Performance Characteristics

Working frequency band: 0.8~2GHz

Insertion loss: 11.5dB

Phase shift accuracy (RMS): 2.5°

Amplitude fluctuation: ±0.5dB

Package size: 12.9 x 8 mm

Typical Applications

Suitable for a variety of applications:

Wireless communication device

•Radar and electronic countermeasures

Military and aerospace

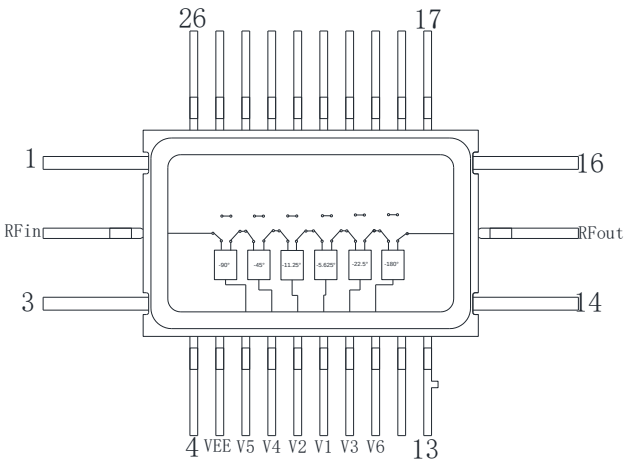
Test and measurement

Apparatus and instrument

Overview

The BW327DSM105 is a six-bit digital phase shifter. The working frequency is 0.8~2GHz, the insertion loss is less than 13dB, the basic phase shift is -5.625°, -11.25°, -22.5°, -45°, -90°, -180°, and the total phase shift is -354.375°. The chip is integrated by driver inside, which is easy to use. Excellent phase shift accuracy and port standing wave characteristics over the entire operating frequency range are ideal for microwave hybrid integrated circuits and multi-chip modules and low power systems.

Functional Block Diagram

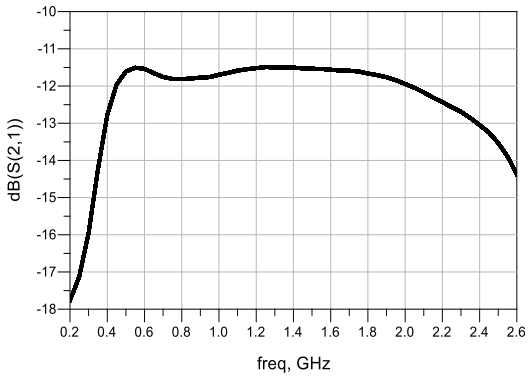


Electrical performance table (T_A=+25°C, -5 V power supply, 0/+5 V control, 50 Ω system)

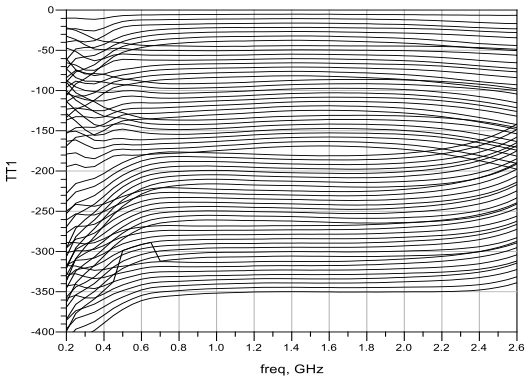
Parameter	Frequency	Minimum Value	Typical Value	Maximum Value	Unit
Insertion loss	0.8~2GHz		11.5	12.5	dB
Amplitude fluctuation	0.8~2GHz		±0.5	±1	dB
Phase shift accuracy (RMS)	0.8~2GHz		2.5	3	Deg
Return loss (RF1, RF2)	0.8~2GHz		15	12	dB
Input P-1	0.8~2GHz		21		dBm
Input IP3	0.8~2GHz		35		dBm
Switching time	0.8~2GHz		30		ns

Test curve

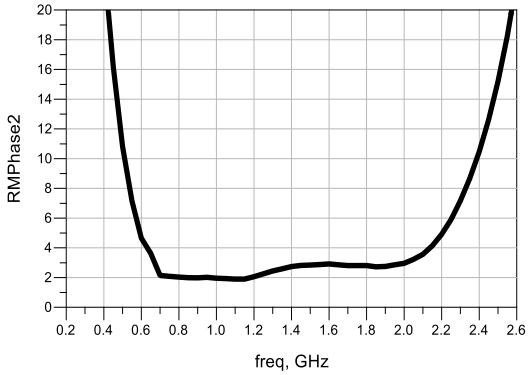
Reference state insertion loss



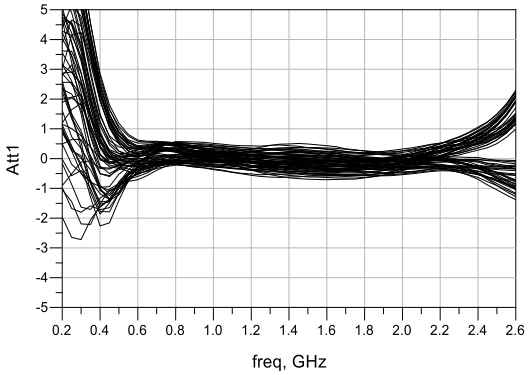
Phase shifting 64 state



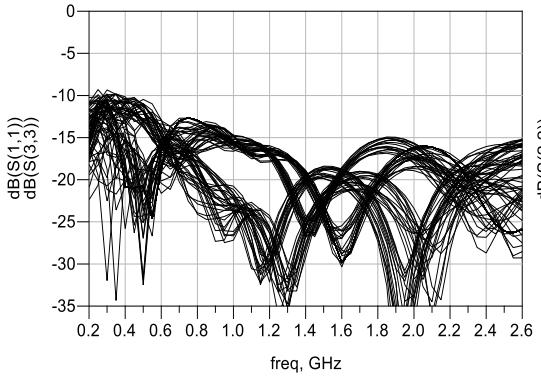
Phase shift RMS



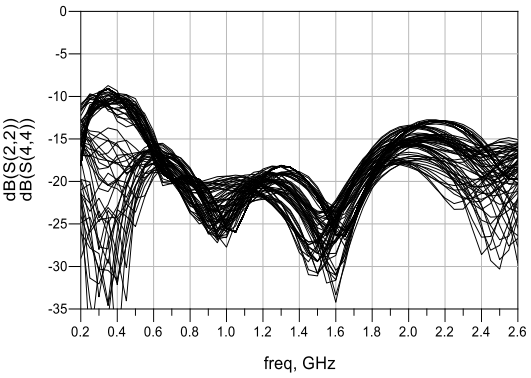
Amplitude fluctuation



Input return loss



Output return loss



Limit parameter

RF input power	+25dBm
Control voltage range	-0.5V~+5.5V
Junction temperature	175℃
Storage temperature	-65~+125℃
Operating temperature	-55~+125℃
Electrostatic protection level (HBM)	Class1A

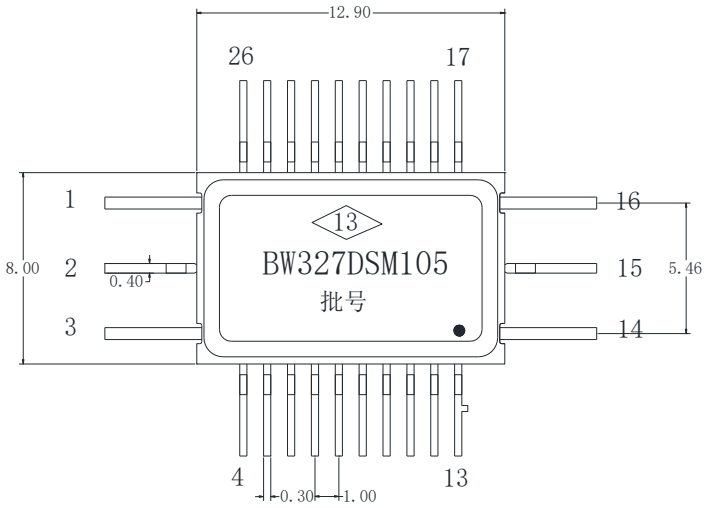
Control voltage

State	Bias condition

Truth table

-5.625°	-11.25°	-22.5°	-45°	-90°	-180°	Phase shift
V1	V2	V3	V4	V5	V6	State
0	0	0	0	0	0	Reference state
+5	0	0	0	0	0	-5.625°
0	+5	0	0	0	0	-11.25°
0	0	+5	0	0	0	-22.5°
0	0	0	+5	0	0	-45°
0	0	0	0	+5	0	-90°
0	0	0	0	0	+5	-180°

Dimensions



Description:

1. Unit: mm [inch]
2. Shell material: metal ceramic
3. All ground pins should be connected to RF ground
4. The bottom of the shell needs a large area of grounding, which is suitable for reflow soldering process
5. Leads need to be manually welded

Pin Definition

Pressure Point Number	Functions Symbol	Functional Description
1,3,14,16	-	Vacant or grounded
2,15	RFin/RFout	RF input and output port, 50Ω system
5	VEE	Power port, -5V
6	V5	Control port, 0/+5V
7	V4	Control port, 0/+5V
8	V2	Control port, 0/+5V
9	V1	Control port, 0/+5V
10	V3	Control port, 0/+5V
11	V6	Control port, 0/+5V
Other	NC	Hanging
-	GND	The back of the chip should be grounded in large area.