

## 6 Bit Digital Phase Shifter

### Key Features:

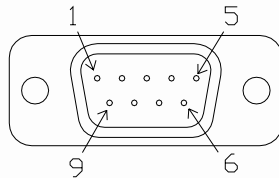
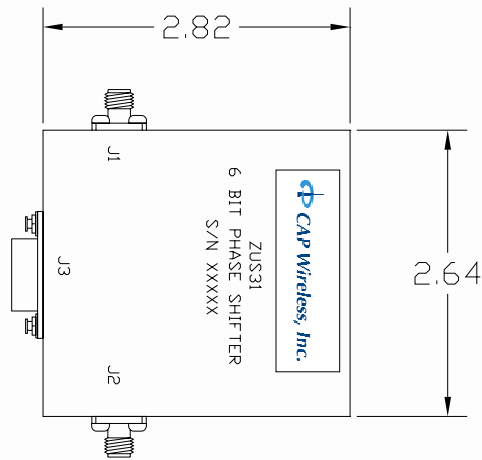
- 400 MHz to 500 MHz bandwidth
- High phase accuracy
- Four Watt power handling capacity
- Compact size



Electrical Parameters	Units	Min.	Typ.	Max.
<b>@8 V, 25°C Baseplate</b>				
Frequency	MHz	400		500
Insertion Loss (dB)	dB		4.4	
Amplitude Balance (State-to-state)	±dB		0.15	
Amplitude Flatness 400 – 500 MHz	±dB		0.10	
Input VSWR (50 Ohms)			1.1:1	
Output VSWR (50 Ohms)			1.2:1	
Voltage	Volts	6	8	20
Control Logic			TTL	
<b>Physical Parameters</b>				
Size	In.	2.8x2.6x0.76		
RF Connectors		SMA (F)		
DC Connectors		9 Pin Male Sub Mini D Connector		

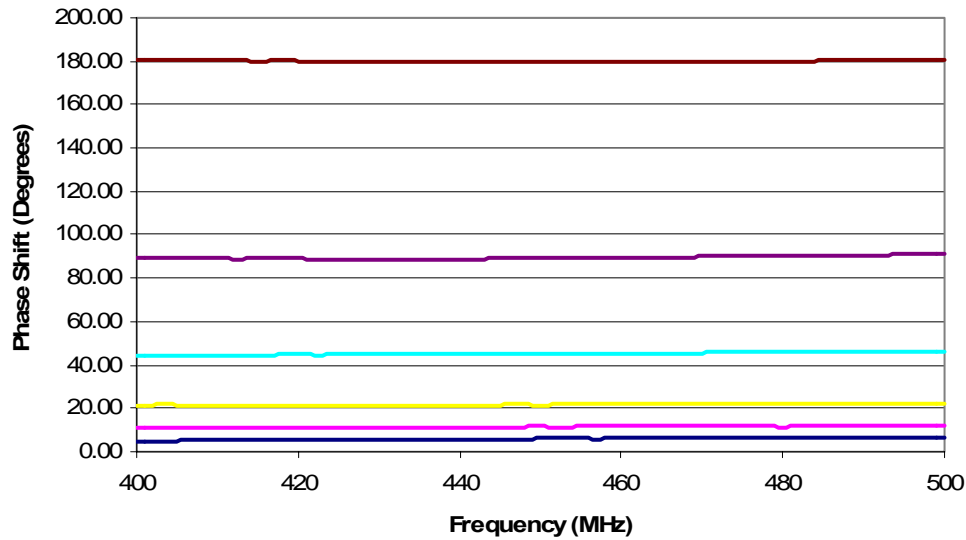
## Control Logic Truth Table

Phase Shifter State	Phase Control Lines						Normalized Phase Shift (Degrees)
	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	
0	0	0	0	0	0	0	Reference Level
1	0	0	0	0	0	1	5.625
2	0	0	0	0	1	0	11.25
4	0	0	0	1	0	0	22.5
8	0	0	1	0	0	0	45
16	0	1	0	0	0	0	90
32	1	0	0	0	0	0	180
63	1	1	1	1	1	1	354.3



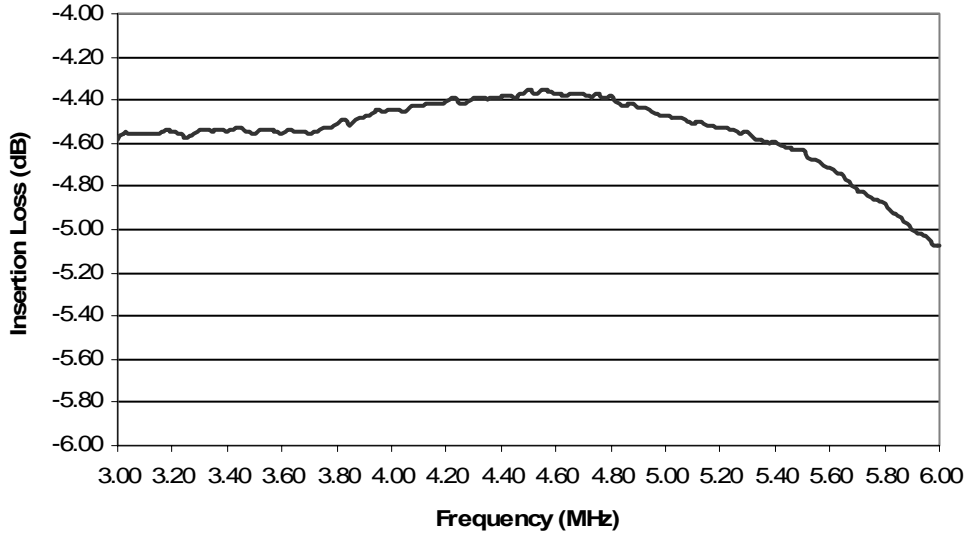
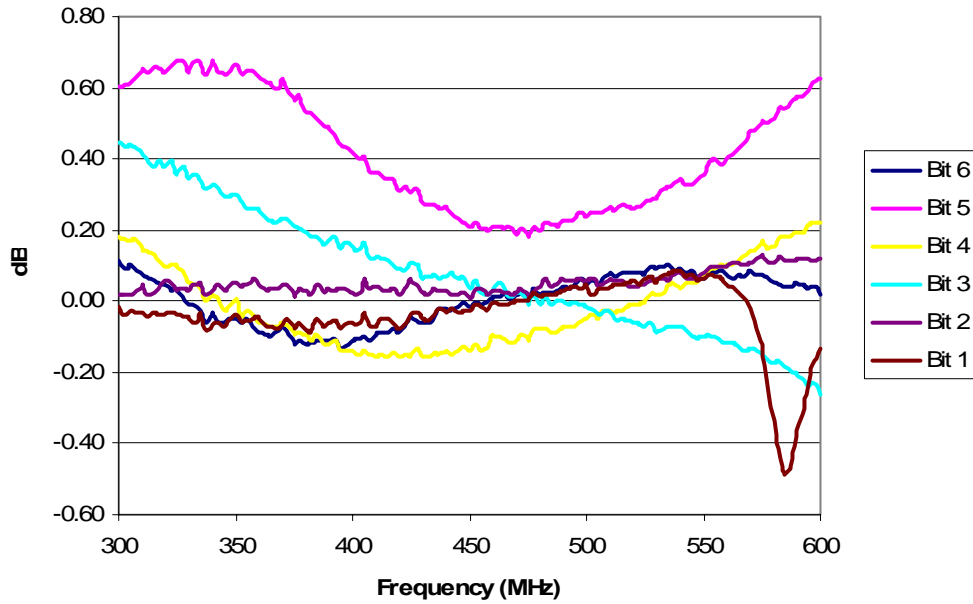
- PIN 1 - BIT 1 (LSB) Control  
 PIN 2 - BIT 2 Control  
 PIN 3 - BIT 3 Control  
 PIN 4 - BIT 4 Control  
 PIN 5 - BIT 5 Control  
 PIN 6 - BIT 6 (MSB) Control  
 PIN 7 - GND  
 PIN 8 - NC  
 PIN 9 - Vcc

## Performance Data

**Element Phase Shift vs. Frequency**


Expected Phase Shift (Degrees)	@ 400MHz	@ 450MHz	@ 500MHz
5.625	4.78	6.06	6.47
11.25	11.11	11.57	11.74
22.5	21.52	21.59	22.02
45	44.44	45.26	46.08
90	89.26	89.37	91.17
180	180.8	179.7	180.7
354.375	358.91	356.95	359.36

Frequency	Bit Error (Degrees)						RMS Error	Worst Case Error
	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6		
400MHz	-0.84	-0.14	-0.98	-0.55	-0.74	-0.8	0.89	4.05
450MHz	0.43	0.22	-0.91	0.26	-0.63	0.27	0.63	1.54
500MHz	0.84	0.49	-0.49	1.1	1.17	-0.7	1.03	3.60

**Reference Channel Insertion Loss**

**Amplitude Imbalance**


Frequency	Bit Error (dB)						RMS Error	Worst Case Error
	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6		
400MHz	0.06	-0.023	-0.15	0.14	-0.42	0.11	0.24	0.60
450MHz	0.024	-0.009	-0.037	0.14	-0.21	0.013	0.13	0.26
500MHz	-0.044	-0.056	0.016	0.046	-0.24	-0.046	0.13	0.39