

## PSA Series

## 2000 – 4000MHz Phase Shift Amplifier

### Features

- Frequency Range:2000-4000MHz
- Gain: 33dB
- P<sub>1dB</sub>: +15dBm
- 360° Phase Shift, LSB=11.25°
- Noise Figure: 1.5dB
- DC Power: +/-5V
- SMA-female

### Photo



### Description

PSA-2040 is a 5-Bit Digital Phase Shift Low Noise Amplifier, for frequency range from 2000MHz to 4000MHz.

### Electrical Specifications @+25 °C, Z<sub>in</sub>=Z<sub>out</sub>=50 Ω, V<sub>supply</sub> = +/-5VDC

Parameter	Unit	Minimum	Typical	Maximum
Frequency Range	MHz	2000		4000
Gain (S21)	dB		33	
Gain Flatness	dB		±3.7	
Phase Shift Range	°		360	
Phase Shift LSB	°		11.25	
Digital Control	Bit		5	
Digital Control Logic			TTL/HCMOS	
Output Power P <sub>1dB</sub>	dBm		+15	
Output Third Order Intercept IP3	dBm		+27	
Noise Figure	dB		1.5	
Reverse Isolation (S12)	dB		-50	
VSWR-Input (S11)	ratio:1		2.5	
VSWR-Output (S22)	(unitless)		2.5	
DC Power Supply - voltage	V		±5	
DC Power Supply - current	mA		+115/-2	
Operating Temperature	°C	-40		+85
Size (RF/DC feedthrough excluded)	Inch	1.79 (L) x 1.10 (W) x 0.45 (H)		
Weight	Oz	1.5		

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### Truth Table

Control Voltage Input					Phase Shift (degree)
C1 (180°)	C2 (90°)	C3 (45°)	C4 (22.5°)	C5 (11.25°)	
0	0	0	0	0	Reference
0	0	0	0	1	11.25
0	0	0	1	0	22.5
0	0	0	1	1	33.75
0	0	1	0	0	45
0	0	1	0	1	56.25
0	0	1	1	0	67.5
0	0	1	1	1	78.75
0	1	0	0	0	90
0	1	0	0	1	101.25
0	1	0	1	0	112.5
0	1	0	1	1	123.75
0	1	1	0	0	135
0	1	1	0	1	146.25
0	1	1	1	0	157.5
0	1	1	1	1	168.75
1	0	0	0	0	180
1	0	0	0	1	191.25
1	0	0	1	0	202.5
1	0	0	1	1	213.75
1	0	1	0	0	225
1	0	1	0	1	236.25
1	0	1	1	0	247.5
1	0	1	1	1	258.75
1	1	0	0	0	270
1	1	0	0	1	281.25
1	1	0	1	0	292.5
1	1	0	1	1	303.75
1	1	1	0	0	315
1	1	1	0	1	326.25
1	1	1	1	0	337.5
1	1	1	1	1	348.75

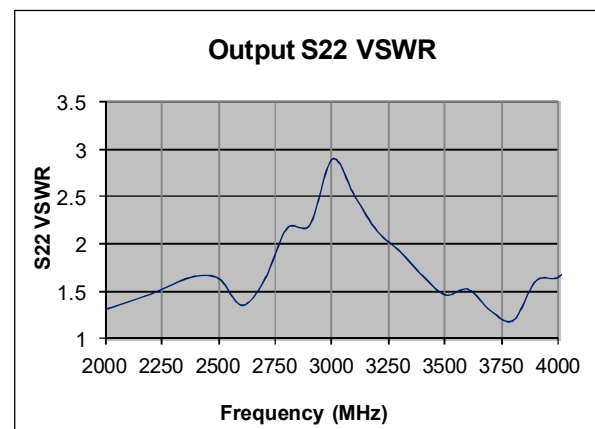
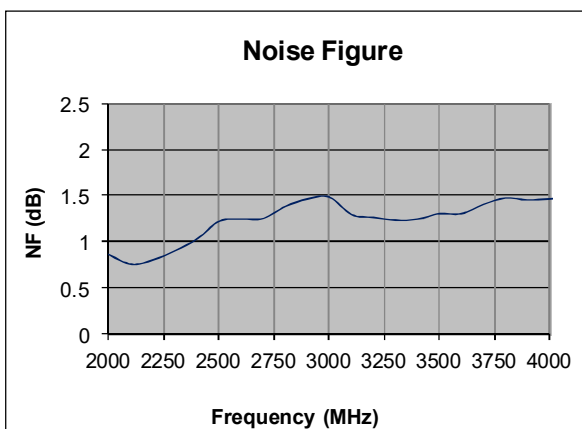
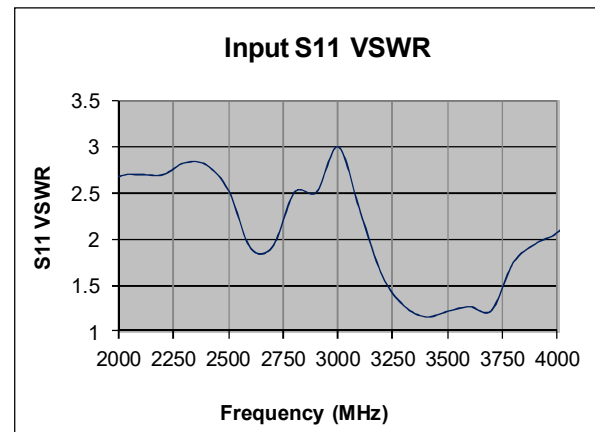
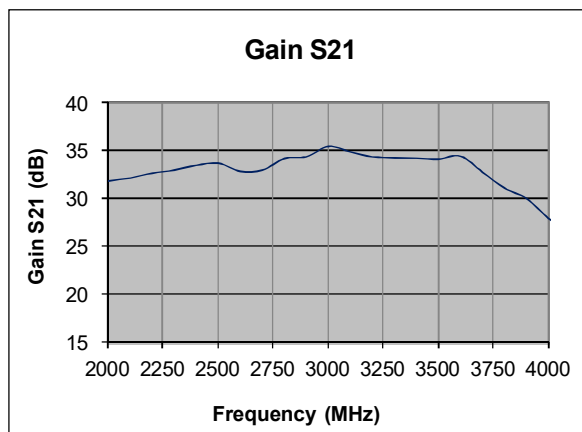
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### Control Voltage

Control Input State	Bias Condition
1	3.3V to 5.0V $\pm$ 0.3V
0	0V $\pm$ 0.3V

### Typical Performance @ +25°C at Reference Phase (all $C_i=0V$ , $i=1$ to 5)



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### Absolute Maximum Ratings

Parameter	Absolute Maximum
RF Input Power	+27dBm
Supply Voltage	+6V, -6V
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-55 °C to +125 °C

### Outline

