

Analog Phase Shifter, 2 GHz to 4 GHz, 360 degree Phase Range, 0V to +10V Control Voltage, Max Pin +27 dBm, SMA

The FM82P2004 is an Analog Phase Shifter module that operates across a broadband frequency from 2 GHz to 4 GHz and supports a single positive voltage control of 0 to +10V dc. 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 4 dB insertion loss, +/-10° phase error, 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.



Features:

- Analog Phase Shifter
- 2 GHz to 4 GHz
- Phase Shift 0° to 360° typ
- Insertion Loss 4 dB typ
- Phase Flatness +/- 10° 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

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

Description	Min	Typ	Max	Units
Frequency Range	2		4	GHz
Impedance		50		Ohms
Phase Shift		360		Degrees
Control Voltage	0	10		Volts
Input VSWR		2:1	2.8:1	
Output VSWR				
Insertion Loss*		4	5.5	dB
Phase Error		±10	±15	Degrees
IL Temperature Coefficient		0.1		dB/deg C
0.1 dB Compression Power		25		dBm
DC Current			5	mA
Input Power, CW			27	dBm

*at 0V DC Control

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]

Applications:

- Test & Measurement
- Military & Commercial Communications

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Weight 0.018 lbs [8.16 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

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

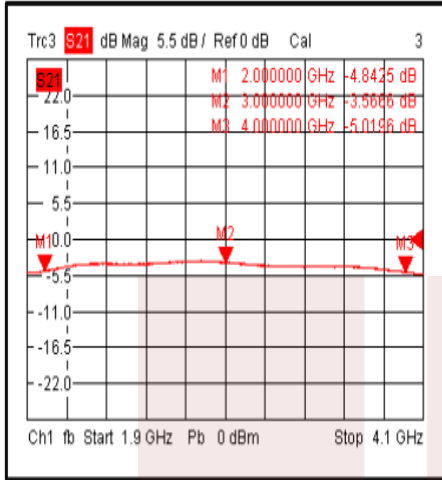
Plotted and Other Data

Notes:

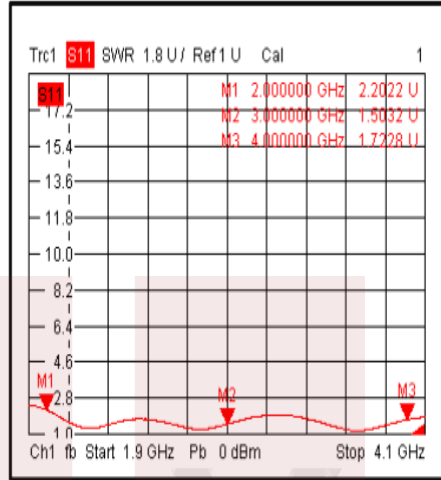


Typical Performance Data

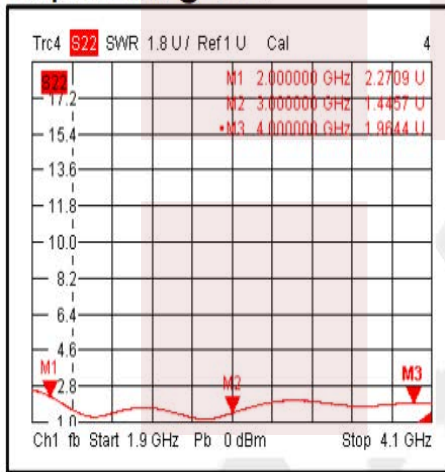
Insertion Loss @ +25°C



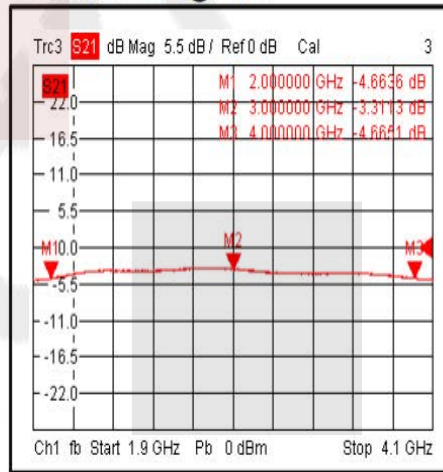
Input VSWR @ +25°C



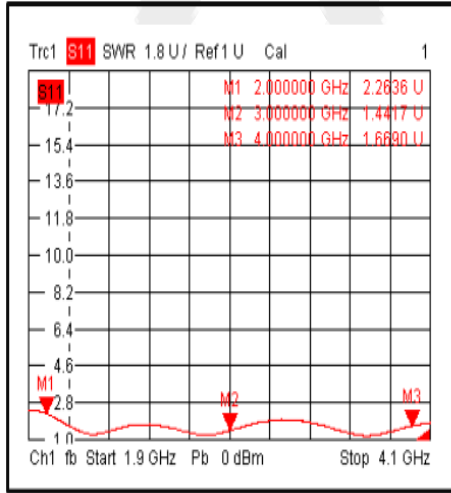
Output VSWR @ +25°C



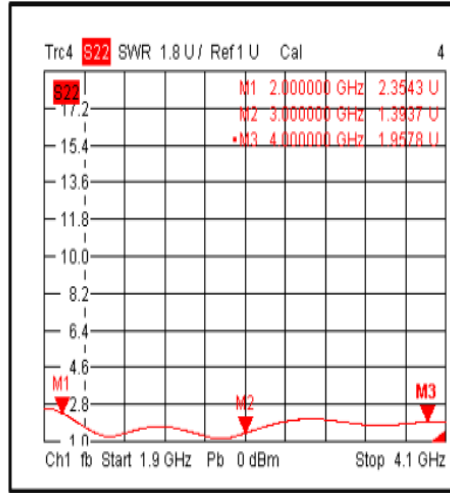
Insertion Loss @ -40°C



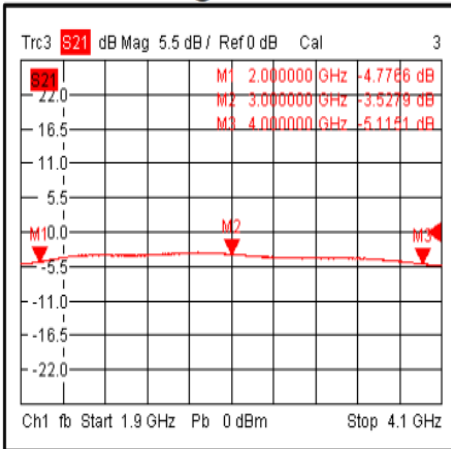
Input VSWR @ -40°C



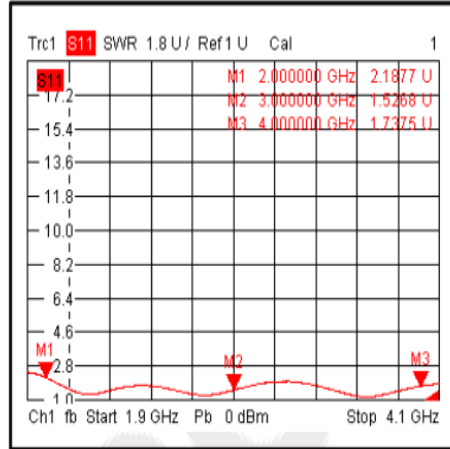
Output VSWR @ -40°C



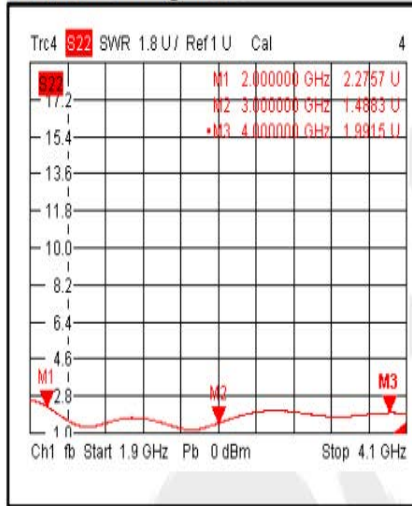
Insertion Loss @ +85°C



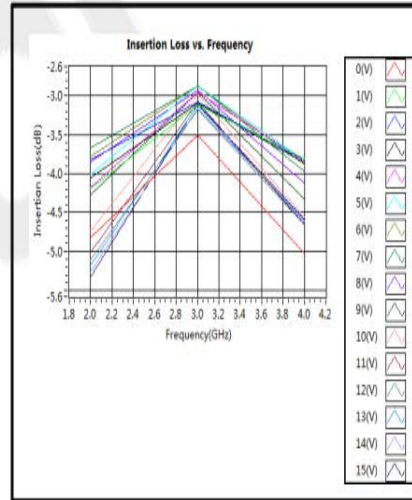
Input VSWR @ +85°C



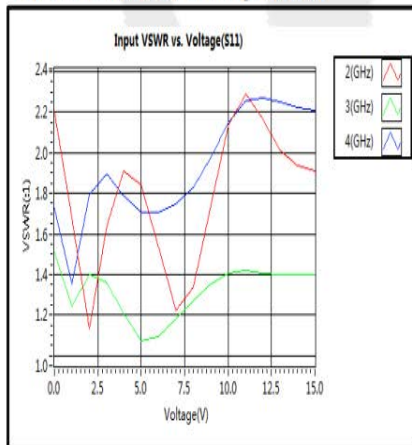
Output VSWR @ +85°C



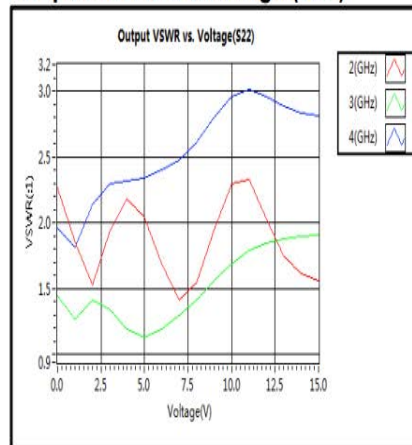
Insertion Loss vs. Frequency



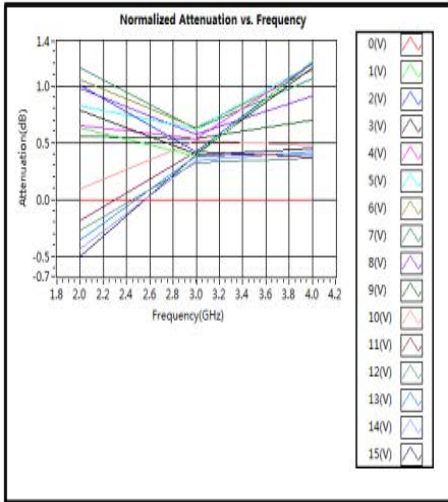
Input VSWR vs. Voltage (S11)



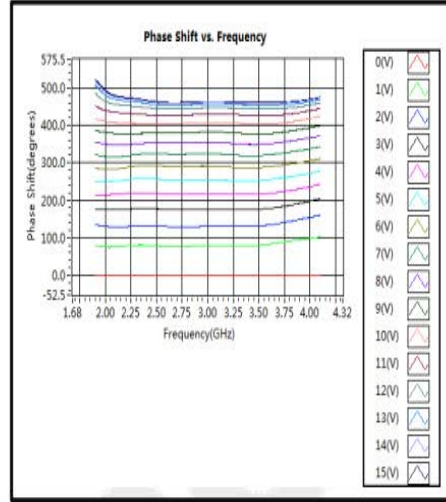
Output VSWR vs. Voltage (S22)



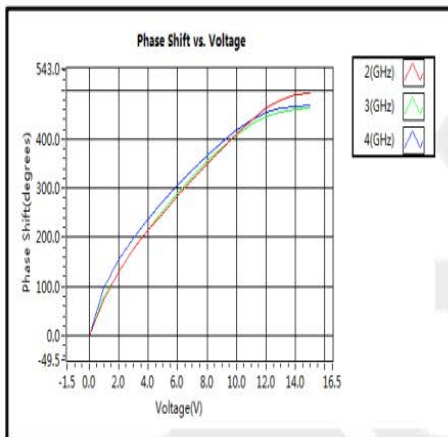
Normalized Attenuation vs. Frequency



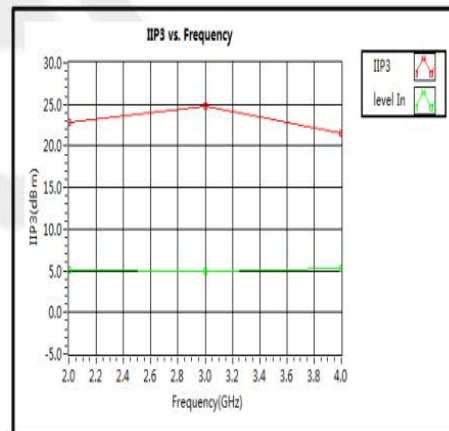
Phase Shift vs. Frequency



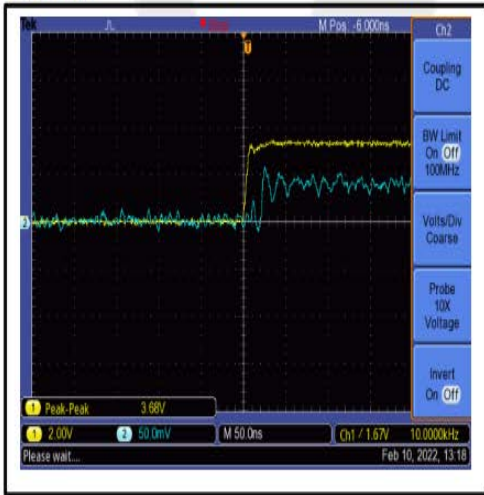
Phase Shift vs. Voltage



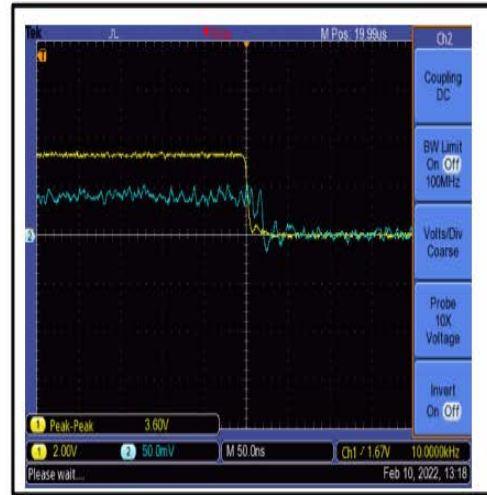
IIP3



Speed



Speed

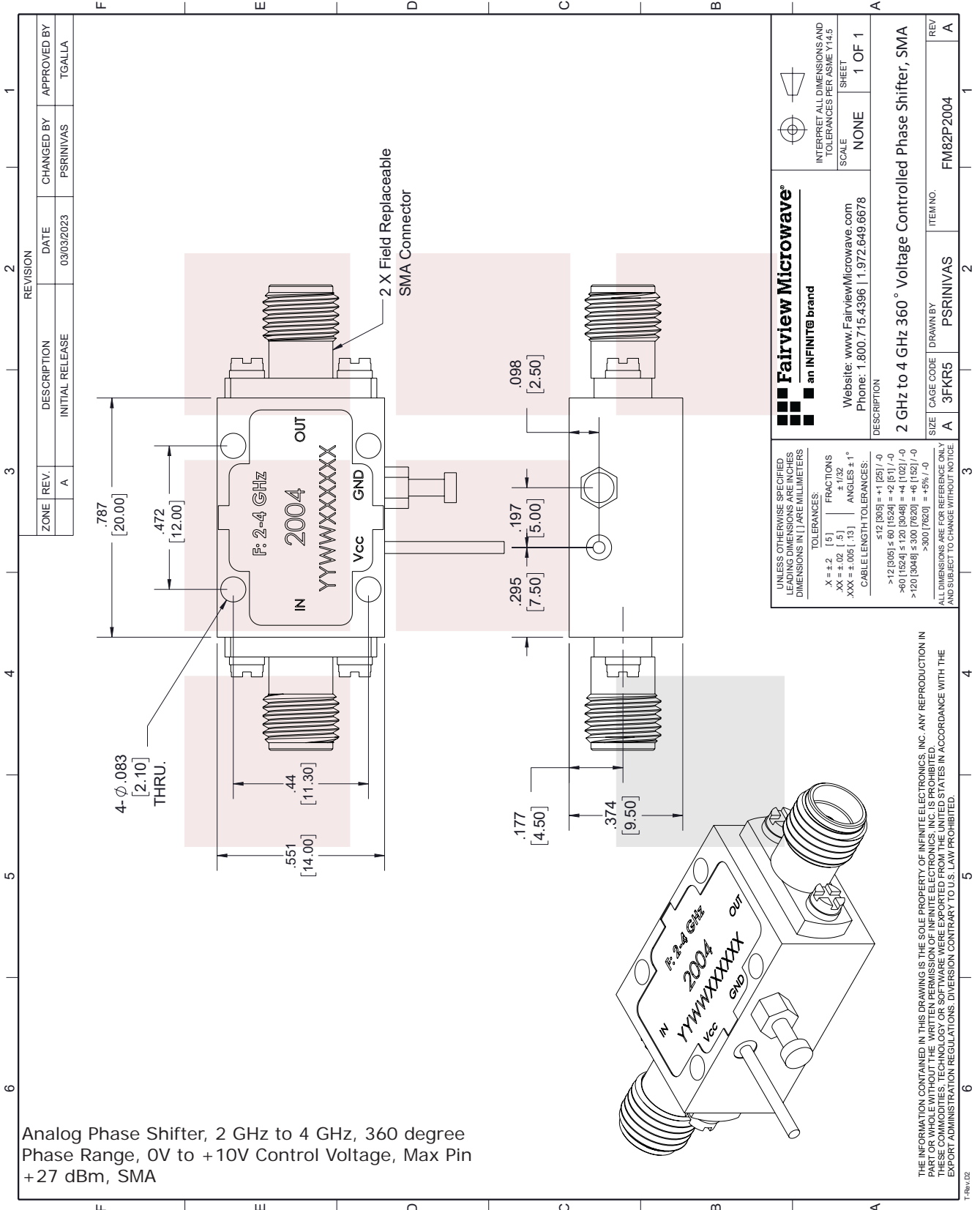


Analog Phase Shifter, 2 GHz to 4 GHz, 360 degree Phase Range, 0V to +10V Control Voltage, Max Pin +27 dBm, SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [Analog Phase Shifter, 2 GHz to 4 GHz, 360 degree Phase Range, 0V to +10V Control Voltage, Max Pin +27 dBm, SMA FM82P2004](https://www.fairviewmicrowave.com/sma-analog-phase-shifter-2-4-ghz-fm82p2004-p.aspx)

URL: <https://www.fairviewmicrowave.com/sma-analog-phase-shifter-2-4-ghz-fm82p2004-p.aspx>

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