



26.5 GHz to 40 GHz, Bi-Phase Modulator,
0/180 Degrees, TTL Control, 100nsec Speed, SMA

TECHNICAL DATA SHEET

PE86GM2008

The PE86GM2008 is a 0° to 180° Bi-Phase Modulator that operates across a broadband frequency range from 26.5 GHz to 40 GHz. This modulator takes a TTL level digital bit stream and encodes it onto the RF carrier using 2 phase shift keying (2PSK). 2 Phase Shift Keying utilizes 2 phases which are separated by 180°. Impressive typical performance includes low insertion loss of 5.5 dB, 50 nsec switching speed, broadband phase shift +/- 30°, and amplitude balance of +/- 2 dB. The design is bidirectional with input and output RF ports, and employs dual bias voltages (+5/-5 Vdc) and integrated TTL processing to phase modulate the control data onto the RF, and operates across a wide temperature range of -55°C to +85°C. The rugged and compact package uses TTL, Bias, Ground pins, and field replaceable SMA Female connectors. The high reliability design meets MIL-STD-202 environmental test conditions for Humidity, Shock, Vibration, Altitude, and Temperature Cycle.

Features

- 0° to 180° Bi-Phase Modulator module
- 2 Phase Shift Keying (2PSK) Modulation
- Frequency Range: 26.5 GHz to 40 GHz
- Insertion Loss: 5.5 dB typ
- Switching Speed 50 nsec typ
- Broadband Phase Shift +/- 30°
- Amplitude Balance +/- 2 dB
- Compact Package Design
- Field Replaceable 2.92mm Connectors
- Dual Bias Voltage: +5/-5 Vdc
- Integrated TTL Driver
- -55°C to +85°C Operating Temperature
- Designed to meet MIL-STD-202 Test Conditions
- Bi-directional Operation

Applications

- Communication Systems
- Microwave Radio
- Radar
- High Data Rate Test & Measurement
- Serial Data Transmission
- Basestation Infrastructure

Electrical Specifications

Description	Minimum	Typical	Maximum	Units
Frequency Range	26.5		40	GHz
Impedance		50		Ohms
VSWR		2:1	3:1	
Phase Shift		±30		Degrees
Insertion Loss		5.5		dB
Amplitude Balance		±2		dB
Switch Speed (Risetime)		50	100	ns
Phase State (Off)		0		degrees
Phase State (On)		180		degrees
Bias Voltage (+)		5		Volts
Bias Voltage (-)		-5		Volts
Bias Current @ +5 Vdc		40	70	mA
Bias Current @ -5 Vdc		7	30	mA

Click the following link (or enter part number in "SEARCH" on website) to obtain additional part information including price, inventory and certifications: [26.5 GHz to 40 GHz, Bi-Phase Modulator, 0/180 Degrees, TTL Control, 100nsec Speed, SMA PE86GM2008](#)



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Mechanical Specifications

Size

Length	1 in	[25.4mm]
Width	1 in	[25.4 mm]
Height	0.5 in	[12.7 mm]
Weight	0.125 lbs	[56.7 g]

Configuration

Design	Bi-Phase Modulator
Connector Option	Field Replaceable
RF Connector	SMA Female

Environmental Specifications

Temperature

Operating Range	-55°C to +85°C
Storage Range	-65°C to +125°C

Humidity	90 % Non-Condensing
Shock	MIL-STD-202, Method 213B Cond. B
Vibration	MIL-STD-202, Method 204D Cond. B
Altitude	MIL-STD-202, Method 105C Cond. B
Temperature Cycle	MIL-STD-202, Method 107D Cond. A

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

Plotted and Other Data

Notes:

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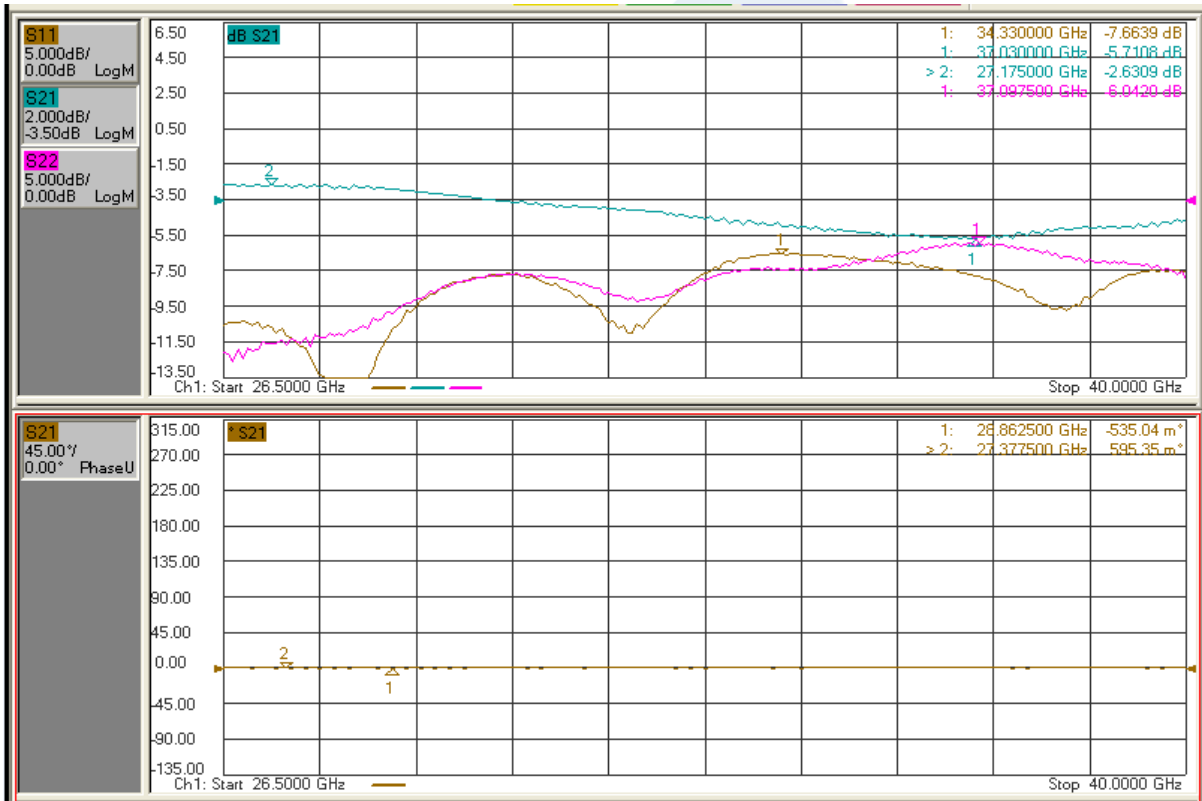
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Typical Performance Data

INSERTION LOSS, RETURN LOSS AND 0 DEGREES PHASE



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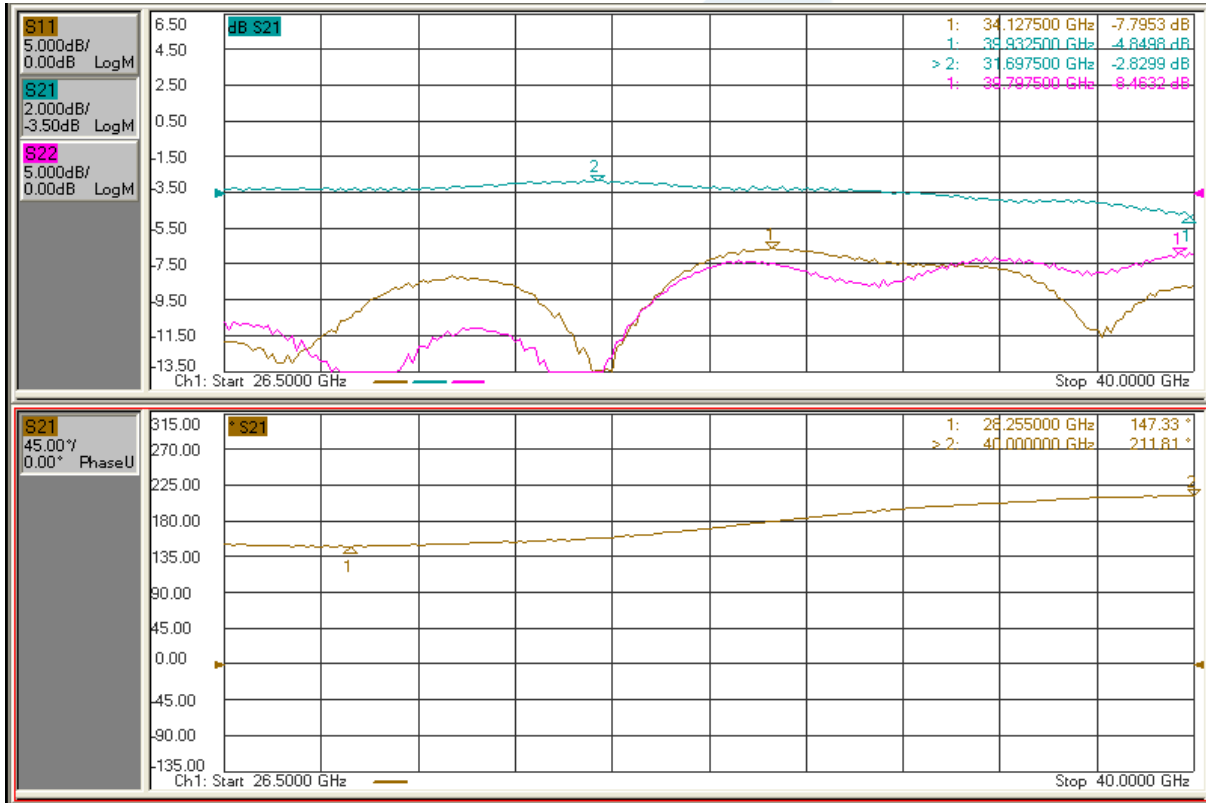


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INSERTION LOSS, RETURN LOSS AND 180 DEGREES PHASE



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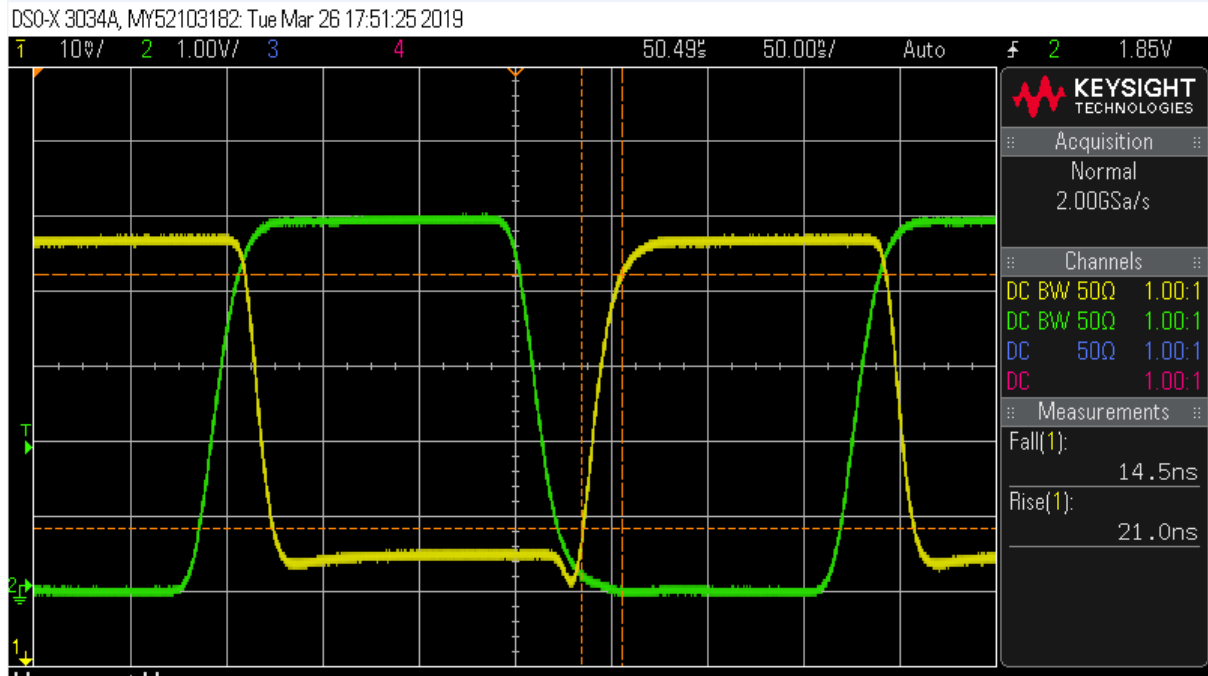


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BI-PHASE SWITCHING SPEED



GREEN TRACE – TTL SIGNAL
YELLOW TRACE – RF SIGNAL (AMPLITUDE VARIATION BETWEEN PHASES,
MEASURED WITH TUNEL DIODE DETECTOR)

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26.5 GHz to 40 GHz, Bi-Phase Modulator, 0/180 Degrees, TTL Control, 100nsec Speed, SMA from Pasternack Enterprises has same day shipment for domestic and International orders. Our RF, microwave and millimeter wave products maintain a 99.4% availability and are part of the broadest selection in the industry.

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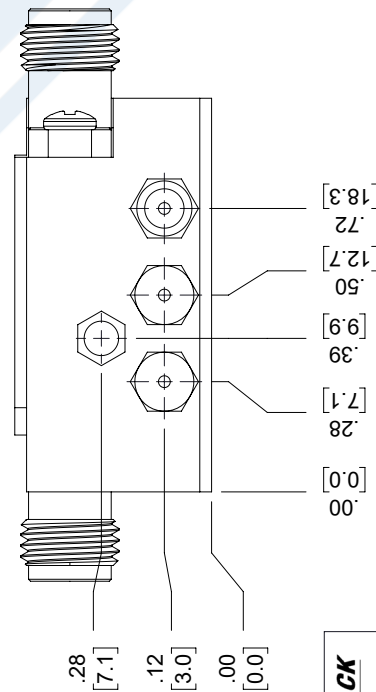
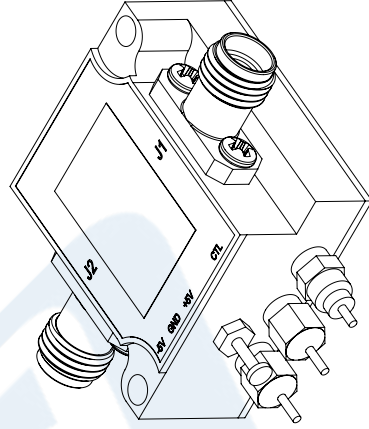
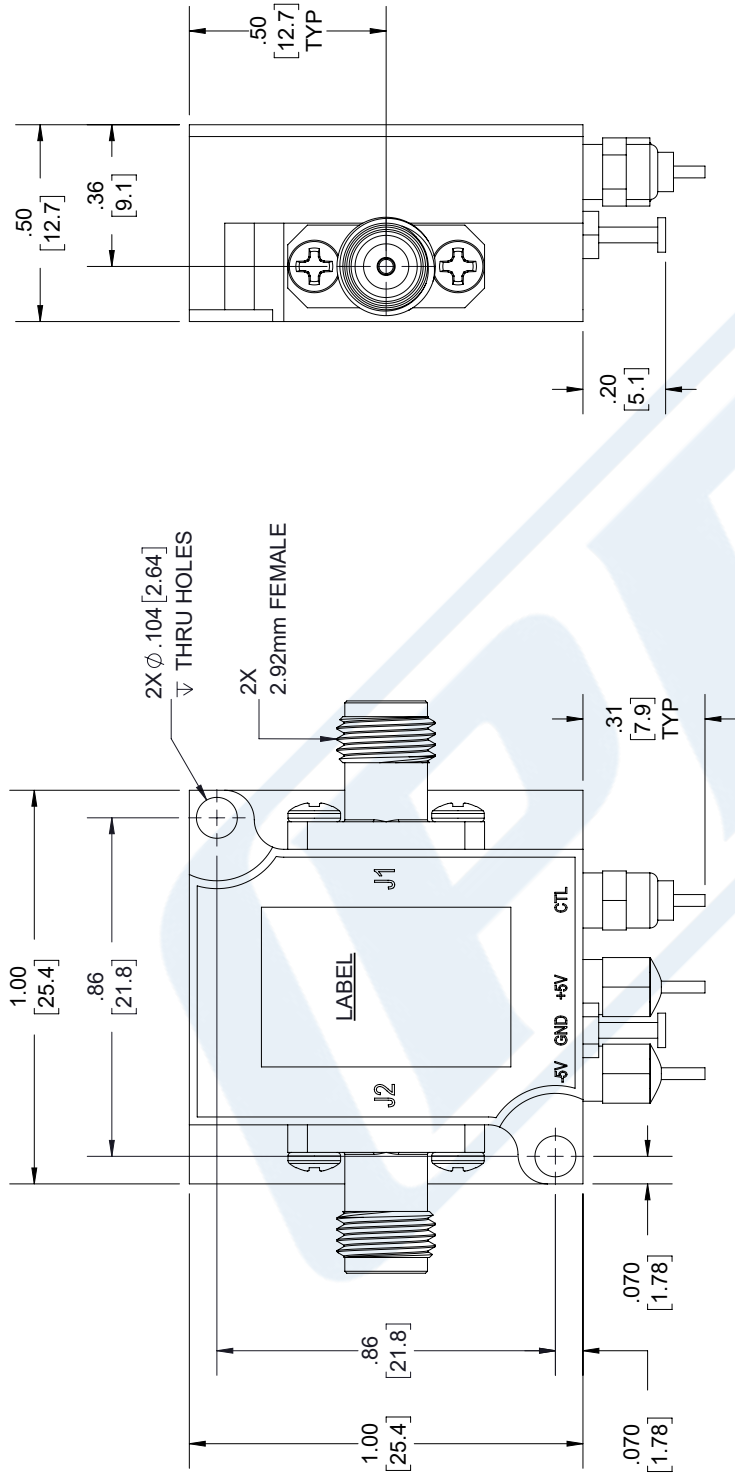
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PE86GM2008 CAD Drawing

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	06/06/19	T. GALLA



LABEL:

PE PASTERNAK
an INFINITO brand

BI-PHASE MODULATOR
MODEL NO:
PE86GM2008
SERIAL NO:
PLXXXXXX/XXXX

UNLESS OTHERWISE SPECIFIED
LEADING DIMENSIONS ARE INCHES
DIMENSIONS IN [] ARE MILLIMETERS

TOLERANCES:
X±± 2 [5.08] FRACTIONS
XX±± .01 [.25] ±132
XXX±± .005 [.13] ANGLES ± 1°

ALL DIMENSIONS SHOWN
ARE FOR REFERENCE ONLY.

THIRD-ANGLE PROJECTION

PE PASTERNAK
an INFINITO brand

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SHEET 1 OF 1
SCALE N/A

SIZE A
CAGE DRAWN BY K.DANG
PART NUMBER PE86GM2008
REV A

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