



**TYPICAL CHARACTERISTICS  
ON  
PMSN-3DR-05-STANDARD, OPTIONS  
118, NI1, B06HPR1W, B05HS25NS**

**PMI MODEL PMSN-3DR-05-STANDARD, OPTION 118, NI1, B06HPR1W, B05HS25NS IS A SINGLE POLE THREE THROW REFLECTIVE SWITCH MODULE, WITH VERY LOW INSERTION LOSS, HIGH ISOLATION, HIGH POWER ( 1 WATT ) AND WITH HIGH SPEED ( 25 ns ) INTEGRAL CMOS DRIVER, DESIGNED FOR 1 GHz TO 18 GHz OPERATION.**



**May 10, 2017**

**DESIGNED BY: PMI ENGINEERING**

**TESTED & REPORTED BY: Jerry N**



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## OUTLINE DRAWING

**DESCRIPTION**

PMI MODEL PMSN-3DR-05-STANDARD, OPTION 118, NI1, B06HPR1W, B05HS25NS IS A SINGLE POLE THREE THROW REFLECTIVE SWITCH MODULE, WITH VERY LOW INSERTION LOSS, HIGH ISOLATION, HIGH POWER (1 WATT) AND WITH HIGH SPEED (25 ns) INTEGRAL CMOS DRIVER, DESIGNED FOR 1 GHz TO 18 GHz OPERATION.

**SPECIFICATIONS**

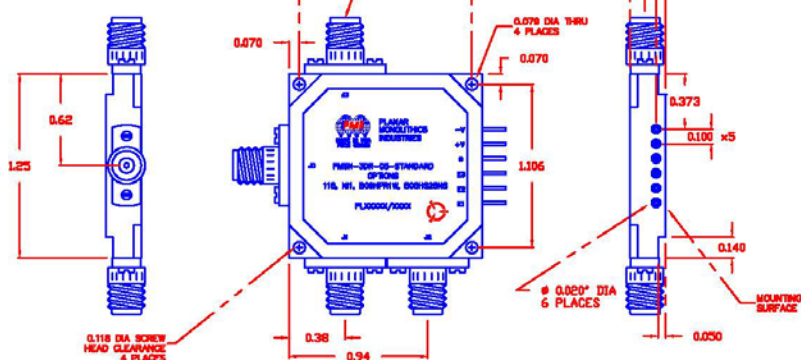
- FREQUENCY: ..... 1.0-18.0 GHz
- INSERTION LOSS: ..... 1.2dB @ 1.0-4.0 GHz (MAXIMUM)  
1.5dB @ 4.0-8.0 GHz (MAXIMUM)  
2.0dB @ 8.0-12.4 GHz (MAXIMUM)  
2.6dB @ 12.4-18 GHz (MAXIMUM)
- ISOLATION: ..... 60dB @ 1.0-4.0, 4.0-8.0 GHz (MINIMUM)  
60dB @ 8.0-12.4 GHz (MINIMUM)  
50dB @ 12.4-18.0 GHz (MINIMUM)
- VSWR: ..... 1.75:1 @ 1.0-4.0 GHz (MAXIMUM)  
1.75:1 @ 4.0-8.0, 6.0-12.4 GHz (MAXIMUM)  
2.0:1 @ 12.4-18.0 GHz (MAXIMUM)
- POWER HANDLING: ..... REFLECTIVE 1 WATT CW OR PEAK (WITHOUT PERFORMANCE DEGRADATION)
- SWITCHING SPEED: ..... RISE TIME: 10nsec (MAXIMUM)  
FALL TIME: 10nsec (MAXIMUM)  
ON TIME: 25nsec (MAXIMUM)  
OFF TIME: 20nsec (MAXIMUM)
- SURVIVAL POWER: ..... 1 WATT AVG, 75 WATTS PEAK(1 sec max. pulse width)
- POWER SUPPLY: ..... +5V ±5% @ 75 mA  
-12V @ 30mA Max
- CONTROL INPUT IMPEDANCE: ..... 3.3/5.0V CMOS LOGIC
- CONTROL LOGIC: ..... \*0\*=ON @ 0V TO 1.2V  
\*1\*=OFF @ 3.3V TO 5.5V
- CONNECTOR: ..... SMA FEMALE
- SIZE ..... 1.31 X 1.25 X 0.24
- WEIGHT ..... 1.50 OUNCE TYPICAL
- FINISH:..... PAINTED BLUE

**ENVIRONMENTAL RATINGS**

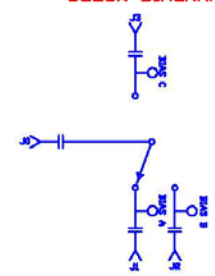
- TEMPERATURE: ..... -65°C TO +85°C (OPERATING)  
-65°C TO +125°C (STORAGE)
- HUMIDITY: ..... MIL-STD-202F, METHOD 1038 COND. B
- SHOCK: ..... MIL-STD-202F, METHOD 2138 COND. B
- VIBRATION: ..... MIL-STD-202F, METHOD 2040 COND. B
- ALTITUDE: ..... MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE: ..... MIL-STD-202F, METHOD 107D COND. A

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

| THRUH TABLE |    |    |    |
|-------------|----|----|----|
|             | J1 | J2 | J3 |
| E1          | 0  | 1  | 1  |
| E2          | 1  | 0  | 1  |
| E3          | 1  | 1  | 0  |



**BLOCK DIAGRAM**



ALL DIMENSIONS ARE IN INCHES  
TOLERANCES:  
X.XX ±0.020  
X.XXX ±0.010

| REVISIONS |      |                  |          |          |
|-----------|------|------------------|----------|----------|
| ZONE      | REV. | DESCRIPTION      | DATE     | APPROVED |
|           | 1    | ORIGINAL RELEASE | 12/18/16 |          |
|           | A1   | ECN # 17-0055    | 02/23/17 |          |
|           | A2   | ECN # 17-0086    | 05/04/17 |          |

**MECHANICAL OUTLINE**

PMI CONFIDENTIAL AND PROPRIETARY

**PLANAR MONOLITHICS INDUSTRIES, INC.**

7311-F GROVE ROAD  
FREDERICK, MARYLAND 21704 USA  
TEL: 301-662-5019 FAX: 301-662-1731  
WEBSITE: [www.pmi-rf.com](http://www.pmi-rf.com)  
E-MAIL: [sales@pmi-rf.com](mailto:sales@pmi-rf.com)  
ISO 9001 CERTIFIED



| APPROVALS |       | DATE     | TITLE                                |       | REV.   |
|-----------|-------|----------|--------------------------------------|-------|--------|
| DESIGN    | JPL   | 12/18/16 | PRODUCT FEATURE                      |       | A2     |
| CHECKED   |       |          | PMSN-3DR-05-STANDARD                 |       |        |
| ISSUED    |       |          | OPTION 118, NI1, B06HPR1W, B05HS25NS |       |        |
|           | SIZE  | FORM NO. | DWG NO.                              |       |        |
|           | A     | 05XQ0    | 27031381                             |       |        |
|           | SCALE | N: S     |                                      | SHEET | 1 OF 1 |



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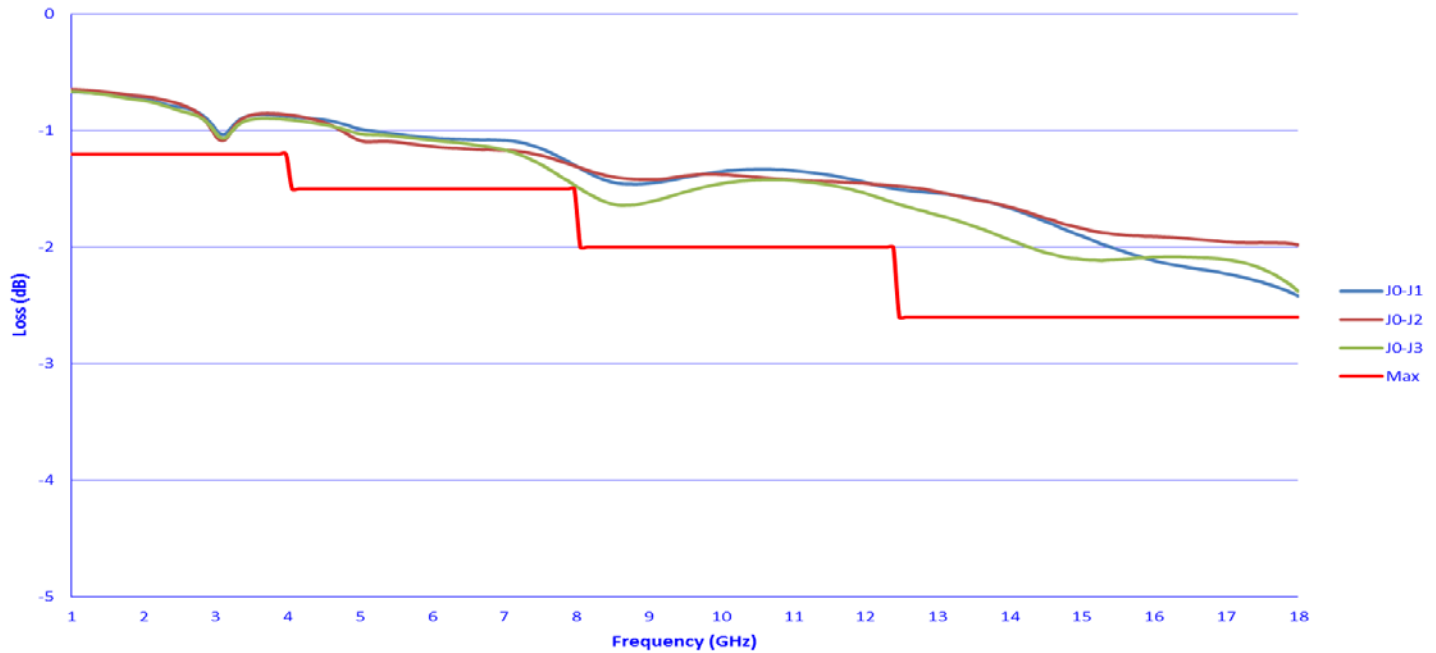
**TEST DATA SUMMARY**

| <b>TEST<br/>ITEM NO.</b> | <b>PARAMETERS</b>        | <b>SPECIFIED VALUE</b>  | <b>TEST RESULTS</b>   |
|--------------------------|--------------------------|---|---|
| 1                        | Frequency Range:         | 1.0 GHz to 18.0 GHz   | 1.0 GHz to 18.0 GHz   |
| 2                        | Insertion Loss:          | 1.2dB @ 1.0-4.0 GHz Max.<br>1.5dB @ 4.0-8.0 GHz Max.<br>2.0dB @ 8.0-12.4 GHz Max.<br>2.6dB @ 12.4-18.0 GHz Max. | 1.08dB @ 1.0-4.0 GHz<br>1.47dB @ 4.0-8.0 GHz<br>1.64dB @ 8.0-12.4 GHz<br>2.42dB @ 12.4-18.0 GHz<br>See Plot |
| 3                        | Isolation:               | 60dB Min. @ 1.0-12.4 GHz<br>50dB Min. @ 12.4-18.0 GHz   | 84dB @ 1.0-12.4 GHz<br>72dB @ 12.4-18.0 GHz<br>See Plot   |
| 4                        | VSWR:                    | 1.75:1 @ 1.0-12.4 GHz Max.<br>2.0:1 @ 12.4-18.0 GHz Max.  | 1.74:1 @ 1.0-12.4 GHz<br>1.71:1 @ 12.4-18.0 GHz<br>See Plot   |
| 5                        | Power Handling:          | Reflective 1 Watt CW or Peak<br>(Without Performance Degradation)   | 1 Watt  |
| 6                        | Control input Impedance: | 3.3/5.0V CMOS Logic   | Pass  |
| 7                        | Switching Speed:         | Rise/Fall Time: 10nsec<br>On Time: 25nsec<br>Off Time: 20nsec   | <10nsec Rise/Fall<br><25nsec On<br><20nsec Off<br>See Typical Characteristics                               |
| 8                        | Survival Power:          | 1 Watt Average<br>75 Watts Peak   | 1 Watt Average<br>75 Watts Peak   |
| 9                        | Power Supply:            | +5V ±5% @ 75mA<br>12V @ 30mA  | 56 mA @ +5V<br>23 mA @ -12V   |
| 10                       | Control Logic:           | "0" = On @ 0V to 1.2V<br>"1" = Off @ 3.3V to 5.5V   | "0" = On @ 0V to 1.2V<br>"1" = Off @ 3.3V to 5.5V   |

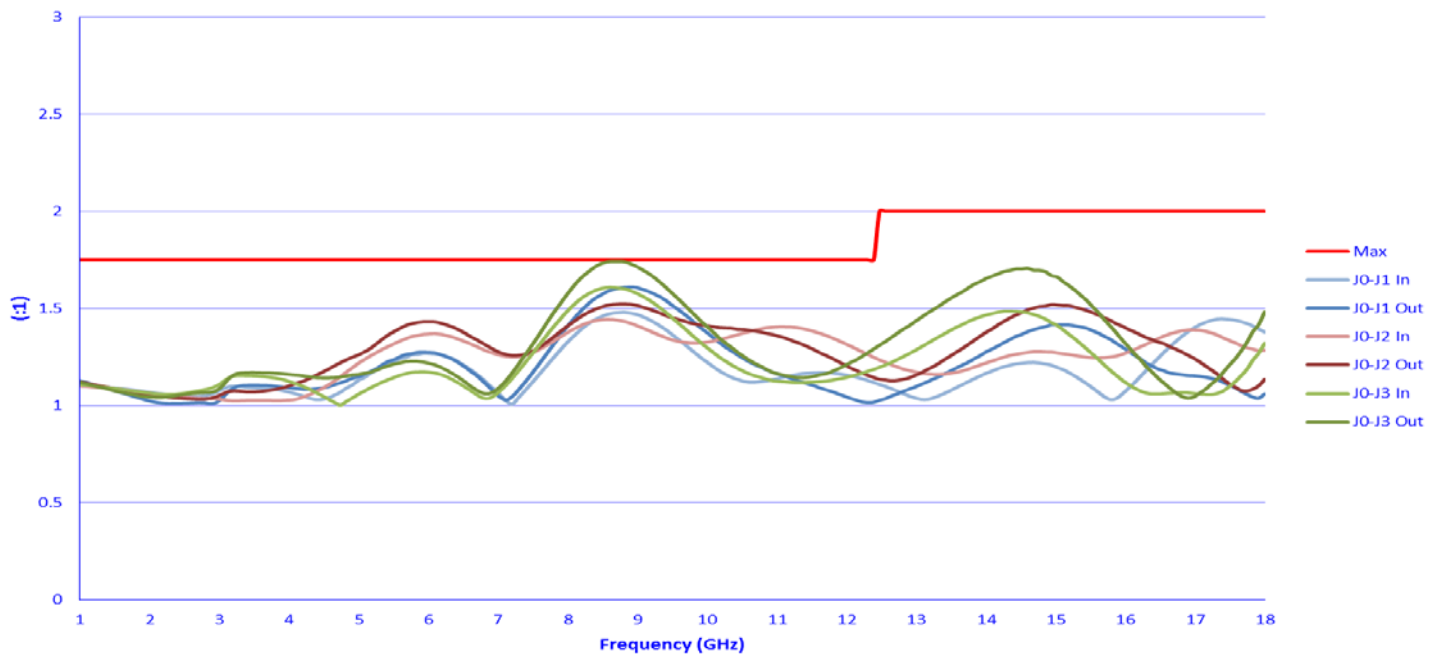


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**Insertion Loss**

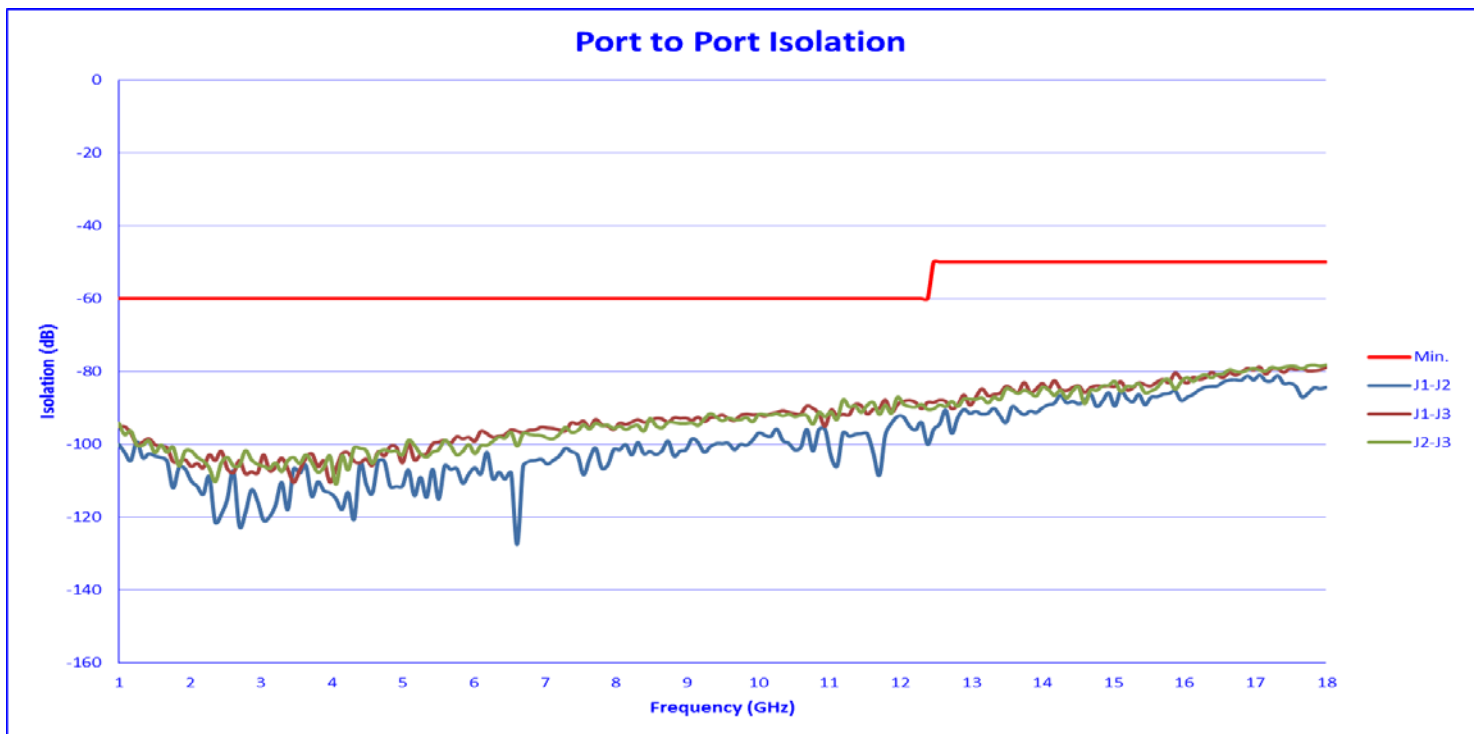
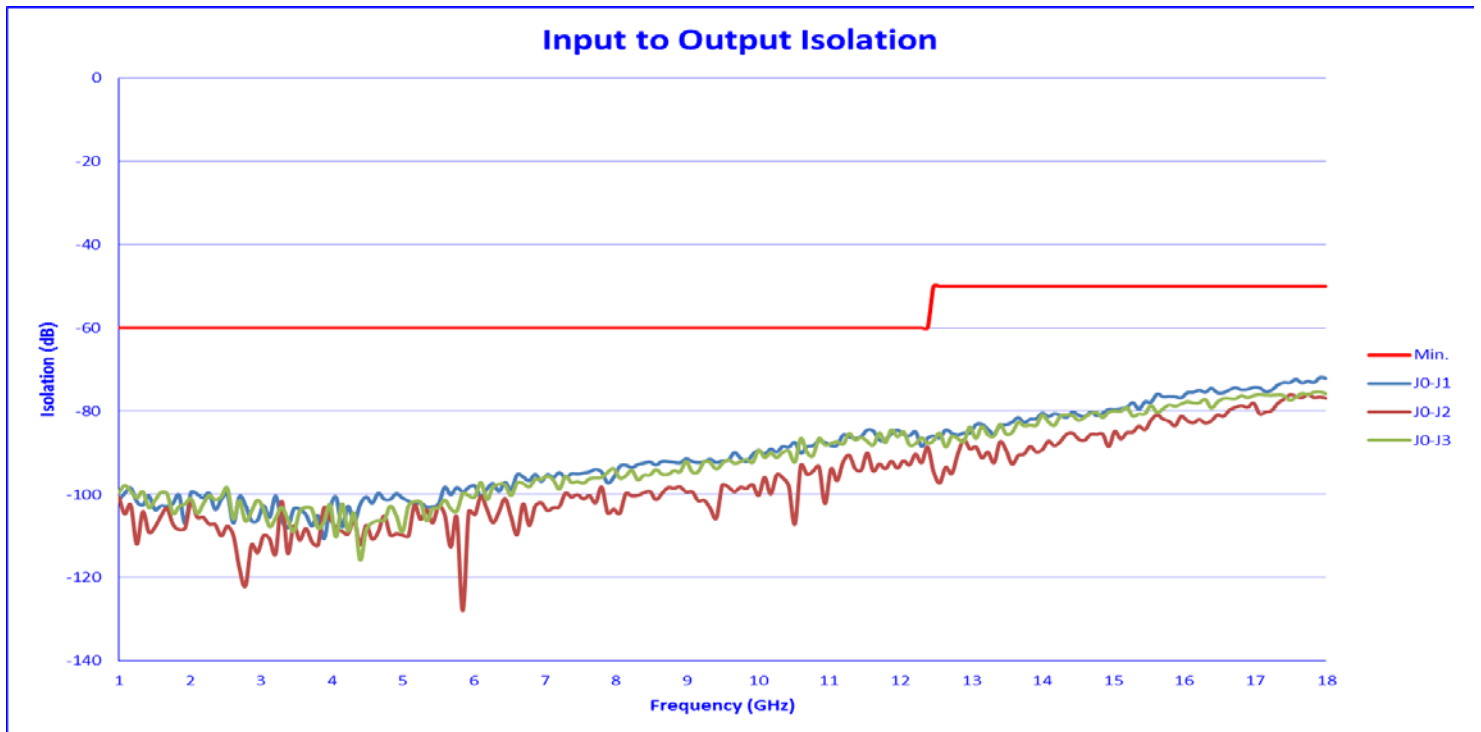


**VSWR**





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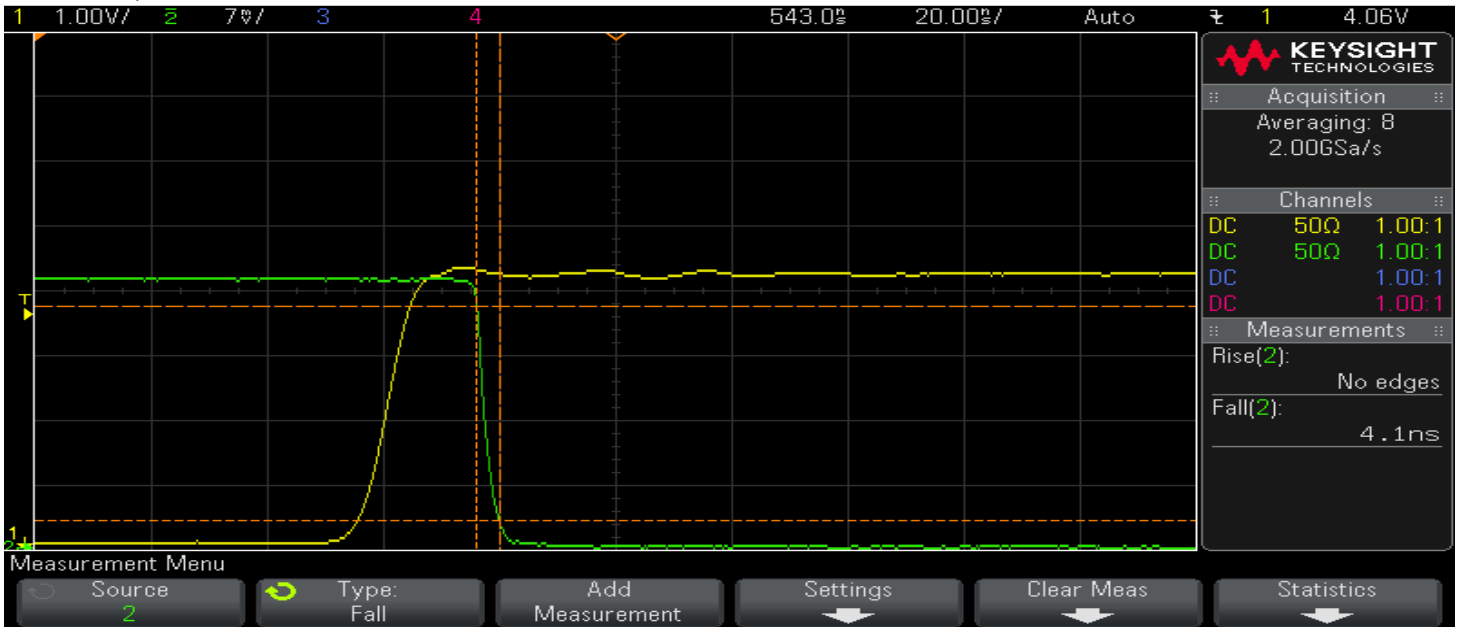




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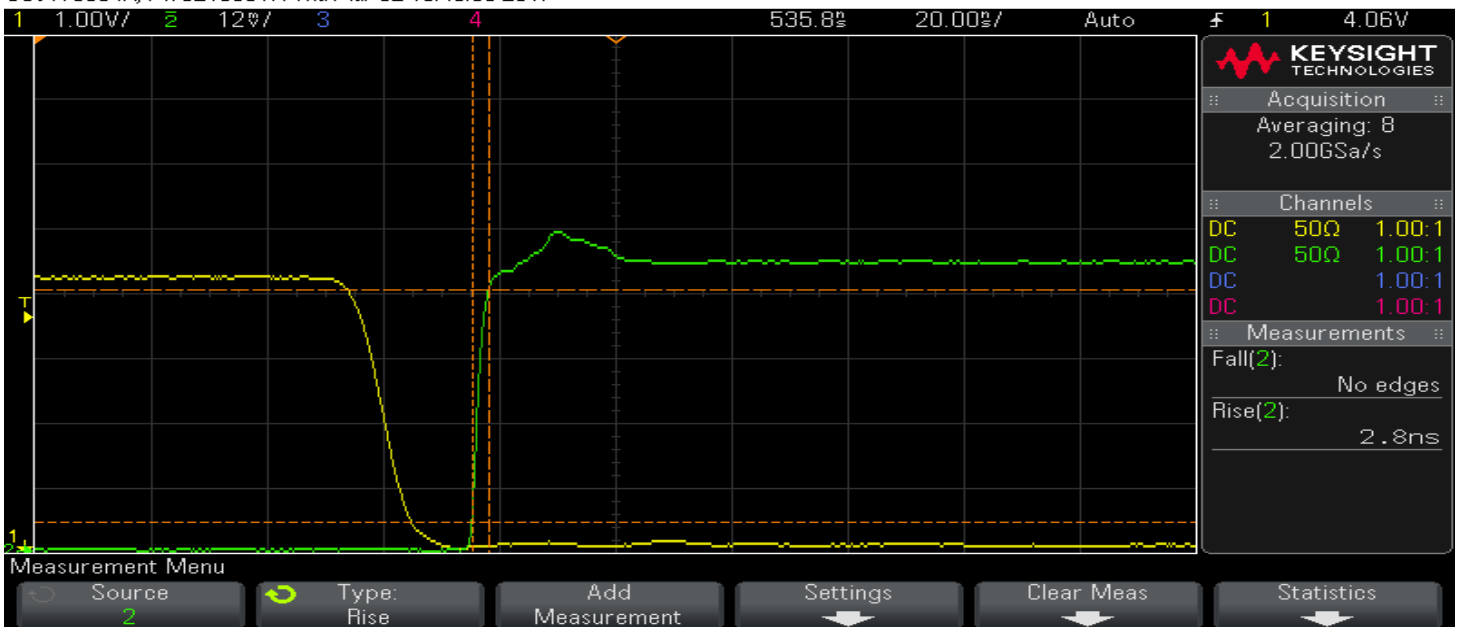
**Switching Speed TYP.  
OFF Delay – 20 ns per Div.**

DSO-X 3034A, MY52103317: Thu Mar 02 15:45:53 2017



**ON Delay and – 20 ns per Div.**

DSO-X 3034A, MY52103317: Thu Mar 02 15:48:39 2017



**GREEN TRACE: RF**

**YELLOW TRACE: TTL**