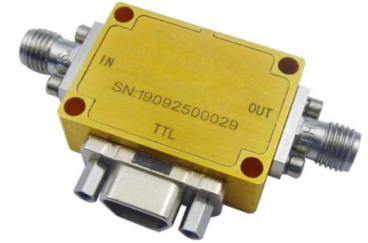




Digital 360° Phase Shifter 28 - 32GHz



Features

- Wide Band Operation 28-32GHz
- 360° Phase Shift
- Fast Switching Speed

Parameters	Min	Typ.	Max	Units
Frequency Range	28		32	GHz
Phase Range		360		deg
Control Bits			5	Bit
Control Step size		11.25		deg
Insertion Loss		8.5	10.0	dB
Insertion Loss Temperature Coefficient		0.008		dB/ °C
Phase Flatness		±10	±15	deg
Input VSWR		1.5	2.0	: 1
Output VSWR		1.5	2.0	: 1
Input 1dB Compression Point(P1dB)		20		dBm
Weight	0.75 Max.			Ounces
Impedance	50			Ω
Bias Current (+5V)	1 Max.			mA
Input / Output Connectors	2.92mm-Female			
Interface and Control Connector	MICRO-D9 (Female)			
Finish	Gold Plated			
Material	Aluminum			
Sealing	Hermetically Sealed (Optional)			



Absolute Maximum Ratings

Biasing	+5V±10%
RF Input power	+20dBm

Environmental Specifications

Operational Temperature	-40°C~+85°C
Storage Temperature	-50°C~+105°C
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35°C, 95%RH at 40°C
Shock	20G for 11msec half sine wave, 3 axis both directions

Ordering Information

Part No.	Description
DBDP0528003200A	28-32GHz Digital Phase Shifter

Outline Drawing:

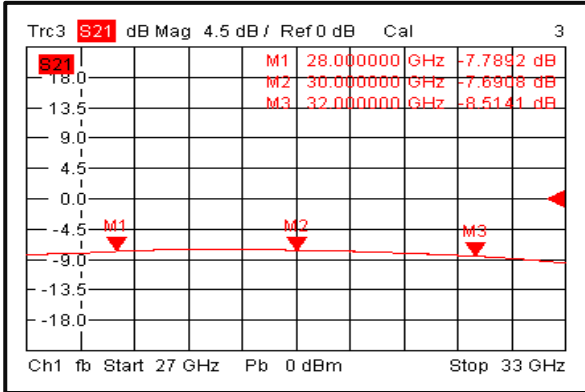
All Dimensions in mm (inches)

The drawing shows the physical dimensions of the phase shifter. Key dimensions include: 5 [0.197] mm for the top mounting hole, 14.35 [0.565] mm for the main body width, 3 [0.118] mm for the bottom mounting hole, 9.5 [0.374] mm for the top flange height, 28 [1.102] mm and 24 [0.945] mm for the bottom flange width, 20 [0.787] mm and 16 [0.630] mm for the side flange height, 7.35 [0.29] mm for the pin pitch, 1.1 [0.043] mm for the pin height, and 4-Ø2.8 [0.11] THRU for the mounting holes. The pin configuration is labeled as MICRO-D9(Female) with pins 1-9: 1 (+5V), 2 (GND), 3 (C1), 4 (C2), 5 (C3), 6 (C4), 7 (C5), 8 (NC), 9 (NC).

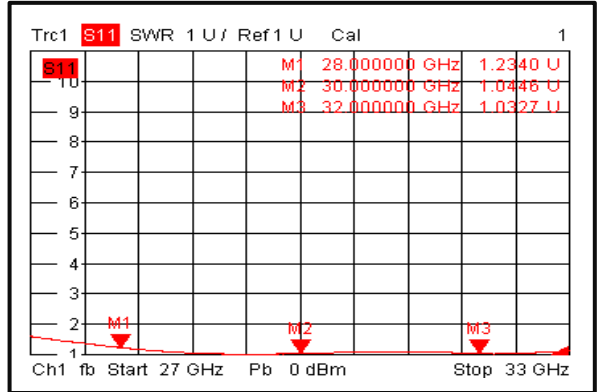
TTL Control Voltage THRESHOLD		Low(0)=0~0.8V	High(1)=2~5V		
Control Voltage Input					Phase Shift (Degree)
C5	C4	C3	C2	C1	
0	0	0	0	0	Reference
0	0	0	0	1	11.25
0	0	0	1	0	22.5
0	0	1	0	0	45
0	1	0	0	0	90
1	0	0	0	0	180
1	1	1	1	1	348.75



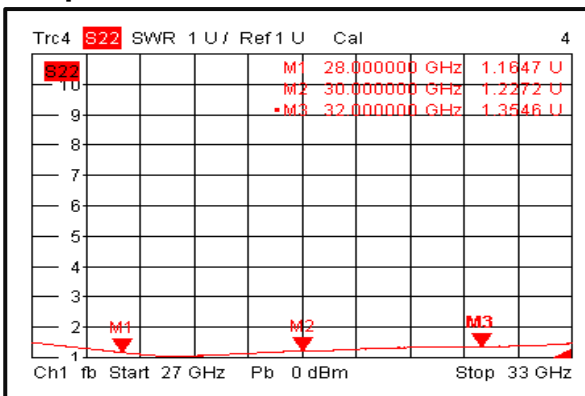
Insertion Loss @+25°C



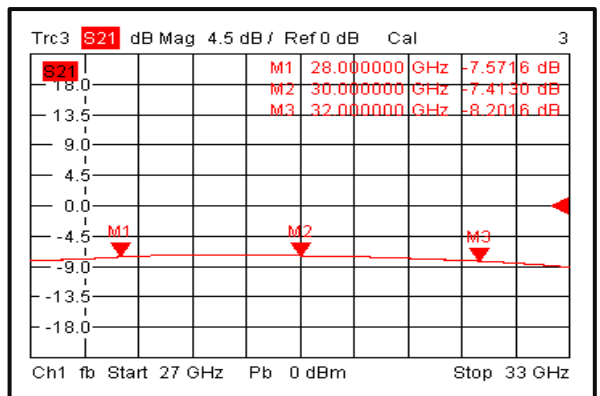
Input VSWR @+25°C



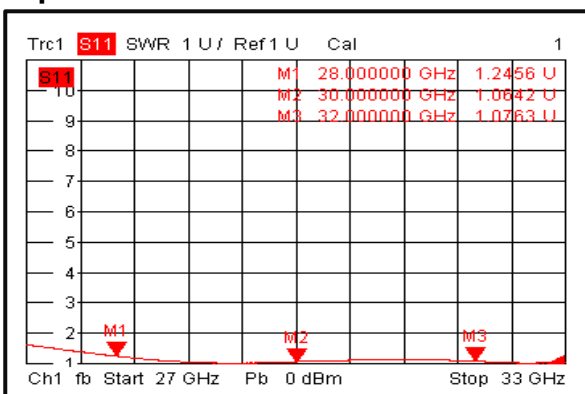
Output VSWR @+25°C



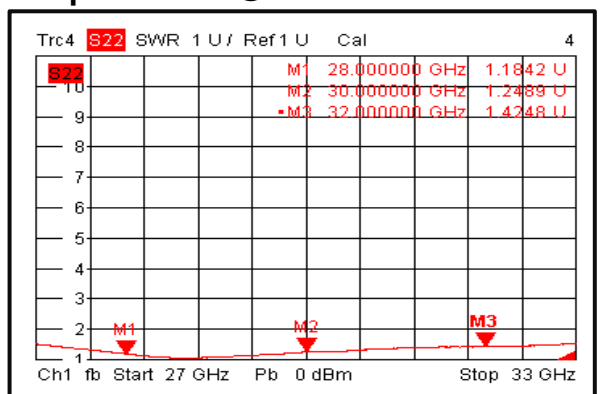
Insertion Loss @-40°C



Input VSWR @-40°C

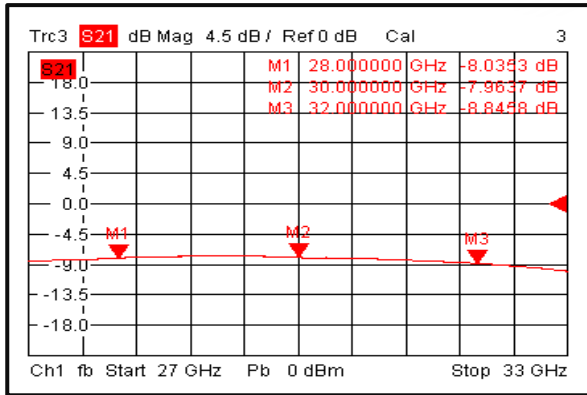


Output VSWR @-40°C

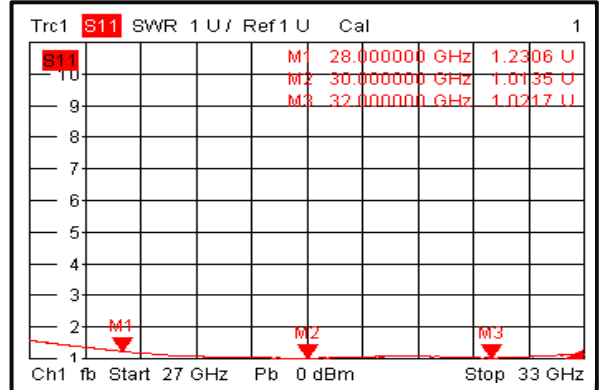




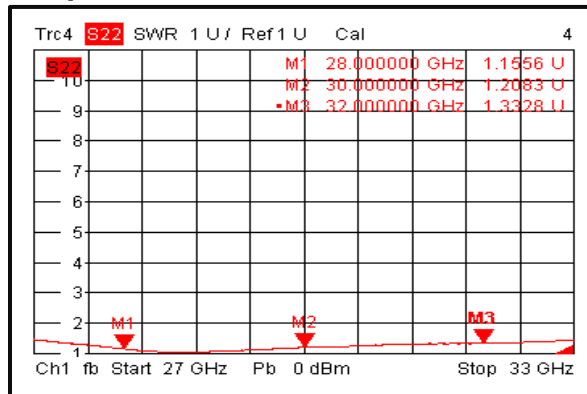
Insertion Loss @+85°C



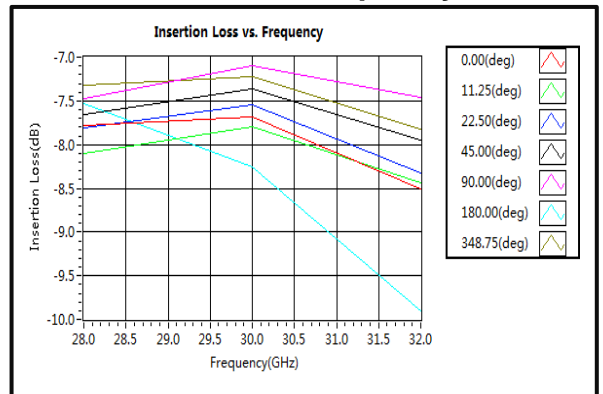
Input VSWR @+85°C



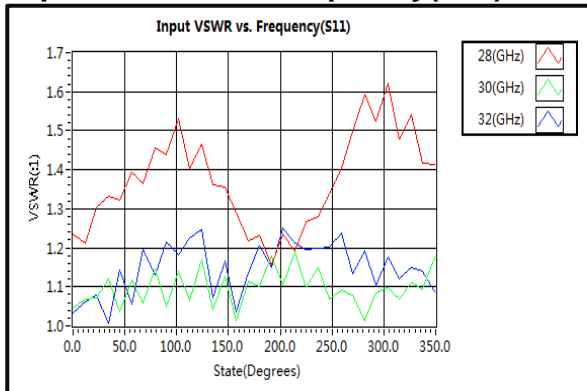
Output VSWR @+85°C



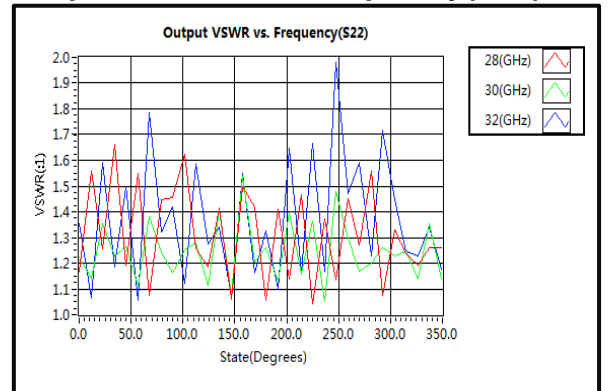
Insertion Loss vs. Frequency



Input VSWR vs. Frequency(S11)

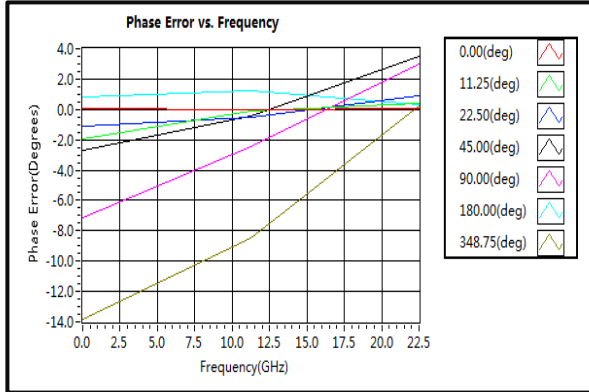


Output VSWR vs. Frequency(S22)





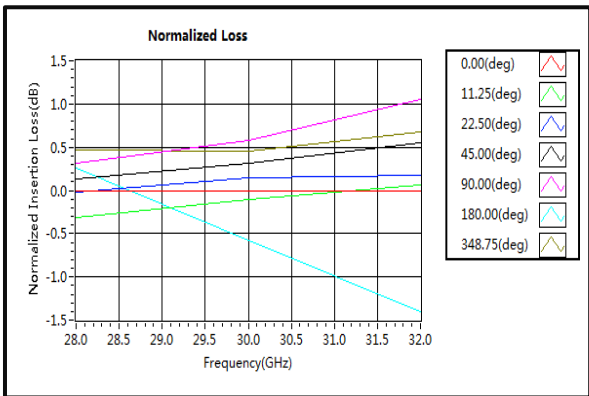
Phase Error vs. Frequency



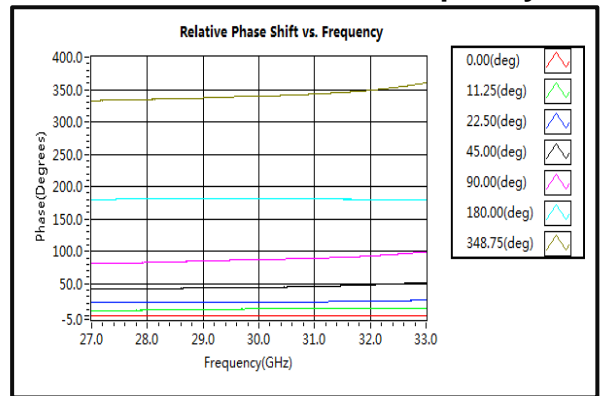
Phase Error vs. State



Normalized Loss. All States



Relative Phase Shift vs. Frequency



Attenuation vs. Frequency

