

Analog Phase Shifter, 4 GHz to 8 GHz, 360 degree Phase Range, 0V to +10V Control Voltage, Max Pin +27 dBm, SMA



FM82P2003

Features

- Analog Phase Shifter
- 4 GHz to 8 GHz
- Phase Shift 0° to 360° typ
- Insertion Loss 5.5 dB typ
- Phase Flatness +/- 15° typ
- P0.1dB +25 dBm typ
- Maximum RF Input Power +27 dBm
- 50 Ohm Design
- Single Positive Voltage Control 0 to +10Vdc
- 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 FM82P2003 is an Analog Phase Shifter module that operates across a broadband frequency from 4 GHz to 8 GHz and supports a single positive voltage control of 0 to +10 Vdc. The design offers a continuously variable monotonic phase shift response that ranges from 0° to 360° while maintaining consistent insertion loss versus phase shift characteristics. The 50 Ohm design exhibits impressive typical performance which includes 5.5 dB insertion loss, +/-15° phase flatness, a 0.1 dB compression point (P0.1dB) of +25 dBm, and a maximum RF input power level of +27 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 | Min | Typ | Max | Units |
|--|-----|------|-------|----------|
| Frequency Range | 4 | | 8 | GHz |
| Impedance | | 50 | | Ohms |
| Control Voltage | 0 | 10 | | Volts |
| Input VSWR | | 2:1 | 2.5:1 | |
| Insertion Loss | | 5.5 | 6 | dB |
| Phase Flatness | | ±8 | ±15 | Degrees |
| Phase Shift | | 360 | | Degrees |
| Insertion Loss Temperature Coefficient | | 0.11 | | dB/deg C |
| 0.1 dB Compression Power (P0.1 dB) | | 25 | | dBm |
| DC Current | | 5 | | mA |

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

| Description | Min | Typ | Max | Units |
|-----------------|-----|-----|-----|-------|
| Input Power, CW | | | 27 | dBm |

Absolute Maximum Rating

| Parameter | Rating |
|-----------------|------------|
| Control Voltage | 0V to +15V |
| RF Input power | +27dBm |



ESD Sensitive Material, Transport material in Approved ESD bags. Handle only in approved ESD Workstation.

Mechanical Specifications

Size

| | |
|---------------------------|---------------------|
| Length | 0.787 in [19.99 mm] |
| Width/Diameter | 0.551 in [14 mm] |
| Height | 0.374 in [9.5 mm] |
| Weight | 0.02 lbs [9.07 g] |
| Body Material and Plating | Aluminum, Gold |

Configuration

| | |
|------------------------|-------------------|
| Input Connector | SMA Female |
| Input Connector Spec. | Field Replaceable |
| Output Connector | SMA Female |
| Output Connector Spec. | 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 |

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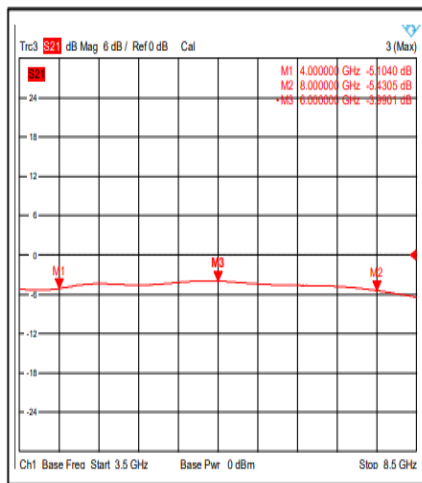
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Compliance Certifications (see [product page](#) for current document)

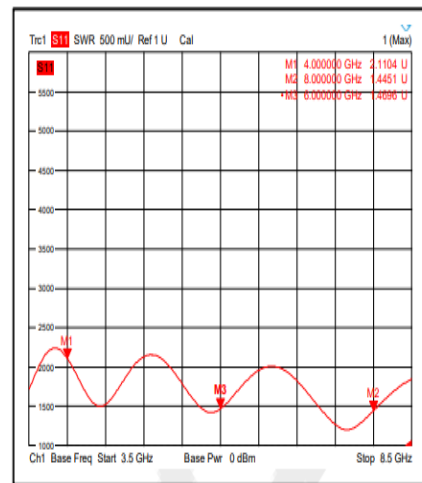
Plotted and Other Data

Typical Performance Data

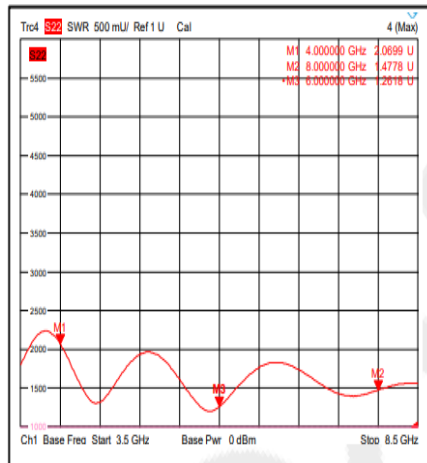
Insertion Loss @ +25°C



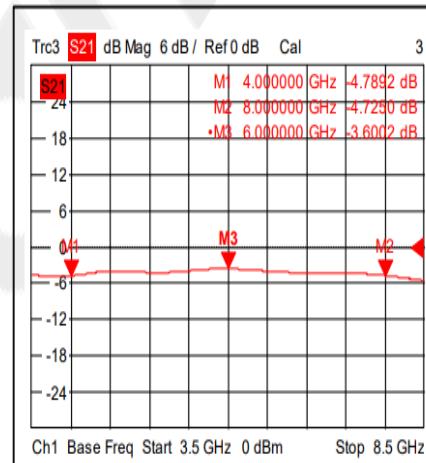
Input VSWR @ +25°C



Output VSWR @ +25°C



Insertion Loss @ -40°C

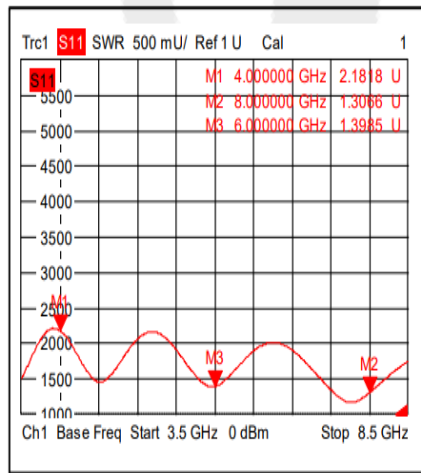


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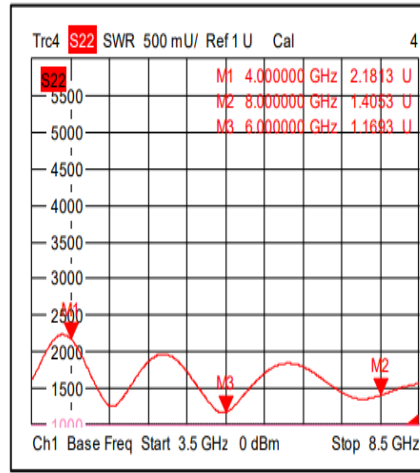


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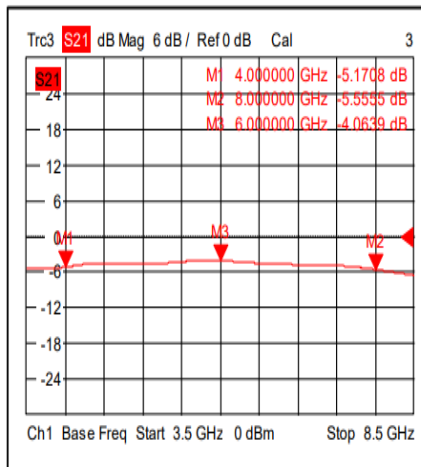
Input VSWR @ -40°C



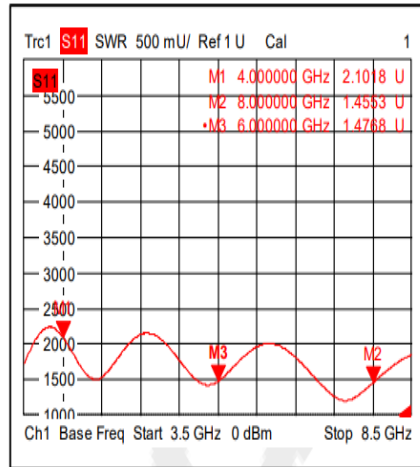
Output VSWR @ -40°C



Insertion Loss @ +85°C



Input VSWR @ +85°C

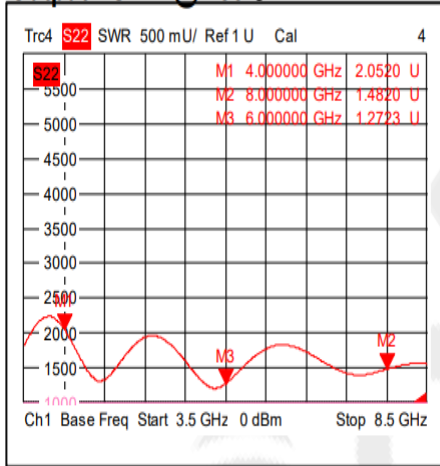


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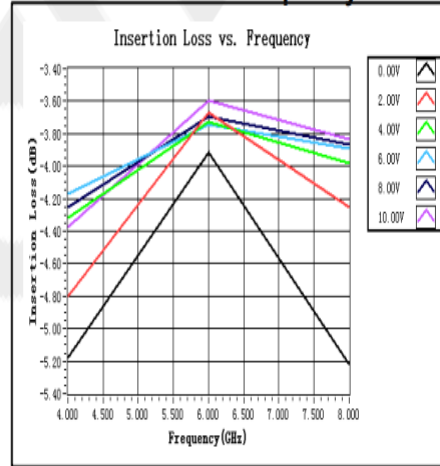


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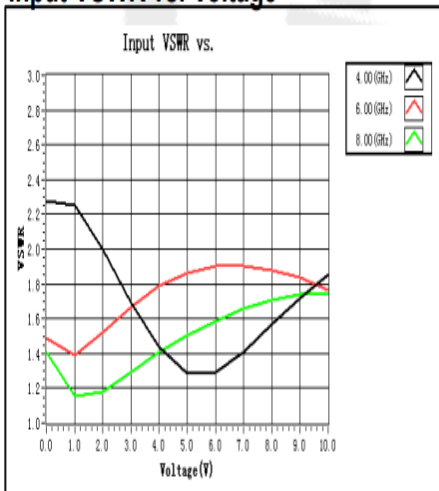
Output VSWR @ +85°C



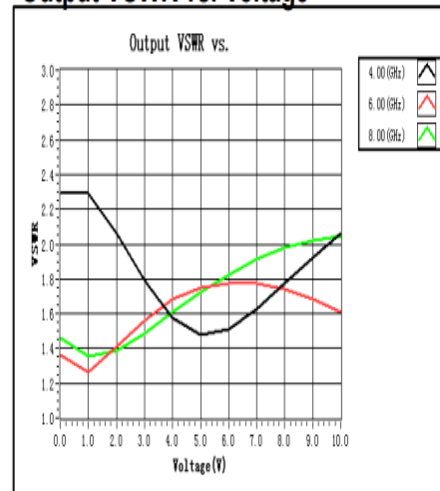
Insertion Loss vs. Frequency



Input VSWR vs. Voltage



Output VSWR vs. Voltage

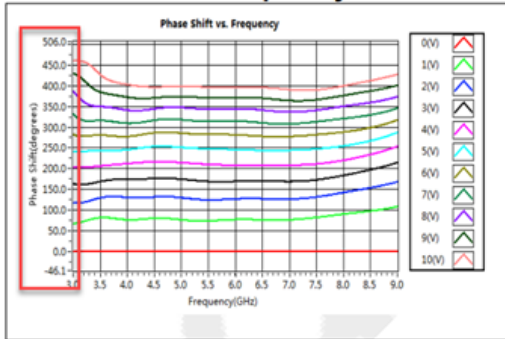


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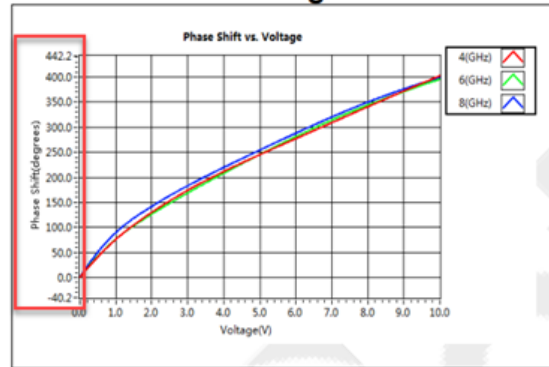


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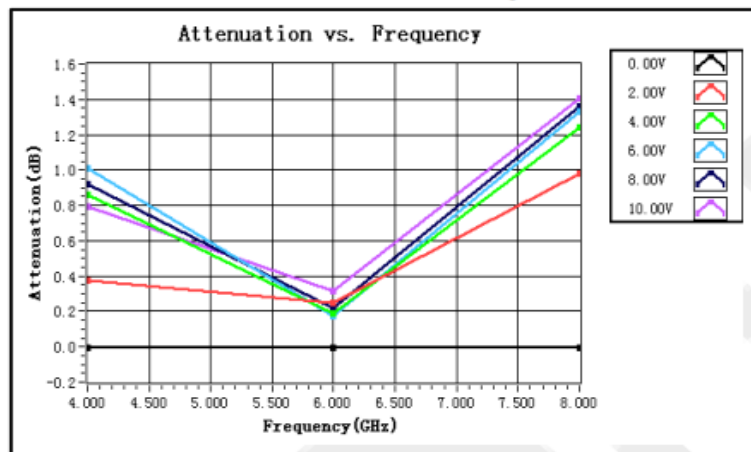
Phase Shift vs. Frequency



Phase Shift vs. Voltage



Attenuation vs. Frequency



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For additional information on this product, please click the following link: [Analog Phase Shifter, 4 GHz to 8 GHz, 360 degree Phase Range, 0V to +10V Control Voltage, Max Pin +27 dBm, SMA FM82P2003](#)

URL: <https://www.fairviewmicrowave.com/sma-analog-phase-shifter-4-8-ghz-fm82p2003-p.aspx>

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FM82P2003 CAD Drawing

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