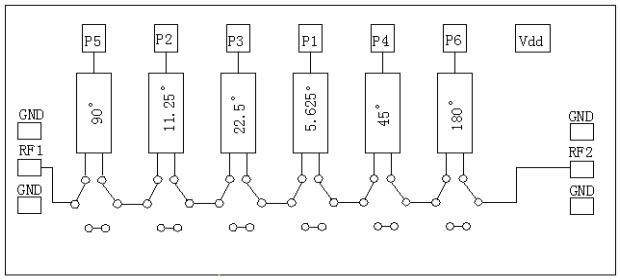
- EW
- Military Radar and Weather Radar
- SATCOM
- Beamforming Modules
- Phase Cancellation

General Description

XT3307 is a 6-bit digital phase shifter which works from 8 to 12 GHz, providing 360 degrees of phase coverage with a LSB of 5.625 degrees.

XT3307 features very low RMS phase error of 2 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		8～12		GHz
Input VSWR	—	1.9	—	:1
Output VSWR	—	1.8	—	:1
Insertion Loss	—	-8	—	dB
IL Variation	-0.6	—	0.6	dB
Phase Accuracy	-4	—	5	°
RMS of Phase Accuracy	—	2	—	°

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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Absolute Maximum Ratings

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

Control Voltage

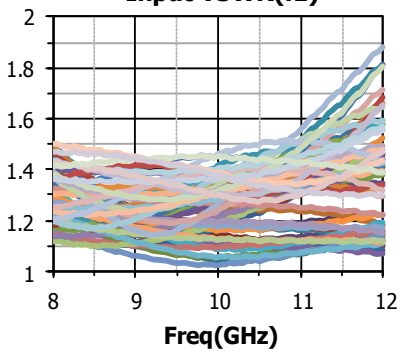
State	Bias
Low	0~0.2V
High	4.5~5.5V

Power Supply

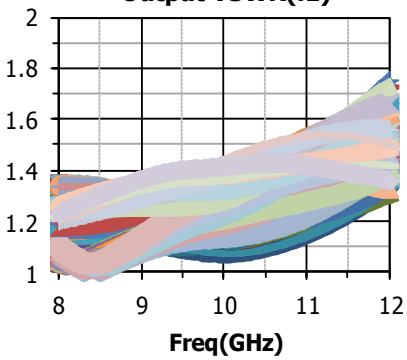
V_D	I_D
-5V	8mA

Typical Performance Curve

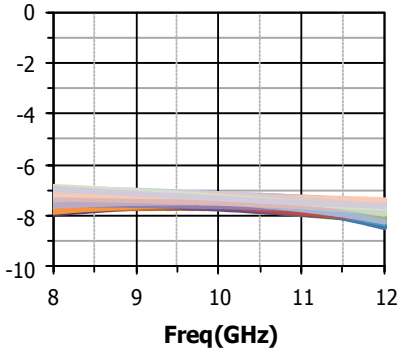
Input VSWR(:1)



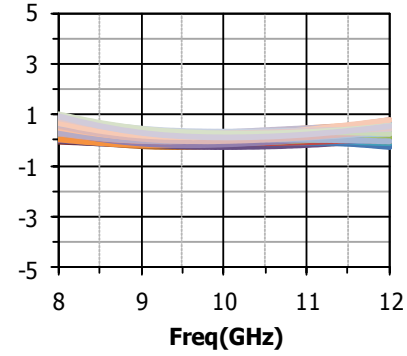
Output VSWR(:1)



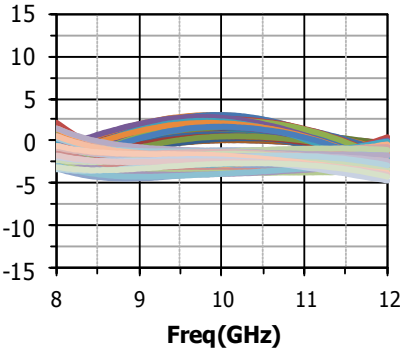
Insertion Loss(dB)



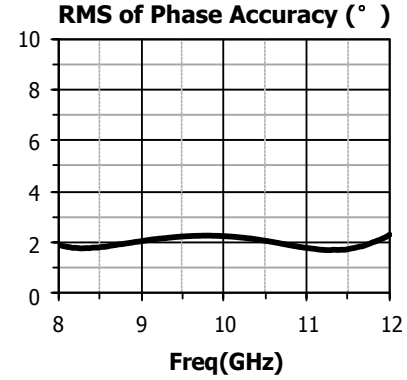
IL Variation(dB)



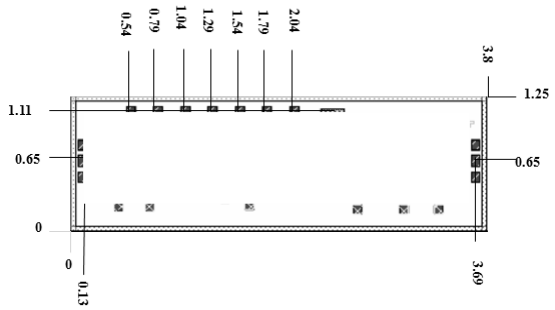
Phase Accuracy(°)



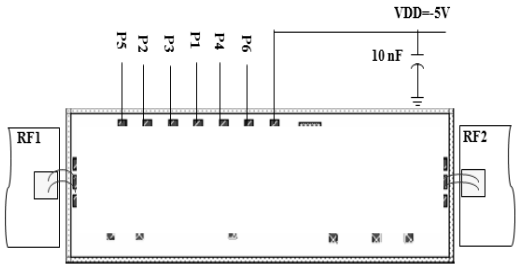
RMS of Phase Accuracy (°)



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.

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