



Analog Phase Shifter, 8 GHz to 18 GHz, 360 degree Phase Range, 0V to +13V Control Voltage, Max Pin +26 dBm, SMA

Phase Shifters and Trimmers Technical Data Sheet

PE82P2002

Features

- Analog Phase Shifter
- 8 GHz to 18 GHz
- Phase Shift 0° to 360° typ
- Insertion Loss 6 dB typ
- Phase Flatness +/- 15° typ
- P0.1dB: +23 dBm typ
- Maximum RF Input Power +26 dBm
- 50 Ohm Design
- Voltage Control: 0 to +13Vdc
- Solder Pins for DC Control Voltage and Ground
- Field Replaceable Female SMA RF Connectors
- Operational Temperature Range -40°C to +85°C
- Rugged and Compact Aluminum Gold Plated Package Design
- Guaranteed Environmental Test Conditions Altitude, Vibration, Humidity, Shock
- Single DC Control Operation
- Low Phase Error

Applications

- Test & Measurement
- Military & Commercial
- Communications
- Military Electronic Systems
- Research & Development

Description

The PE82P2002 is an Analog Phase Shifter module that operates across a broadband frequency from 8 GHz to 18 GHz and supports a single positive voltage control of 0 to +13 Vdc. The design offers a continuously variable monotonic phase shift response that ranges from 0°C to 360°C while maintaining consistent insertion loss versus phase shift characteristics. The 50 Ohm design exhibits impressive typical performance which includes 6 dB insertion loss, +/-15°C phase flatness, a 0.1 dB compression point (P0.1dB) of +23 dBm, and a maximum RF input power level of +26 dBm. The low profile pin package is aluminum with gold plating and supports field replaceable SMA RF connectors and solder pins for DC control. With the connectors removed, the package can be drop mounted onto a PWB. The module has an operational temperature range from -40°C to +85°C and is guaranteed to meet a series of environmental test conditions for Altitude, Vibration, Humidity, and Shock.

Electrical Specifications (Values at +25° C, Sea Level)

Description	Minimum	Typical	Maximum	Units
Frequency Range	8		18	GHz
Impedance		50		Ohms
Phase Shift		360		Degrees
Control Voltage	0	13		Volts
Return Loss*		8	6	dB
Insertion Loss*		6	8	dB
Phase Flatness		±15		Degrees
IL Temperature Coefficient		0.003		dB/deg C
0.1 dB Compression Power		23		dBm
DC Current		5		mA
Input Power, CW			26	dBm

*at 0V DC Control

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Absolute Maximum Rating

Parameter	Rating
Control Voltage	0V to +15V
RF Input power	+26dBm

Mechanical Specifications

Size

Length	0.8 in [20.32 mm]
Width/Diameter	0.56 in [14.22 mm]
Height	0.38 in [9.65 mm]
Weight	0.03 lbs [13.61 g]
Body Material and Plating	Aluminum, Gold

Configuration

Input Connector	SMA Female
Input Connector Specification	Field Replaceable
Output Connector	SMA Female
Output Connector Specification	Field Replaceable

Environmental Specifications

Temperature

Operating Range	-40 to 85 deg C
Storage Range	-50 to 105 deg C

Humidity	100% RH at 35°C, 95% RH at 40°C
Shock	20G for 11 msec half sine wave, 3 axis both directions
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Altitude	30,000 Feet

Compliance Certifications (see [product page](#) for current document)

Plotted and Other Data

Notes:

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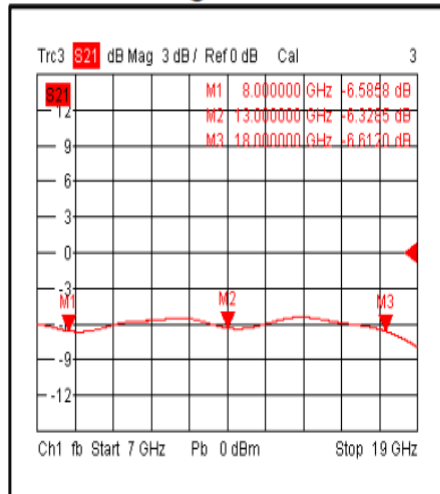
Analog Phase Shifter, 8 GHz to 18 GHz, 360 degree Phase Range, 0V to +13V Control Voltage, Max Pin +26 dBm, SMA

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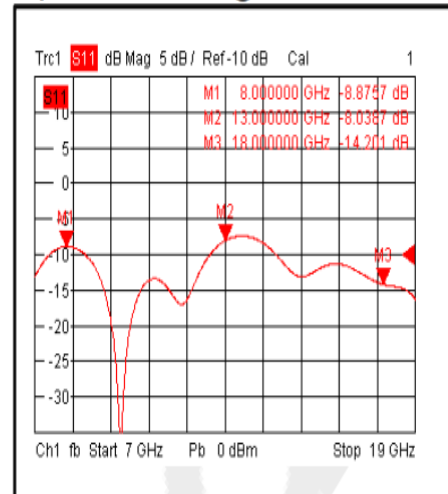
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Typical Performance Data

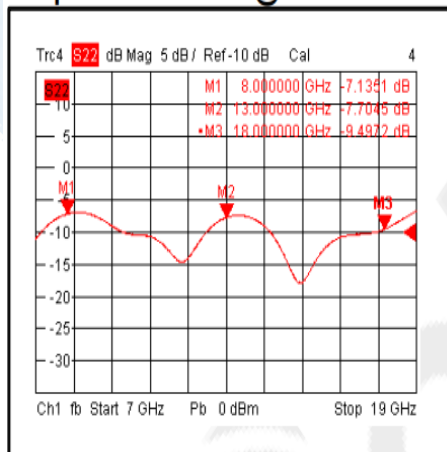
Insertion Loss @ +25°C



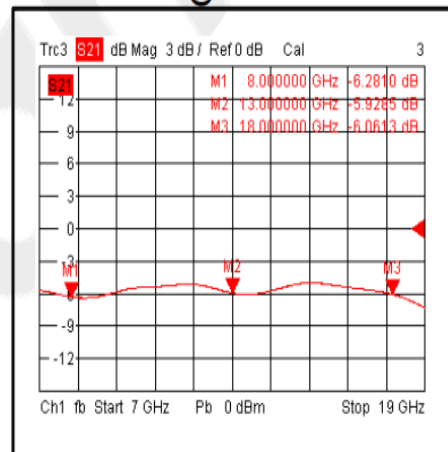
Input Return Loss @ +25°C



Output Return Loss @ +25°C



Insertion Loss @ -40°C



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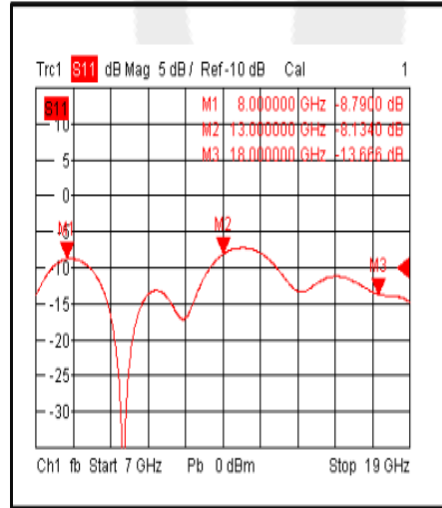


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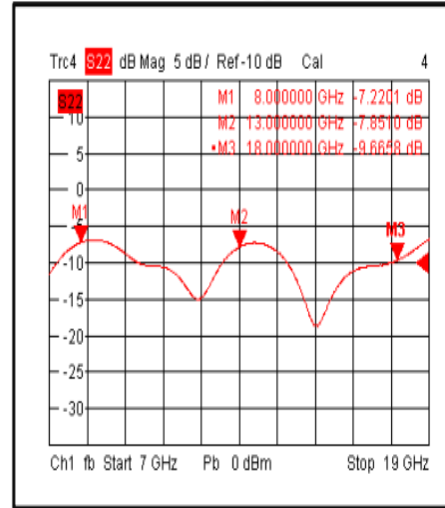
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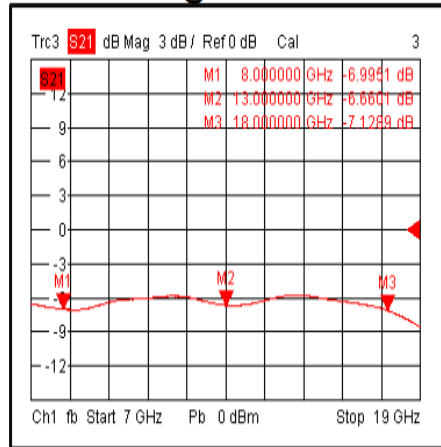
Input Return Loss @ -40°C



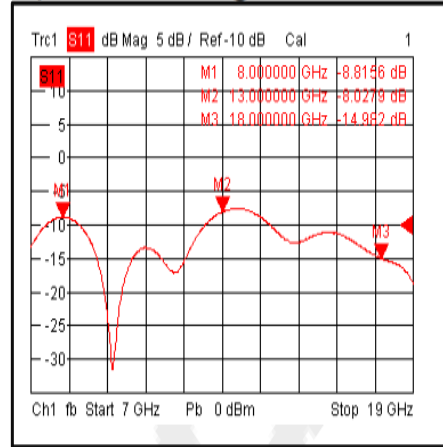
Output Return Loss @ -40°C



Insertion Loss @ +85°C



Input Return Loss @ +85°C



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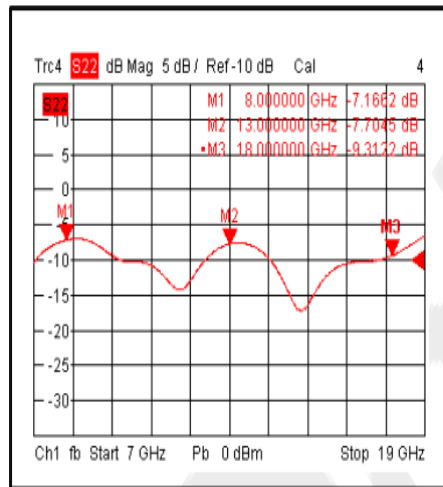


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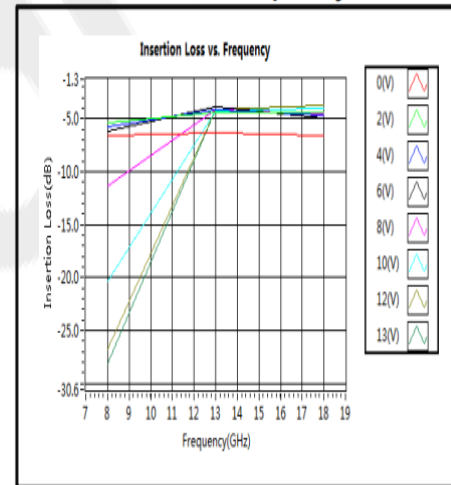
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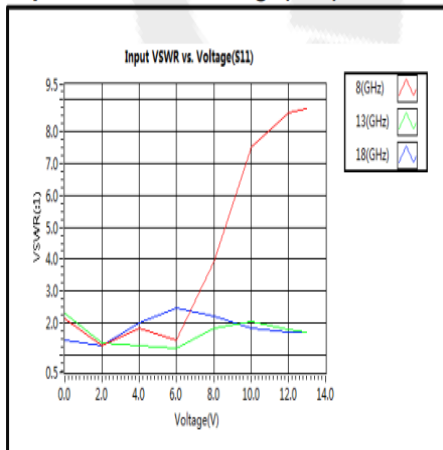
Output Return Loss @ +85°C



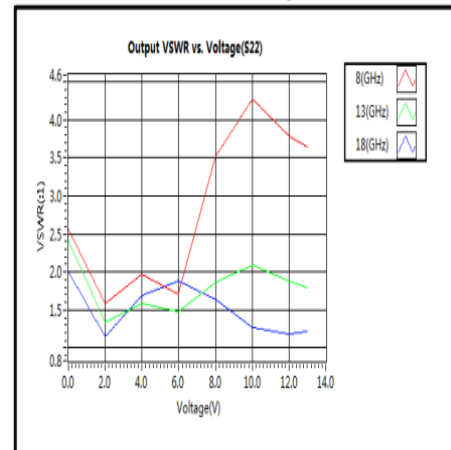
Insertion Loss vs. Frequency



Input VSWR vs. Voltage(S11)



Output VSWR vs. Voltage(S22)



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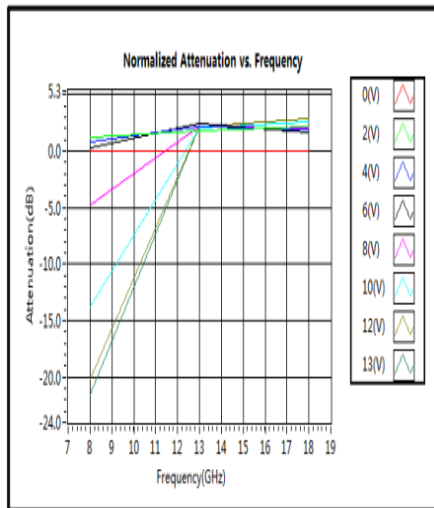


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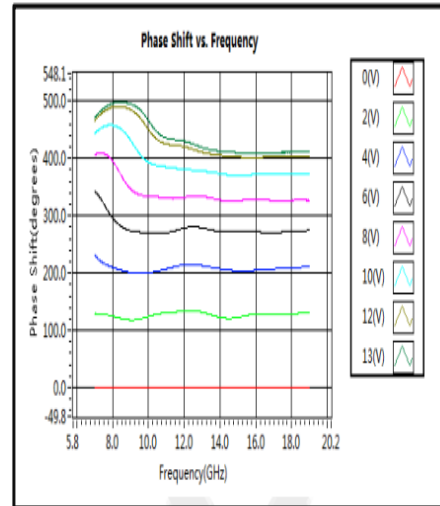
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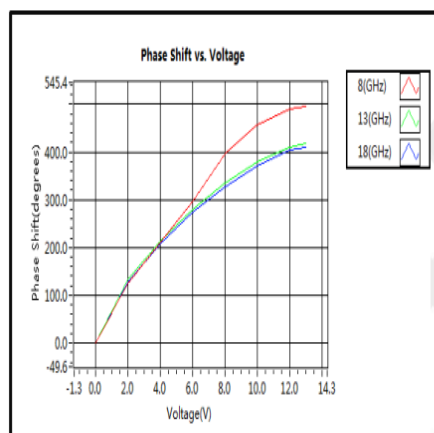
Normalized Attenuation vs. Frequency



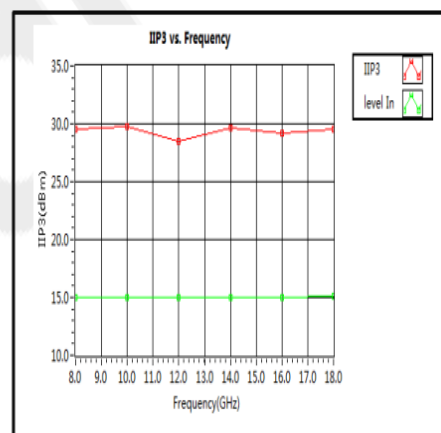
Phase Shift vs. Frequency



Phase Shift vs. Voltage



IIP3



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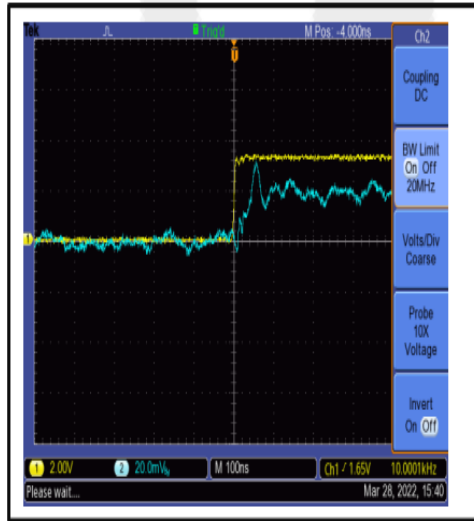


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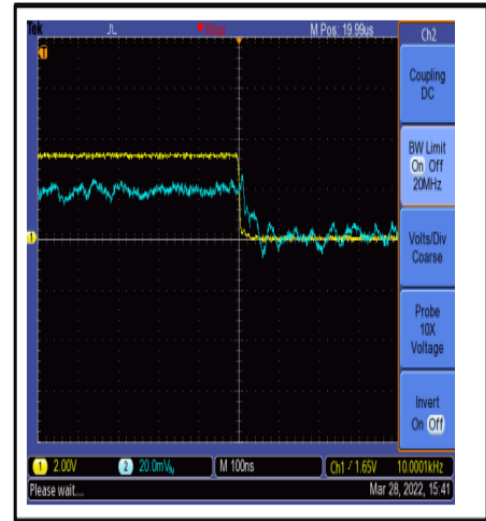
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Speed



Speed



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URL: <https://www.pasternack.com/analog-phase-shifter-18-ghz-0-360-degrees-sma-pe82p2002-p.aspx>

PE82P2002 CAD Drawing

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