



TEST REPORT

ON

2 TO 4 GHz

0 TO 180 DEGREE

HIGH SPEED MINIATURE BI-PHASE MODULATOR / PHASE SHIFTER

**PMI MODEL No:
PS-90-2040
OPTION HS25NS**

Serial Numbers: PM503100 AND PM503101

**DESIGNED
BY
R. Afable**

**TESTED
BY
R. Afable**

**REPORTED
BY
E. Elder**

June 29, 2005

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WEBSITE: <http://www.planarmonolithicsindustries.com>**

ISO 9001 : 1994 CERTIFIED

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HIGH SPEED, MINIATURE BI-PHASE MODULATOR / PHASE SHIFTER PMI MODEL No: PS-90-2040 Option HS15NS

FEATURES:

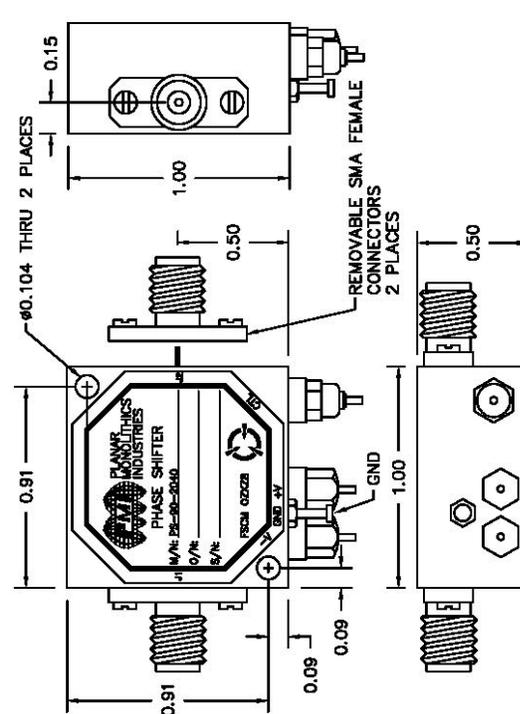
- 2 TO 4 FREQUENCY RANGE
- OTHER FREQUENCY RANGES AVAILABLE
- 15 nS DELAY ON/OFF
- TTL CONTROL LOGIC
- ECL CONTROL LOGIC AVAILABLE

SPECIFICATIONS:

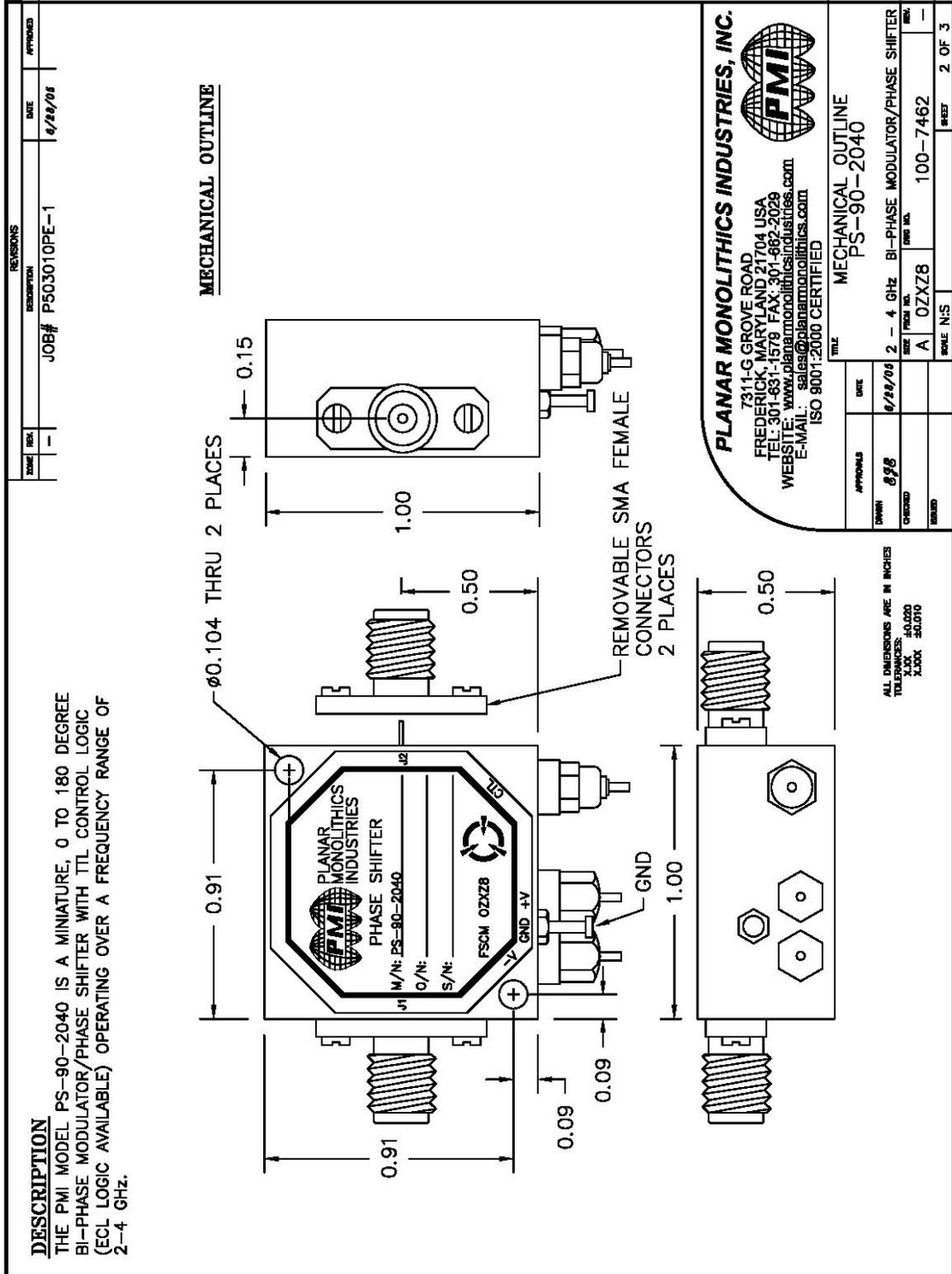
- | | |
|-------------------------|--|
| ● FREQUENCY | : 2 TO 4 GHz |
| ● INSERTION LOSS | : 2.5 dB TYPICAL, 3.0 dB MAXIMUM |
| ● VSWR INPUT | : 2.0:1 |
| ● OPERATING INPUT POWER | : +20 dBm OPERATING |
| ● DELAY ON/OFF | : 15 nS MAXIMUM |
| ● MAXIMUM RF INPUT | : 0.5 WATT CW, 1 uS PULSE WIDTH SURVIVAL |
| ● CARRIER SUPPRESSION | : 20 dB TYPICAL |
| ● POWER PLUS | : +5VDC @ 75 mA MAXIMUM |
| ● POWER MINUS | : -5VDC @ 20 mA MAXIMUM |
| ● SIZE | : 1.0" x 1.0" x 0.5" |
| ● WEIGHT | : <2 OUNCES |



PRODUCT FEATURE

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">REV#</th> <th style="width: 10%;">DATE</th> <th style="width: 10%;">DESCRIPTION</th> <th style="width: 10%;">REV#</th> <th style="width: 10%;">DATE</th> <th style="width: 10%;">DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV#	DATE	DESCRIPTION	REV#	DATE	DESCRIPTION							 <p style="text-align: center;">REMOVABLE SMA FEMALE CONNECTORS 2 PLACES</p>	<p style="text-align: center;">PLANAR MONOLITHICS INDUSTRIES, INC.</p> <p style="text-align: center;">7311-G GROVE ROAD FREDERICK, MARYLAND 21704 USA TEL: 301-631-1579 FAX: 301-662-2029 WEBSITE: www.planarmonolithics.com E-MAIL: sales@planarmonolithics.com ISO 9001:2000 CERTIFIED</p>
REV#	DATE	DESCRIPTION	REV#	DATE	DESCRIPTION									
<p>DESCRIPTION</p> <p>THE PMI MODEL PS-90-2040 IS A MINIATURE, 0 TO 180 DEGREE BI-PHASE MODULATOR/PHASE SHIFTER WITH TTL CONTROL LOGIC (ECL LOGIC AVAILABLE) OPERATING OVER A FREQUENCY RANGE OF 2-4 GHz.</p> <p>SPECIFICATIONS</p> <ul style="list-style-type: none"> ● FREQUENCY RANGE: 2 TO 4 GHz ● INSERTION LOSS: 2.5dB TYPICAL, 3.0dB MAXIMUM ● VSWR INPUT: 2.0:1 ● OPERATING INPUT POWER: +20 dBm OPERATING ● SPEED: 75 nS MAXIMUM ON/OFF ● MAXIMUM RF INPUT: 0.5 WATT CW, 1 uS PULSE WIDTH ● CARRIER SUPPRESSION: 20 dB TYPICAL ● POWER SUPPLY <ul style="list-style-type: none"> +V: +5V @ 75mA MAXIMUM -V: -5V @ 20mA MAXIMUM ● SIZE: 1.00" x 1.00" x 0.50" ● WEIGHT: ≤2.0 OZ. <p>OPTIONS</p> <ul style="list-style-type: none"> ● HS: HIGH SPEED (15 nS TYPICAL) ● 01: SMC MALE CONTROL CONNECTOR ● 02: SMB MALE CONTROL CONNECTOR ● 03: SMA FEMALE CONTROL CONNECTOR ● 04: TWO SMA MALE RF CONNECTORS ● 05: ONE SMA MALE AND ONE SMA FEMALE RF CONNECTOR ● 06: +12 VDC POWER SUPPLY ● 07: -12 VDC POWER SUPPLY ● 08: +15 VDC POWER SUPPLY ● 09: -15 VDC POWER SUPPLY 	<p style="text-align: center;">ENVIRONMENTAL RATINGS</p> <ul style="list-style-type: none"> ● TEMPERATURE: -55°C TO +85°C (OPERATING) -65°C TO +125°C (STORAGE) ● HUMIDITY: MIL-STD-202F, METHOD 103B COND. B ● SHOCK: MIL-STD-202F, METHOD 213B COND. B ● VIBRATION: MIL-STD-202F, METHOD 204D COND. B ● ALTITUDE: MIL-STD-202F, METHOD 105C COND. B ● TEMPERATURE CYCLES: MIL-STD-202F, METHOD 107D COND. A <p><small>NOTE: SPECIFICATIONS MAY VARY OVER OPERATING TEMPERATURE NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION</small></p>													
<p style="text-align: center;">ALL DIMENSIONS ARE IN INCHES TOLERANCES: .0020 .0010 .0005</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2" style="text-align: center;">APPROVALS</th> <th style="text-align: center;">DATE</th> <th style="text-align: center;">TITLE</th> </tr> <tr> <td style="width: 30%;"> </td> <td style="width: 30%;"> </td> <td style="width: 10%;"> </td> <td style="width: 30%;"> </td> </tr> </table>	APPROVALS		DATE	TITLE								
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<p style="text-align: center;">PS-90-2040</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">REV#</th> <th style="width: 10%;">DATE</th> <th style="width: 10%;">DESCRIPTION</th> <th style="width: 10%;">REV#</th> <th style="width: 10%;">DATE</th> <th style="width: 10%;">DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	REV#	DATE	DESCRIPTION	REV#	DATE	DESCRIPTION						
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OUTLINE DRAWING



FINAL TEST DATA

PMI MODEL NO: PS-90-2040 OPTION HS15NS, SERIAL NUMBER: PM503100

FORM: 014-PS-DTA 3/8/05



PLANAR MONOLITHICS INDUSTRIES
7311-G GROVE RD, FREDERICK MD 21704
TEL: 301-631-1579, FAX: 301-662-2029
URL: WWW.PLANARMONOLITHICSINDUSTRIES.COM
EMAIL: SALES@PLANARMONOLITHICS.COM
ISO 9001:2000 CERTIFIED

PHASE SHIFTER TEST DATA

CUSTOMER: _____	TECHNICIAN: <u>R.AFABLE</u>
JOB NO: _____	DATE: <u>6/6/05</u>
MODEL NO: <u>PS-90-2040</u>	SERIAL NO: <u>PM503100</u>
OPTION NO: <u>HS15NS</u>	FREQUENCY RANGE: <u>2.0 - 4.0 GHz</u>
PWR SUPPLY: <u>+5V @ 40 mA; -5V @ 2mA</u>	

INSERTION LOSS	VSWR	LOGIC	PHASE
1.49 dB	1.58:1	"1"	171°
0.98 dB	1.43:1	"0"	0°

SWITCHING SPEED:	15 nS

NOTE: ANY ADDITION TEST DATA ON BACK

TESTED ON: HP 8720C

QA/QC APPROVAL: _____ DATED: _____

FINAL TEST DATA

PMI MODEL NO: PS-90-2040 OPTION HS15NS, SERIAL NUMBER: PM503101

FORM: 014-PS-DTA 3/8/05



PLANAR MONOLITHICS INDUSTRIES
 7311G-GROVE RD, FREDERICK MD. 21704
 TEL: 301-631-1579, FAX: 301-662-2029
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 EMAIL: SALES@PLANARMONOLITHICS.COM
 ISO 9001:2000 CERTIFIED

**PHASE SHIFTER
 TEST DATA**

CUSTOMER: _____	TECHNICIAN: <u>R.AFABLE</u>
JOB NO: _____	DATE: <u>6/6/05</u>
MODEL NO: <u>PS-90-2040</u>	SERIAL NO: <u>PM503101</u>
OPTION NO: <u>HS15NS</u>	FREQUENCY RANGE: <u>2.0 - 4.0 GHz</u>
PWR SUPPLY: <u>+5V @ 40 mA; -5V @ 2mA</u>	_____

INSERTION LOSS	VSWR	LOGIC	PHASE
1.56 dB	1.65:1	"1"	178°
1.01 dB	1.51:1	"0"	0°

SWITCHING SPEED:	15 nS

NOTE: ANY ADDITION TEST DATA ON BACK

TESTED ON: HP 8720C

QA/QC APPROVAL: _____ DATED: _____

SWITCHING SPEED DATA

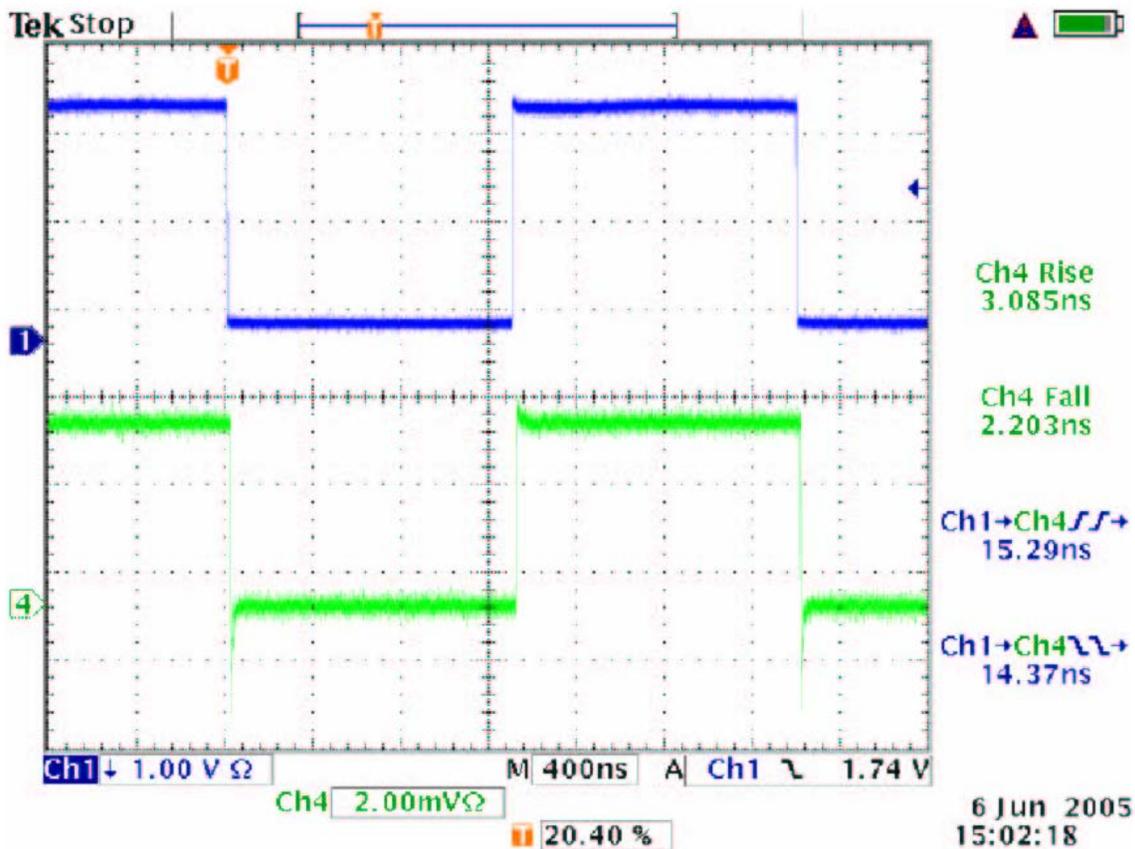
PMI MODEL NO: PS-90-2040 OPTION HS15NS

Model Number: PS-90-2040

Blue Trace: TTL Signal

Green Trace: Output Pulse of Phase Shifter

SWITCHING SPEED

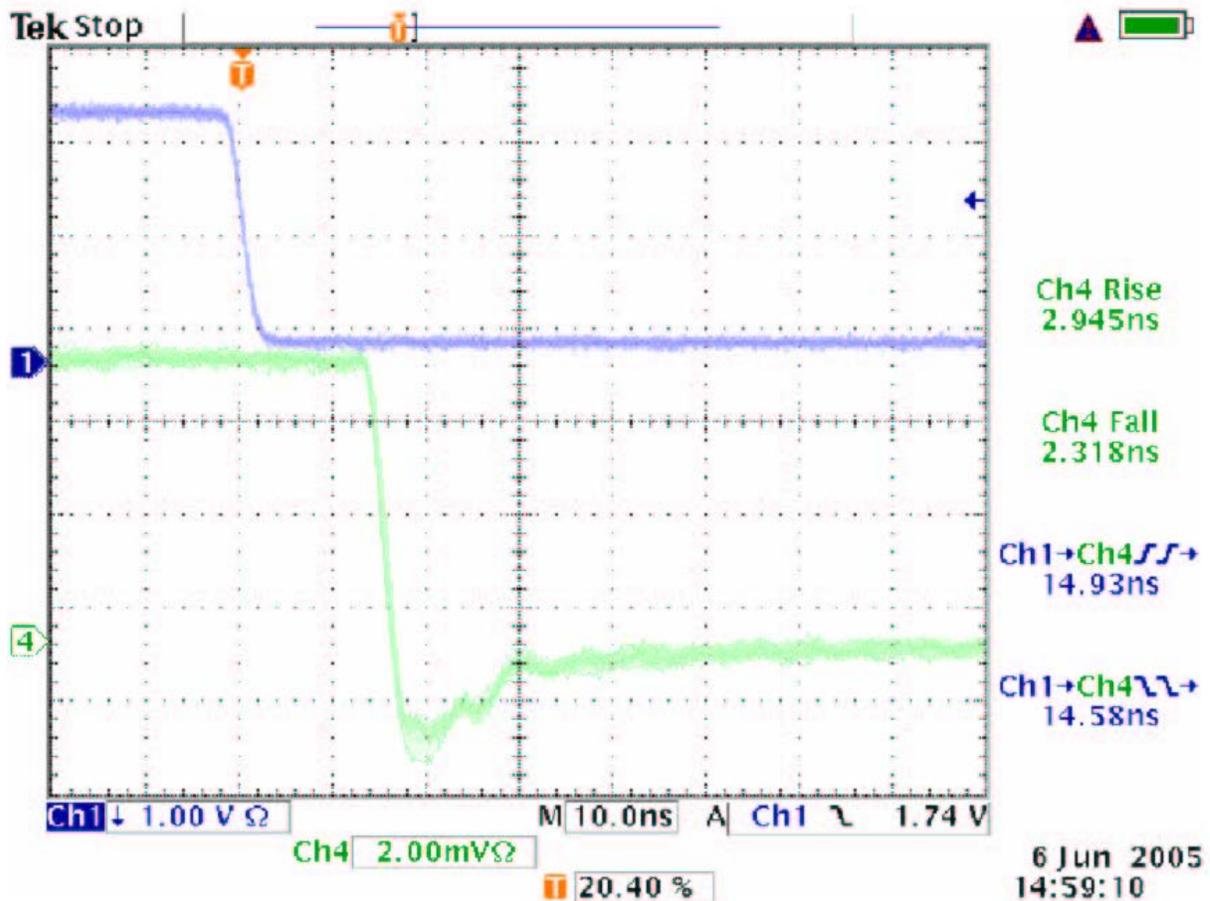


Model Number: PS-90-2040

Blue Trace: TTL Signal

Green Trace: Output Pulse of Phase Shifter

SWITCHING SPEED DELAY OFF

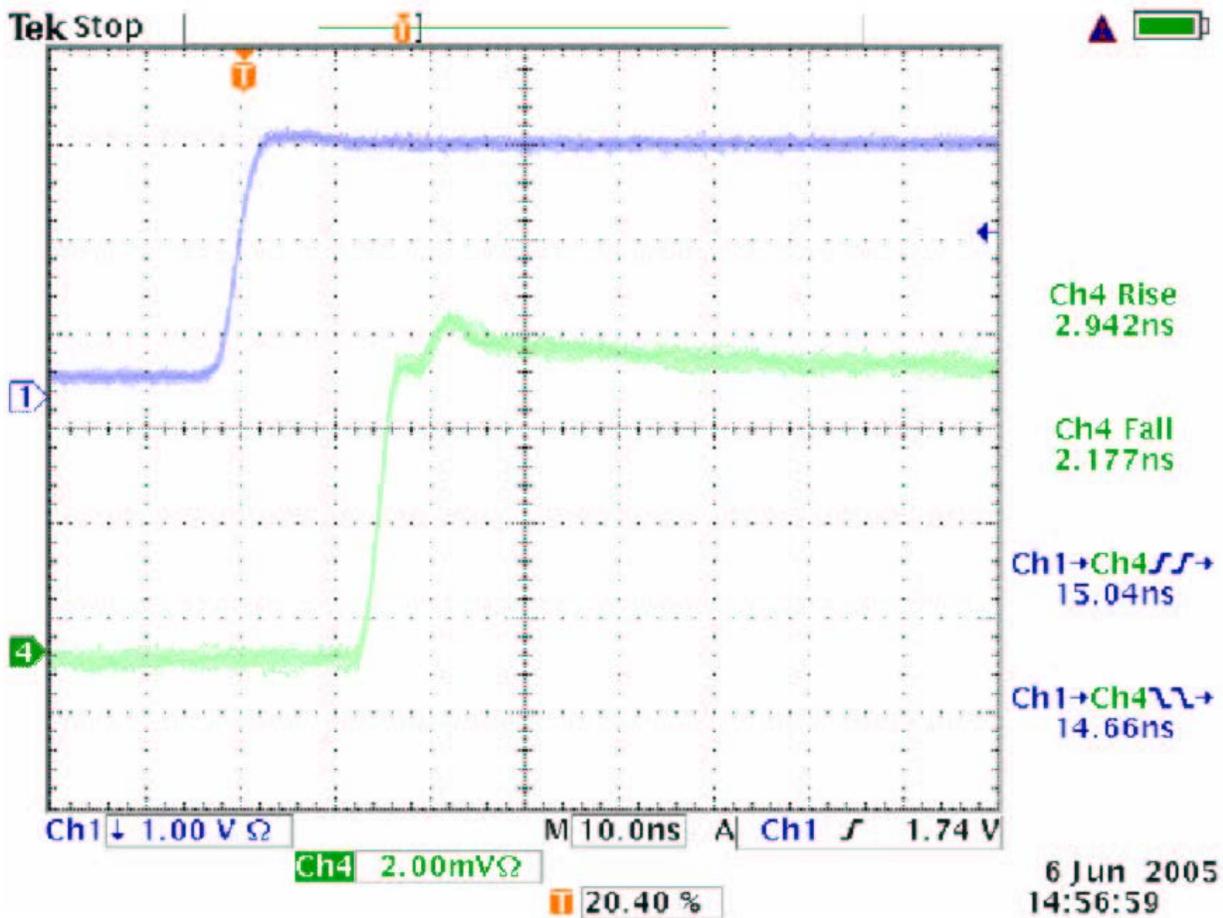


Model Number: PS-90-2040

Blue Trace: TTL Signal

Green Trace: Output Pulse of Phase Shifter

SWITCHING SPEED DELAY ON



CARRIER SUPPRESSION DATA

PMI MODEL NO: PS-90-2040 OPTION HS15NS

