

Analog Phase Shifter, 1 GHz to 2 GHz, 360 degree Phase Range, 0V to +12V Control Voltage, Max Pin +27 dBm , SMA

The FM82P2005 is an Analog Phase Shifter module that operates across a frequency range from 1 GHz to 2 GHz and supports a single positive voltage control of 0 to +12Vdc. 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 4.5 dB insertion loss, +/-15° phase flatness, a 0.1 dB compression point (PO.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
- 1 GHz to 2 GHz
- Phase Shift 0° to 360° typ
- Insertion Loss 4.5 dB typ
- Phase Flatness +/- 15° typ
- PO.1dB +25 dBm typ
- Maximum RF Input Power +27 dBm
- 50 Ohm Design
- Single Positive Voltage Control 0 to +12Vdc
- 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	1		2	GHz
Impedance		50		Ohms
Phase Shift		360		Degrees
Control Voltage	0	12		Volts
Input VSWR		2.2:1	2.5:1	
Output VSWR				
Insertion Loss*		4.5	5.5	dB
Phase Flatness			±15	Degrees
IL Temperature Coefficient		0.16		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 0.016 lbs [7.26 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

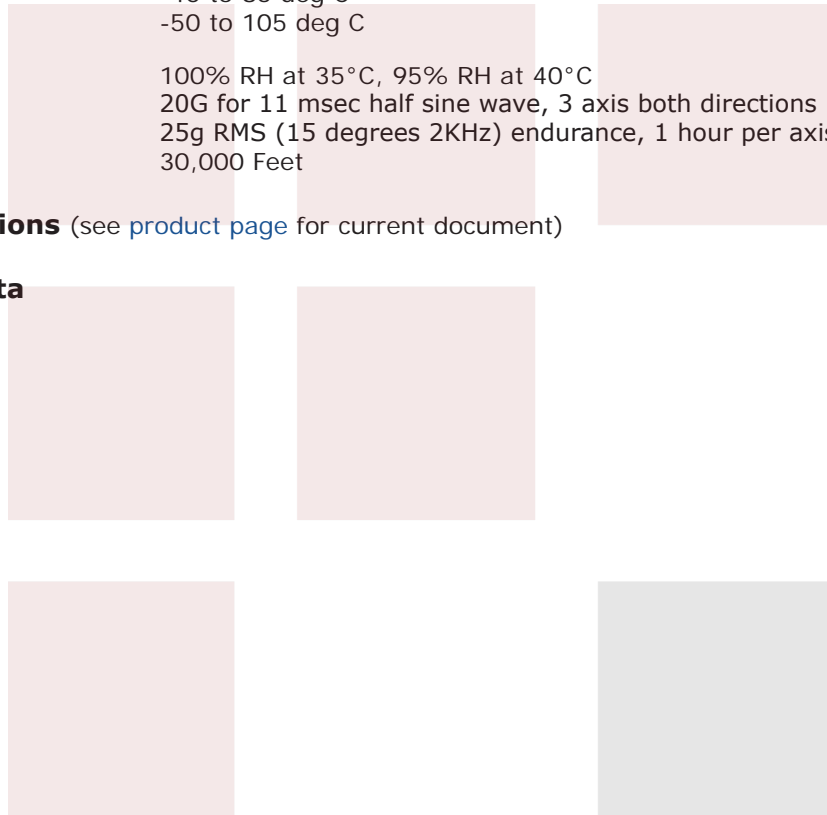
Operating Range -40 to 85 deg C
Storage Range -50 to 105 deg C

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)

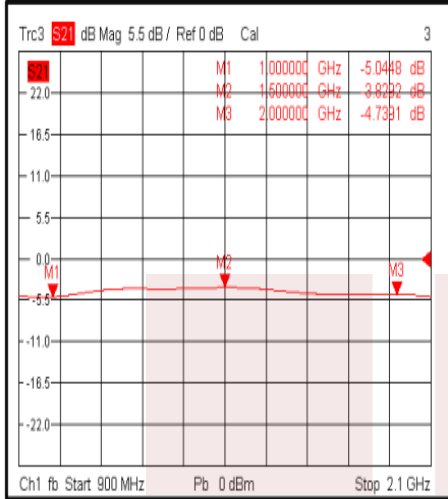
Plotted and Other Data

Notes:

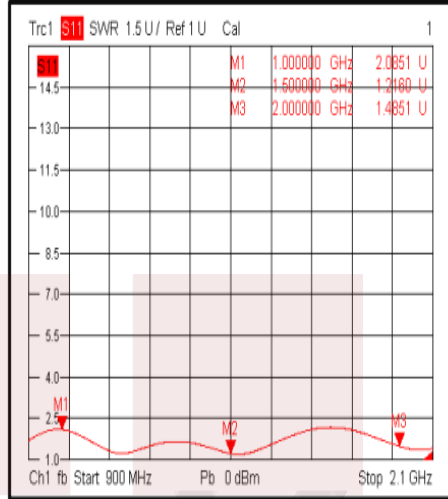


Typical Performance Data

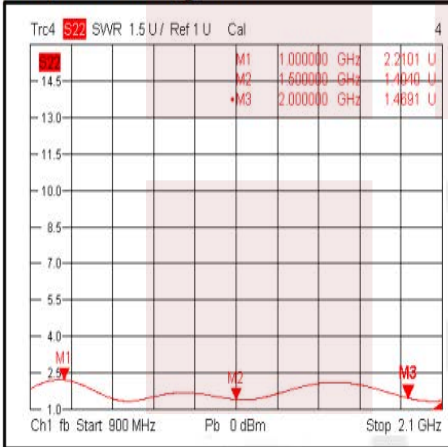
Insertion Loss @ +25°C



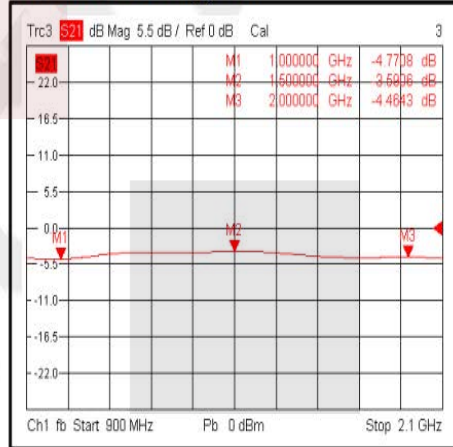
Input VSWR @ +25°C



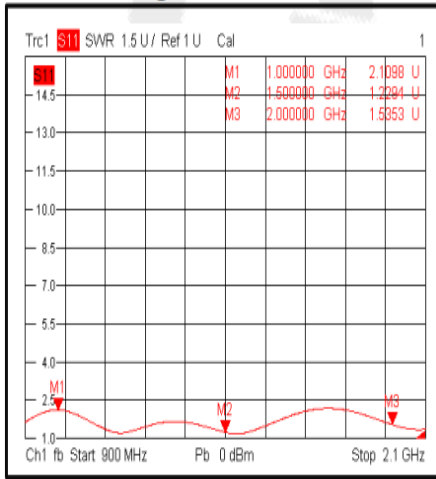
Output VSWR @ +25°C



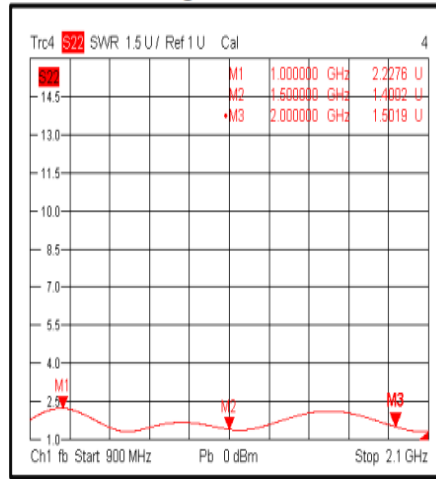
Insertion Loss @ -40°C



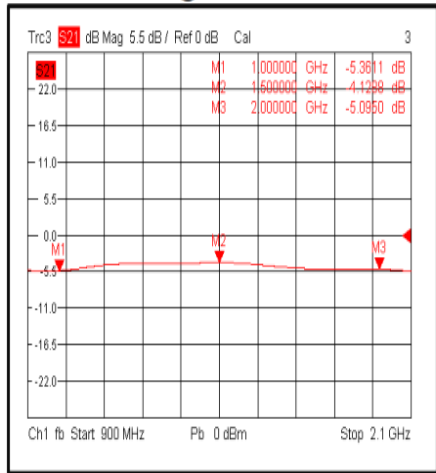
Input VSWR @ -40°C



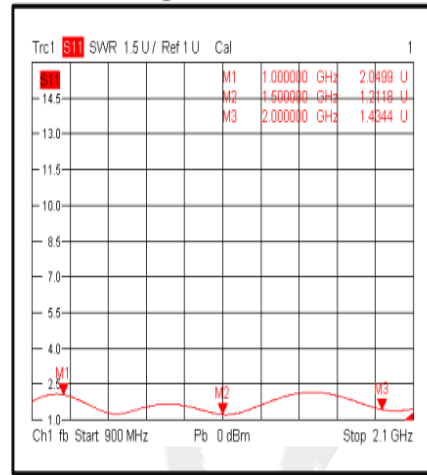
Output VSWR @ -40°C



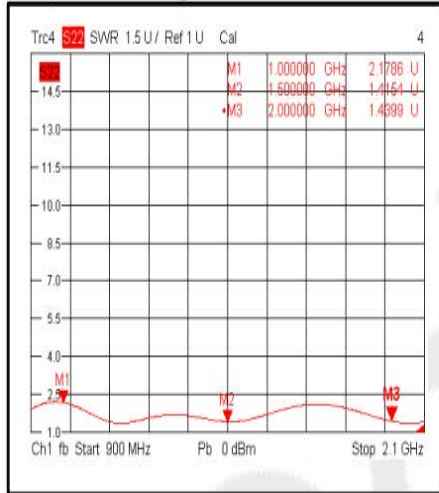
Insertion Loss @ +85°C



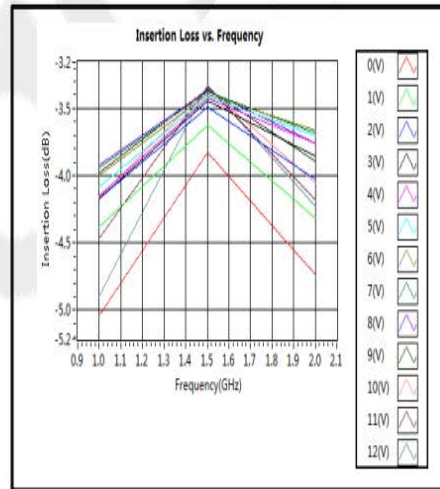
Input VSWR @ +85°C



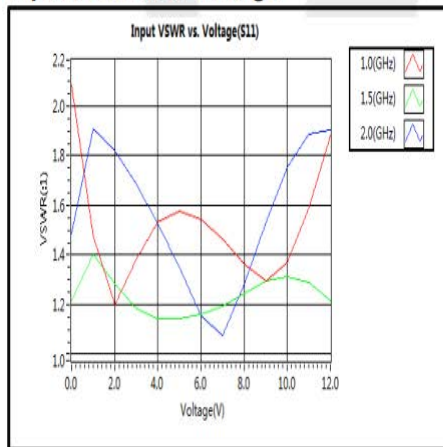
Output VSWR @ +85°C



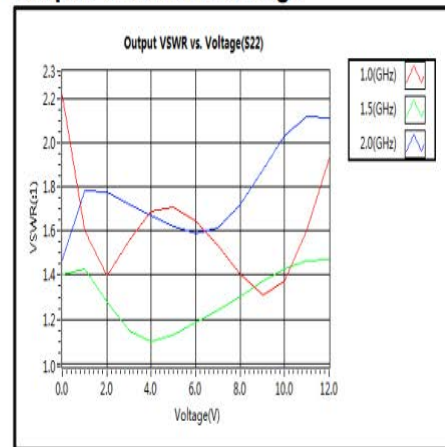
Insertion Loss vs. Frequency



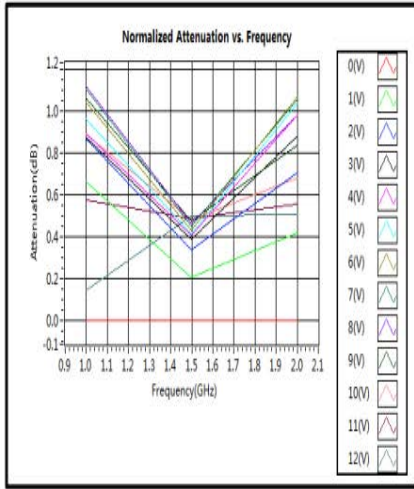
Input VSWR vs. Voltage



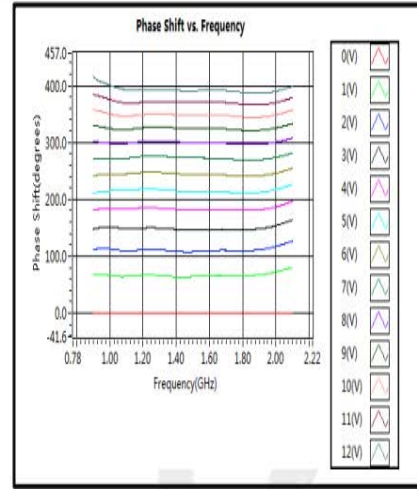
Output VSWR vs. Voltage



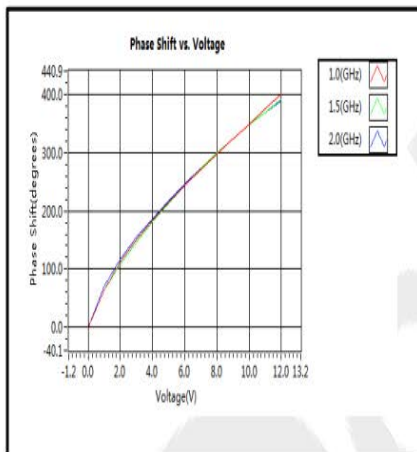
Normalized Attenuation vs. Frequency



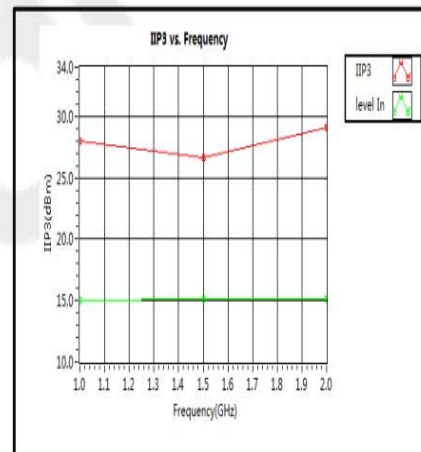
Phase Shift vs. Frequency



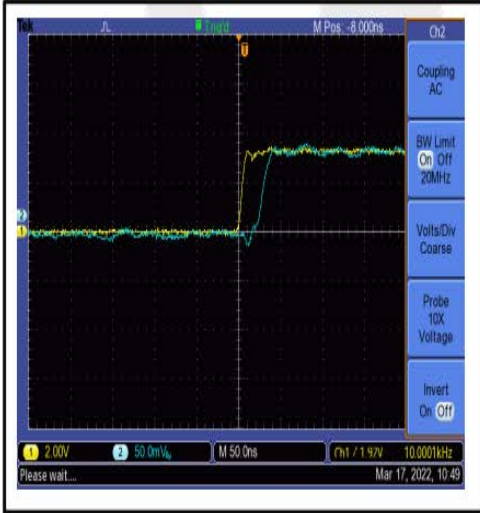
Phase Shift vs. Voltage



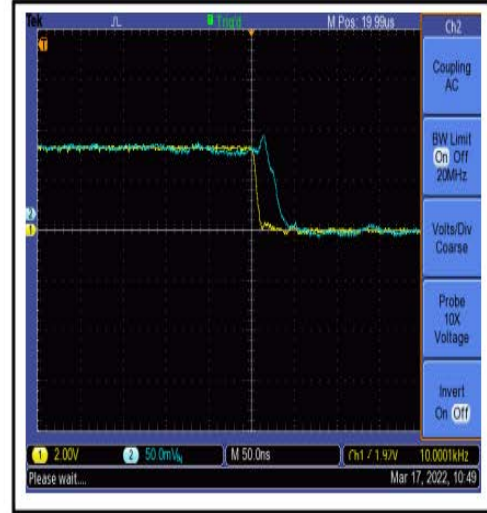
IIP3



Speed



Speed

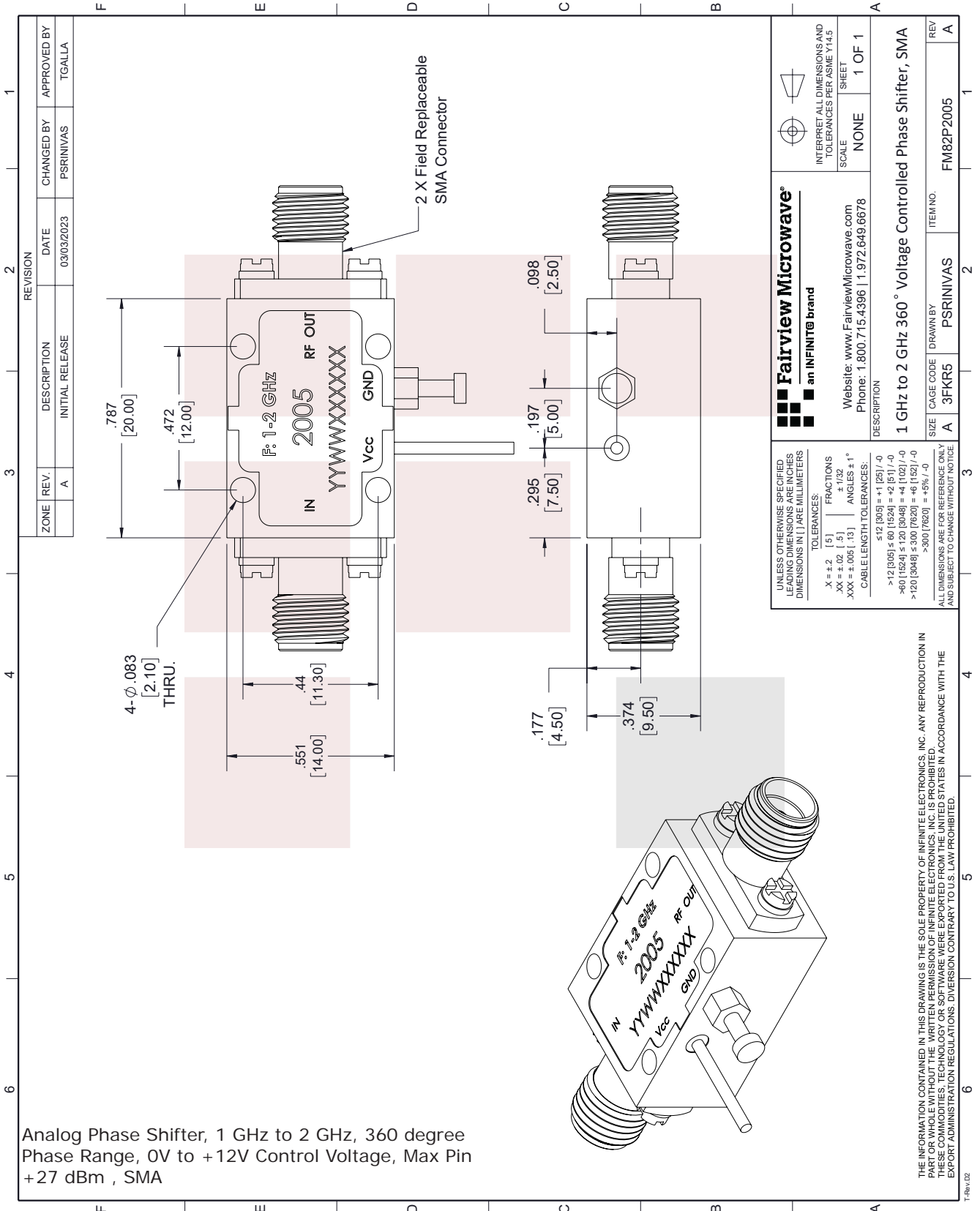


Analog Phase Shifter, 1 GHz to 2 GHz, 360 degree Phase Range, 0V to +12V Control Voltage, Max Pin +27 dBm , SMA from Fairview Microwave is in-stock and available to ship same-day. All of our RF/microwave products are available off-the-shelf from our ISO 9001:2008 certified facilities in Lewisville, Texas. Fairview Microwave is RF on-demand.

For additional information on this product, please click the following link: [Analog Phase Shifter, 1 GHz to 2 GHz, 360 degree Phase Range, 0V to +12V Control Voltage, Max Pin +27 dBm , SMA FM82P2005](https://www.fairviewmicrowave.com/sma-analog-phase-shifter-1-2-ghz-fm82p2005-p.aspx)

URL: <https://www.fairviewmicrowave.com/sma-analog-phase-shifter-1-2-ghz-fm82p2005-p.aspx>

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REVISION		DATE	CHANGED BY	APPROVED BY
ZONE	REV.	DESCRIPTION	INITIAL RELEASE	
	A		03/03/2023	PSRINIVAS
				TGALLA

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INTERPRET ALL DIMENSIONS AND TOLERANCES PER ASME Y14.5
SCALE NONE
SHEET 1 OF 1

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. DIMENSIONS IN PAREMETERS ARE IN MILLIMETERS.

TOLERANCES:
 .X = ±.2 (5) FRACTIONS
 .XX = ±.02 (.5) ANGLES ± 1°
 .XXX = ±.005 (.13)
 CABLE LENGTH TOLERANCES:
 ≤ 12 (305) = ± 1 (25) / -0
 > 12 (305) ≤ 60 (1524) = ± 2 (51) / -0
 > 60 (1524) ≤ 120 (3048) = ± 4 (102) / -0
 > 120 (3048) ≤ 300 (7620) = ± 6 (152) / -0
 > 300 (7620) = ± 5% / -0

ALL DIMENSIONS ARE FOR REFERENCE ONLY AND SUBJECT TO CHANGE WITHOUT NOTICE.

DESCRIPTION
1 GHz to 2 GHz 360° Voltage Controlled Phase Shifter, SMA

REV	ITEM NO.	SIZE	CAGE CODE	DRAWN BY	ITEM NO.
A	3FKR5	PSRINIVAS	FM82P2005		

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