



**TYPICAL CHARACTERISTICS
ON
PS-90-6012-HS15NS-OPT10G**

**PMI MODEL: PS-90-6012-HS15NS-OPT10G IS A HIGH SPEED 10 GHz
FREQUENCY RANGE, 0 TO 180 DEGREE, MINIATURE, BI-PHASE
MODULATOR/PHASE SHIFTER WITH TTL CONTROL LOGIC (ECL LOGIC IS
AVAILABLE)**



February 15, 2018 (Updated 9/13/2022)

DESIGNED BY: PMI ENGINEERING

TESTED AND REPORTED BY: E. KRETZ



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ON
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TABLE OF CONTENTS

| | | |
|----|----------------------------------|---|
| 1. | Product Feature: ----- | 3 |
| 2. | Test Data Summary: ----- | 4 |
| 3. | Return Loss Plot: ----- | 5 |
| 4. | VSWR Plot: ----- | 5 |
| 5. | Phase Plot: ----- | 6 |
| 6. | Carrier Suppression: ----- - | 6 |
| 7. | Full Pulse Plots: ----- | 7 |
| 8. | Delay 0 to 180 Deg. Plots: ----- | 8 |
| 9. | Delay 180 to 0 Deg. Plots: ----- | 9 |



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OUTLINE DRAWING

DESCRIPTION

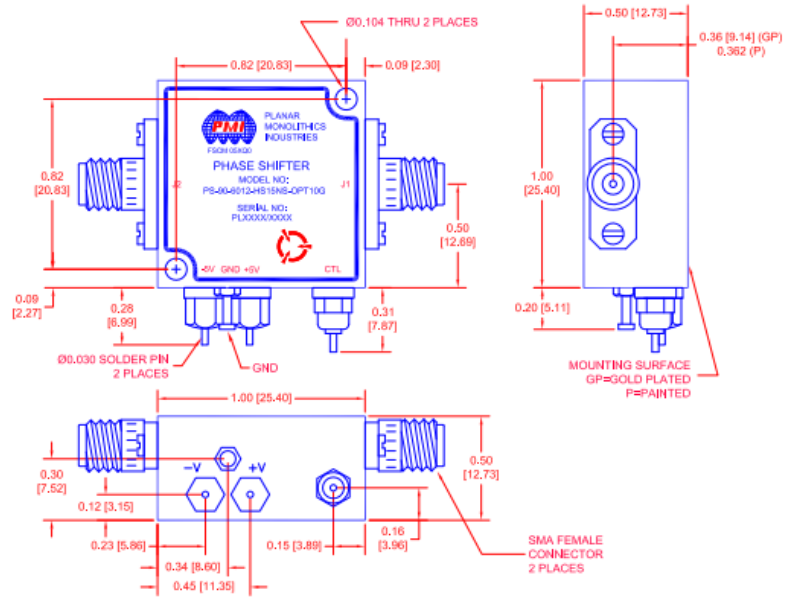
PMI MODEL PS-90-6012-HS15NS-OPT10G IS A HIGH SPEED 10 GHz FREQUENCY RANGE, 0 TO 180 DEGREE, MINIATURE, BI-PHASE MODULATOR/PHASE SHIFTER WITH TTL CONTROL LOGIC (ECL LOGIC IS AVAILABLE).

| REVISIONS | | | | |
|-----------|------|------------------|------------|----------|
| ZONE | REV. | DESCRIPTION | DATE | APPROVED |
| | A1 | ORIGINAL RELEASE | 11/18/2017 | |
| | B1 | ECN # 18-0064 | 2/16/18 | |

SPECIFICATIONS

- FREQUENCY RANGE: ----- 10 GHz
- INSERTION LOSS: ----- 2.5 dB TYPICAL
3.0 dB MAXIMUM
- PHASE SHIFT ACCURACY: ----- ±0° GOAL, ±1° MAXIMUM
(@ ROOM TEMPERATURE)
- MODULATION RATE: ----- 1 MHz
- VSWR INPUT: ----- 2.0:1 TYPICAL
2.5:1 MAXIMUM
- OPERATING INPUT POWER: ----- +20 dBm OPERATING
- SPEED: ----- 15 ns TYPICAL ON/OFF
- MAXIMUM RF INPUT: ----- 0.5 WATT CW, 1 usec PULSE WIDTH
SURVIVAL
- CARRIER SUPPRESSION: ----- 20 dB TYPICAL
- DC SUPPLY: ----- +5 VDC @ 75 mA MAXIMUM
-5 VDC @ 20 mA MAXIMUM
- SIZE: ----- 1.0" x 1.0" x 0.5"
- WEIGHT: ----- <2 OUNCES
- FINISH: ----- PAINTED BLUE

MECHANICAL OUTLINE



ENVIRONMENTAL RATINGS

- TEMPERATURE: ----- -55 °C TO +85 °C (OPERATING)
-65 °C TO +125 °C (STORAGE)
- HUMIDITY: ----- MIL-STD-202, METHOD 103B COND. B
- 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

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ISO 9001 CERTIFIED



| APPROVALS | | DATE | TITLE | | REV. |
|-----------|------------|----------|--------------------------|-----------|--------------|
| DESIGNED | <i>NJA</i> | 11/17/17 | PRODUCT FEATURE | | |
| DRAWN | <i>JPL</i> | 11/18/17 | PS-90-6012-HS15NS-OPT10G | | |
| ISSUED | | | SIZE | FRONT/NO. | OWN. NO. |
| | | | A | 05XQ0 | 27033480 |
| | | | SCALE | N:S | SHEET 1 OF 1 |

ALL DIMENSIONS
ARE IN INCHES [mm]
TOLERANCES:
X.XXX ±0.020
X.XXX ±0.010

PMI CONFIDENTIAL AND PROPRIETARY

NOTE: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION



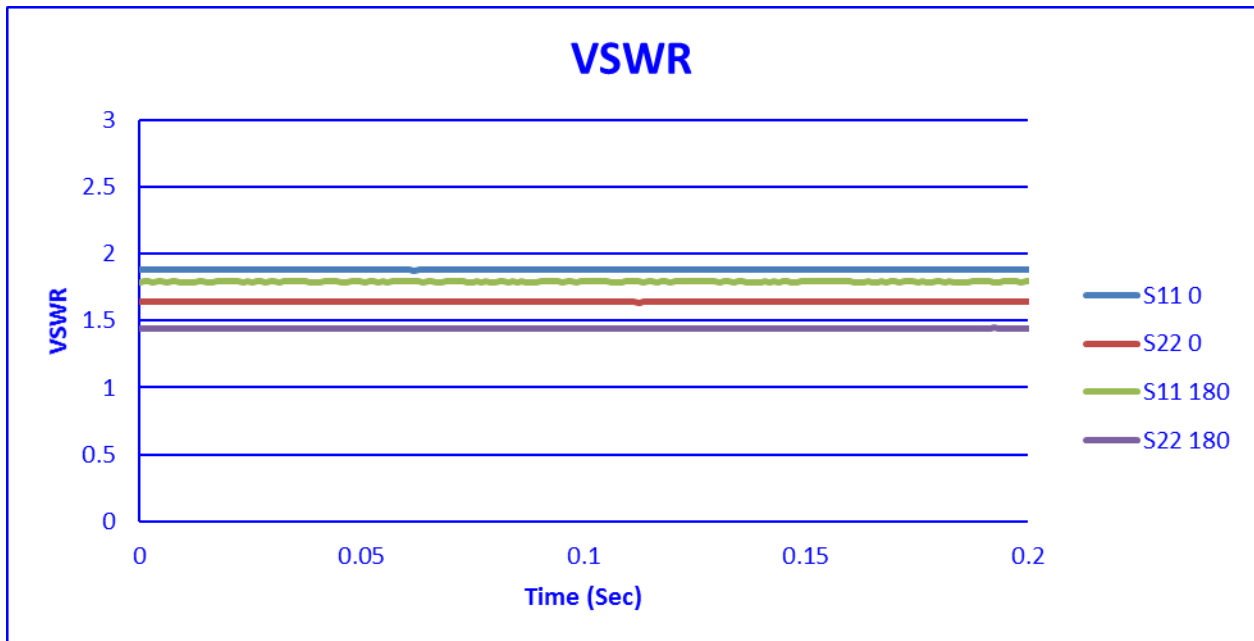
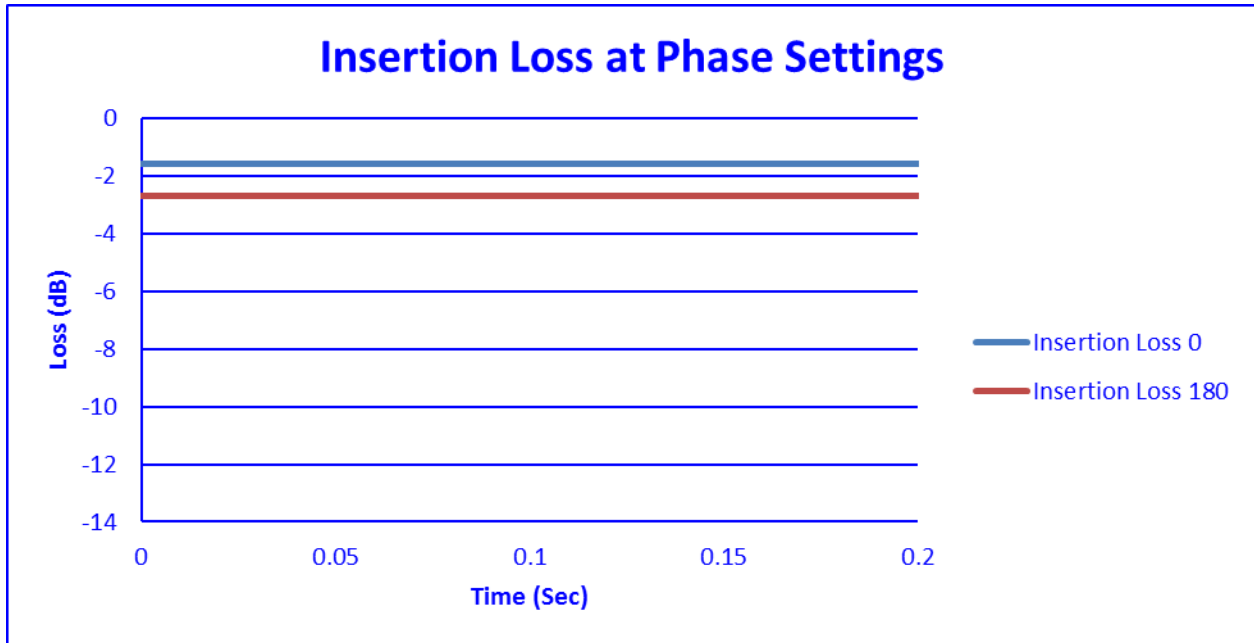
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TEST DATA SUMMARY

| TEST ITEM NO. | PARAMETERS | SPECIFIED VALUE | TEST RESULTS | QA QC |
|----------------------|---|---|---|--------------|
| 1 | Frequency: | 10 GHz | 10 GHz | PASS |
| 2 | Insertion Loss: | 2.5 dB Typ. 3.0 dB Max. | 2.7 dB See Plot | PASS |
| 3 | Phase Accuracy: (@ Room Temperature) | ±0° Goal, ±1° Max. | ±0.57° See Plot | PASS |
| 4 | Modulation Rate: | 1 MHz | 1 MHz | PASS |
| 5 | VSWR Input: | 2.0:1 Typ. 2.5:1 Max. | 1.9:1 See Plot | PASS |
| 6 | Operating Input Power: | +20 dBm Operating | +20 dBm | PASS |
| 7 | Speed: | 15 ns Typical On/Off | 15 ns | PASS |
| 8 | Maximum RF Input: | 0.5 Watt CW, 1 µsec Pulse Width Survival | 0.5 Watt CW, 1 µsec Pulse Width Survival | PASS |
| 9 | Carrier Suppression: | 20 dB Typical | 19.2 dB | PASS |
| 10 | DC Supply: | +5 VDC @ 75 mA Max. -5 VDC @ 20 mA Max. | +5 VDC @ 35 mA -5 VDC @ 10 mA | PASS |

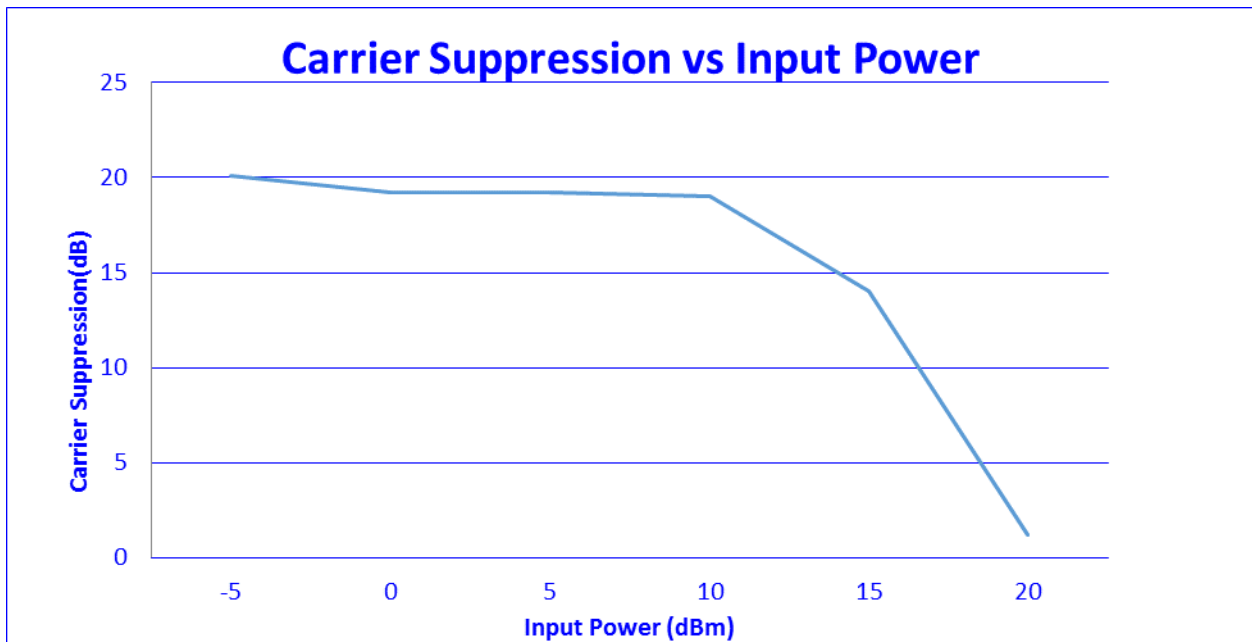
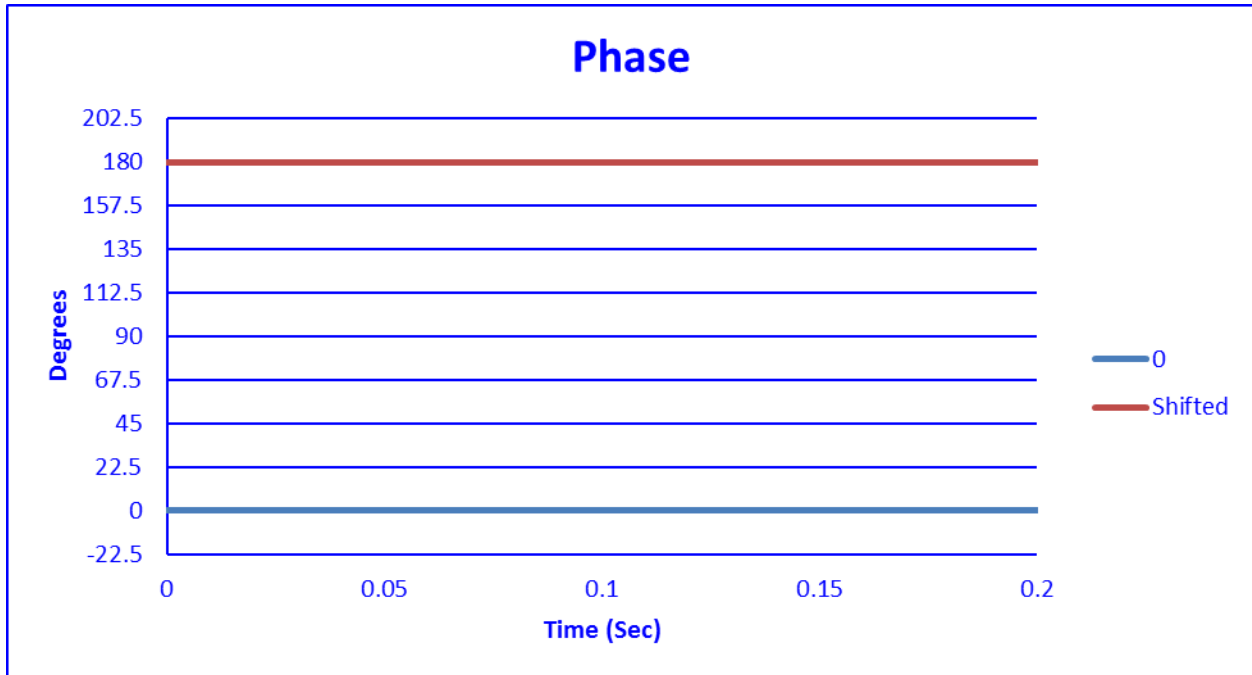


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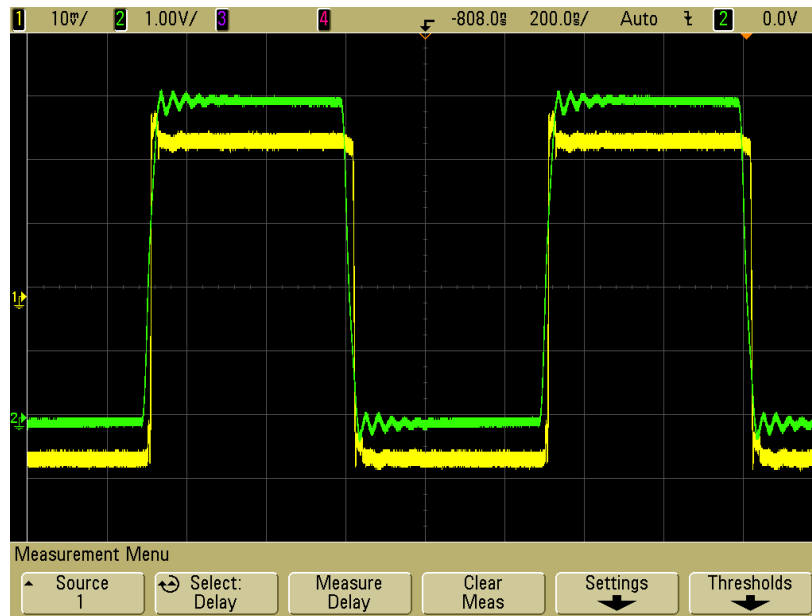




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Switching Speed

Full Pulse



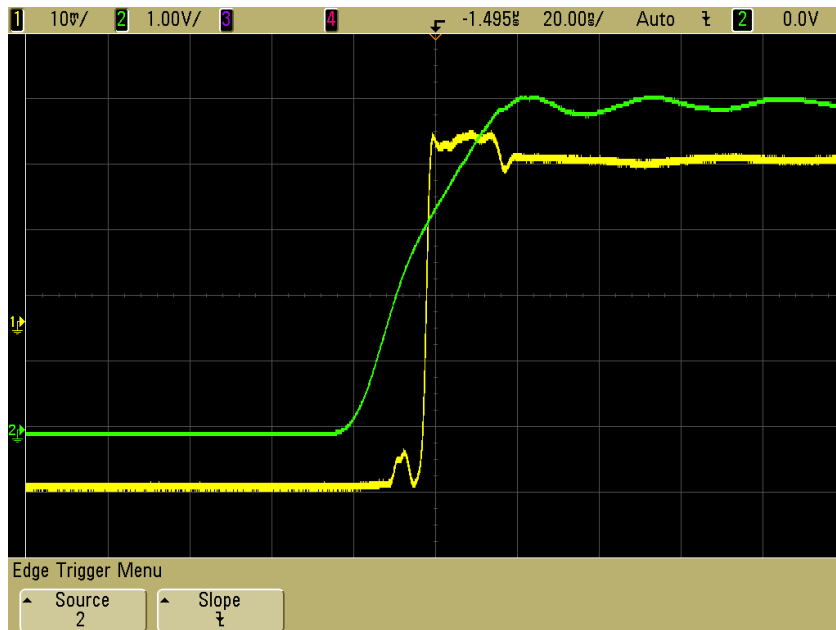
Green Trace: TTL Signal
Yellow Trace: RF Signal



**TYPICAL CHARACTERISTICS
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Switching Speed

Delay 0 to 180 Deg.



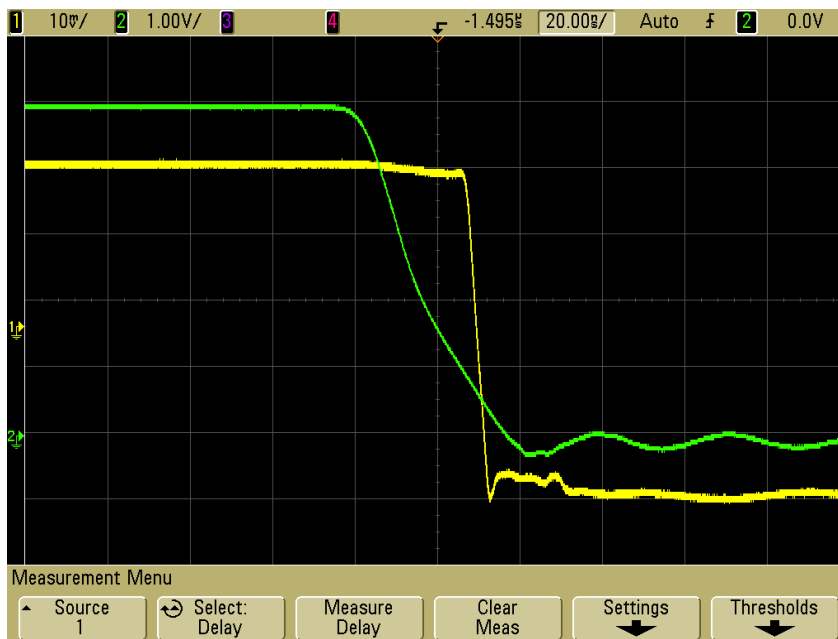
Green Trace: TTL Signal
Yellow Trace: RF Signal



**TYPICAL CHARACTERISTICS
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Switching Speed

Delay 180 to 0 Deg.



Green Trace: TTL Signal
Yellow Trace: RF Signal