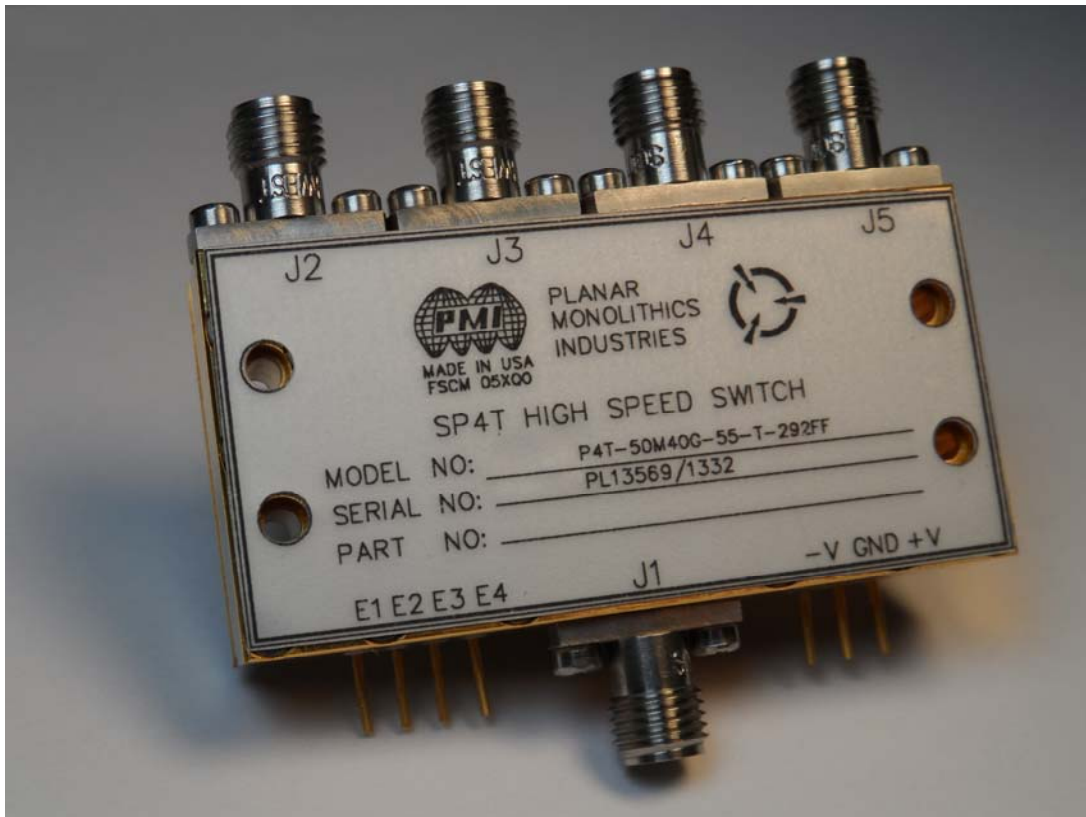




**Typical Characteristics  
On  
P4T-50M40G-55-T-292FF**

PL13569/1332

**PMI MODEL NUMBER: P4T-50M40G-55-T-292FF IS A 50MHz TO 40GHz, SINGLE POLE, FOUR THROW, ABSORPTIVE SWITCH. THIS SWITCH OFFERS 55dB OF PORT TO PORT ISOLATION, AND A MAXIMUM INSERTION LOSS OF 8dB. IT HAS A SWITCHING SPEED OF 100ns AND IS INDEPENDENTLY TTL CONTROLLED. THE OPERATING POWER IS +20dBm CW AND THE TYPICAL VSWR IS 2.5:1 MAXIMUM.**



**October 25, 2013**

**Designed By:  
Simon Kuhn  
PMI's Engineering Department**

**Reported & Tested By:  
Hugo Gonzales  
Sebastian Palacio**



# Typical Characteristics On P4T-50M40G-55-T-292FF

PL13569/1332

### DESCRIPTION

PMI MODEL NUMBER: P4T-50M40G-55-T-292FF IS A 50MHz TO 40GHz, SINGLE POLE, FOUR THROW, ABSORPTIVE SWITCH. THIS SWITCH OFFERS 55dB OF PORT TO PORT ISOLATION, AND A MAXIMUM INSERTION LOSS OF 8dB. IT HAS A SWITCHING SPEED OF 100ns AND IS INDEPENDENTLY TTL CONTROLLED. THE OPERATING POWER IS +20dBm CW AND THE TYPICAL VSWR IS 2.5:1 MAXIMUM.

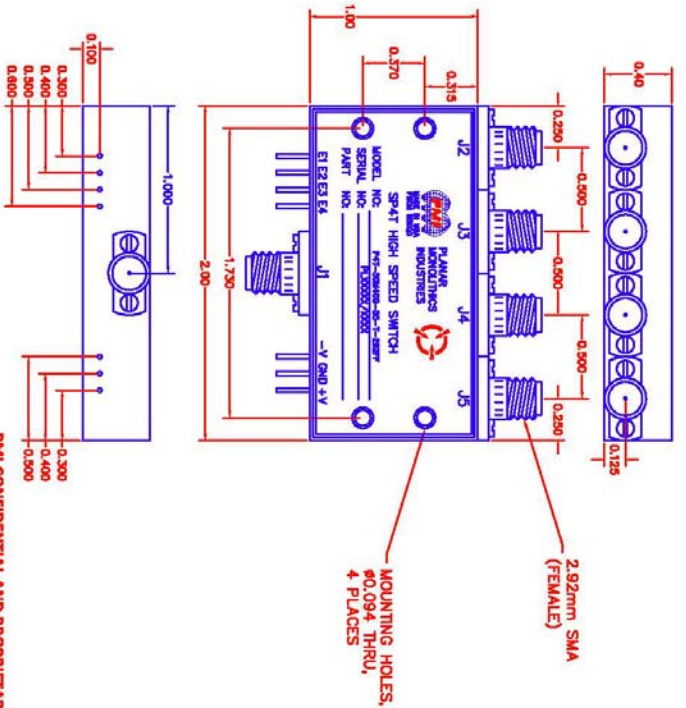
### SPECIFICATIONS

- FREQUENCY RANGE: . . . . . 50MHz TO 40GHz
- INSERTION LOSS: . . . . . 8dB MAX
- ISOLATION: . . . . . 55dB MIN
- VSWR: . . . . . 2.5:1 MAX
- SPEED: . . . . . 50% TTL TO 10%/90% RF  
85ns TYP, 100ns MAX
- INPUT POWER: . . . . . +20dBm CW
- SURVIVAL POWER: . . . . . 0.5W CW, 5W PEAK, 1us
- CONTROL TTL: . . . . . 4 LINE INDEPENDENT  
LOGIC "0" = INSERTION LOSS  
LOGIC "1" = ISOLATION
- POWER SUPPLY: . . . . . +12 TO +15VDC @ 150mA \*  
-12 TO -15VDC @ 100mA \*
- RF CONNECTORS: . . . . . 2.92mm FEMALE FOR LOW LEAKAGE
- CONTROL, POWER, AND GROUND: . . . . . FEEDTHRU - Ø0.030 TYP
- RF LEAKAGE: . . . . . SMA & PINS = <-100dB PER MIL-C-39012
- SEALING: . . . . . EPOXY SEALED
- SIZE: . . . . . (L) 2.0" x (W) 1.0" x (H) 0.4"
- FINISH: . . . . . GOLD PLATED
- \* VOLTAGE REGULATION & REVERSE BIAS PROTECTION INCLUDED

### ENVIRONMENTAL RATINGS

- TEMPERATURES: . . . . . -40°C TO + 85°C (OPERATING)  
-55°C TO +125°C (STORAGE)
  - HUMIDITY: . . . . . MIL-STD-202F, METHOD 1039 COND. B
  - SHOCK: . . . . . MIL-STD-202F, METHOD 2139 COND. B
  - VIBRATION: . . . . . MIL-STD-202F, METHOD 2044 COND. B
  - ALTITUDE: . . . . . MIL-STD-202F, METHOD 105C COND. B
  - TEMPERATURE CYCLES: . . . . . MIL-STD-202F, METHOD 107D COND. A
- NOTE: SPECIFICATIONS WILL VARY DUE TO OPERATING TEMPERATURE.  
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE BY REVISION.

### MECHANICAL OUTLINE



REVISIONS		DATE	APPROVED
ZONE	REV.	DESCRIPTION	
A1		ORIGINAL RELEASE	04/28/19

ALL DIMENSIONS ARE IN INCHES  
TOLERANCES:  
XXX .010  
XXX .010

**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 9001:2000 CERTIFIED

**PMI**

APPROVALS	DATE	TITLE
<i>[Signature]</i>	04/28/19	PRODUCT FEATURE
CHECKED	DATE	REV.
		A1

SIZE	FORM NO.	TRNG NO.	SHEET
A	05X00	27018971	1 OF 1



**Typical Characteristics  
On  
P4T-50M40G-55-T-292FF**

PL13569/1332

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range:	50MHz to 40GHz	<b>50MHz to 40GHz</b>	
2	Insertion Loss:	8dB Max	<b>5.61dB See Plot</b>	
3	Isolation	55dB Min	<b>74.94dB See Plot</b>	
4	VSWR:	2.5:1 Max	<b>Input 2.13:1 Output 2.22:1 See Plot</b>	
5	Speed:	50% TTL to 10%/90% RF 85ns Typ, 100ns Max	<b>&lt;20ns See Plots</b>	
6	Input Power:	+20dBm CW	<b>Pass +20dBm CW</b>	
7	Survival Power:	0.5W CW, 5W Peak, 1us	<b>Pass 0.5W CW, 5W Peak, 1us</b>	
8	Control TTL:	4 Line Independent Logic "0" = Insertion Loss Logic "1" = Isolation	<b>Pass</b>	
9	Video Transients:	Not Specified	<b>1V Peak to Peak Typ.</b>	
10	Power Supply:	+12 to +15VDC @ 150mA * -12 to -15VDC @ 100mA *	<b>75mA 100mA</b>	

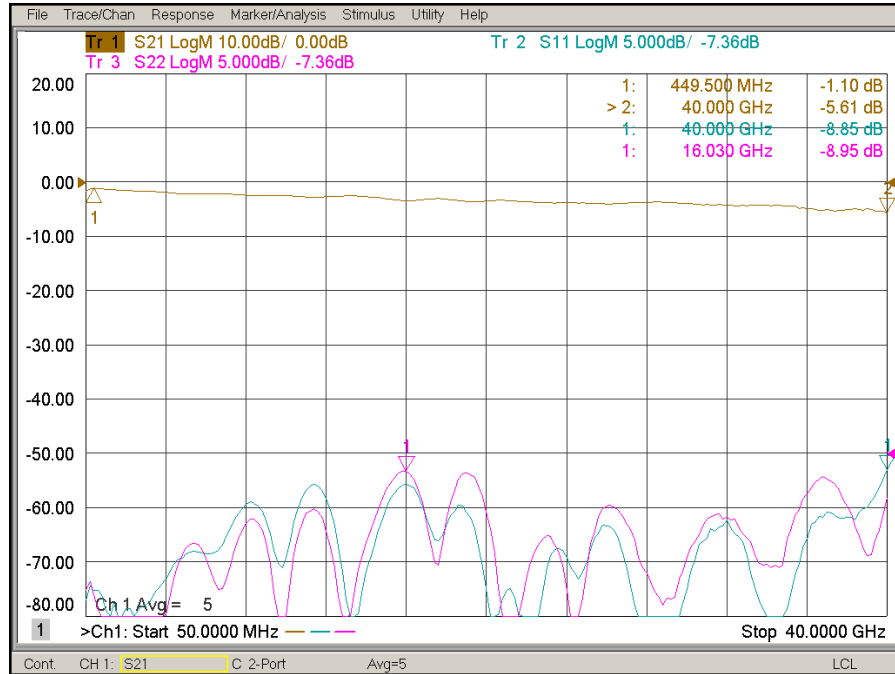
\*Voltage Regulation & Reverse Bias Protection Included



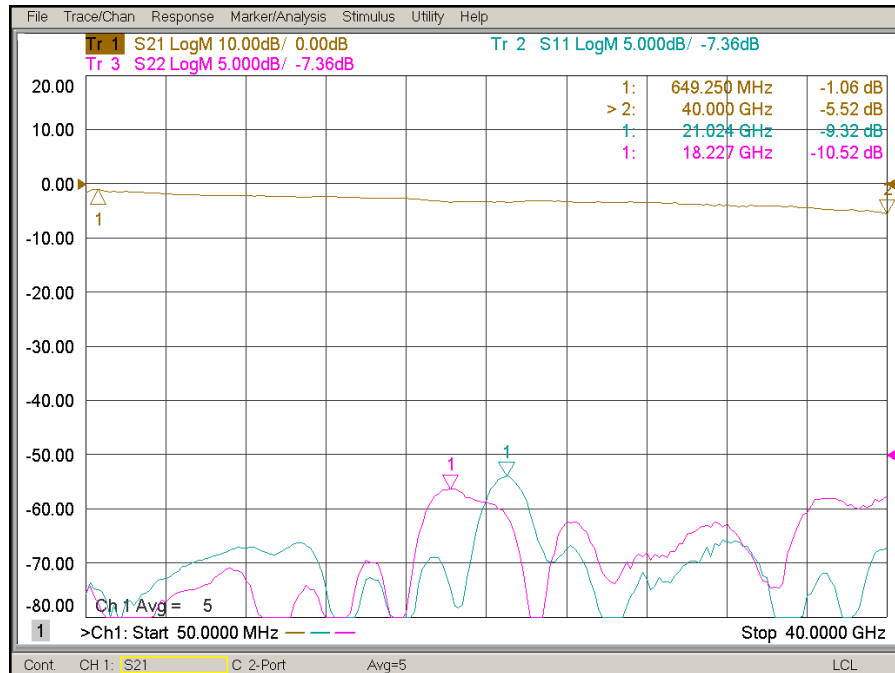
# Typical Characteristics On P4T-50M40G-55-T-292FF

PL13569/1332

## (J1-J2) Insertion Loss and Return Loss



## (J1-J3) Insertion Loss and Return Loss

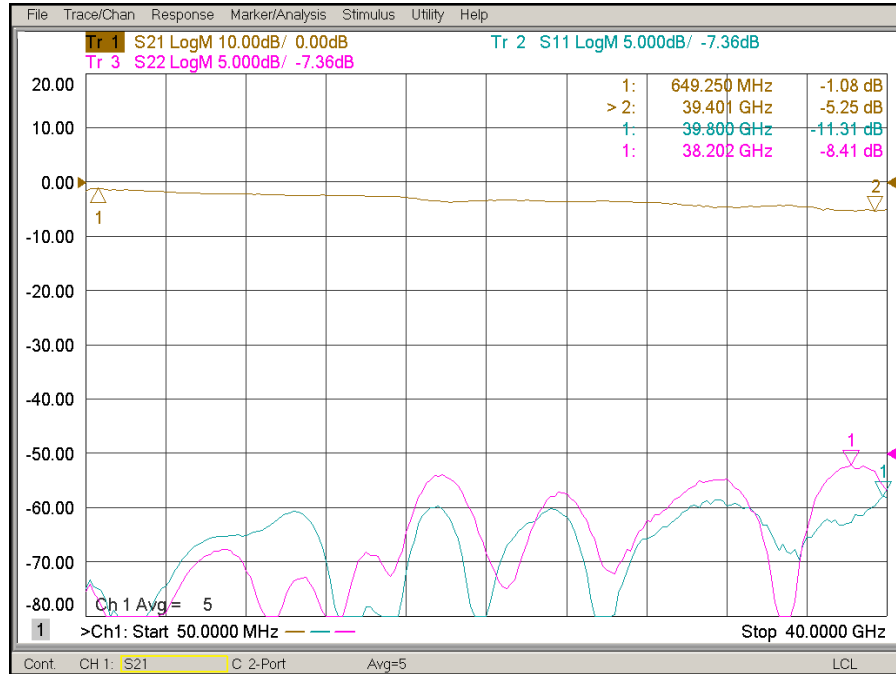




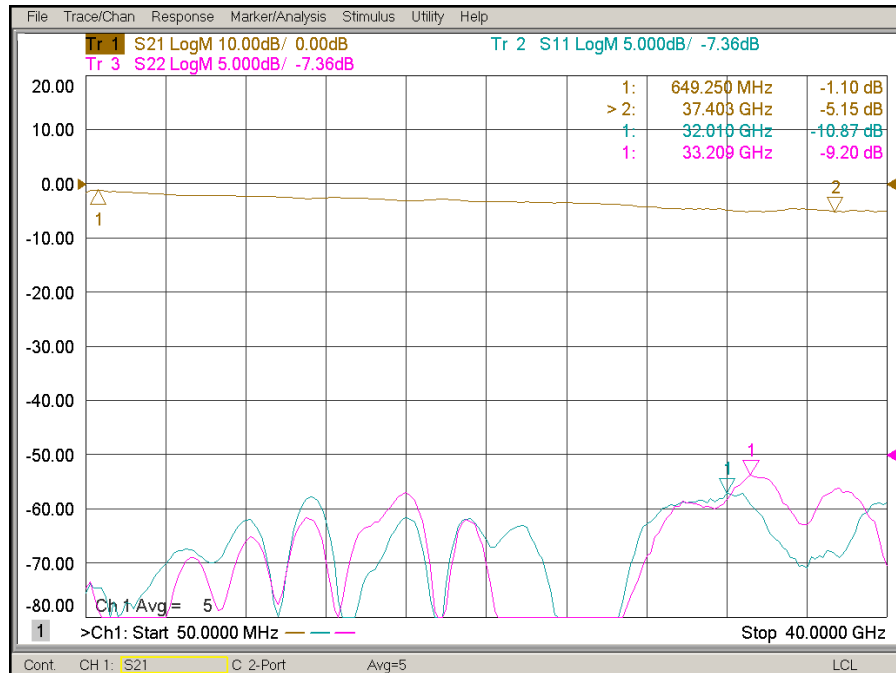
# Typical Characteristics On P4T-50M40G-55-T-292FF

PL13569/1332

## (J1-J4) Insertion Loss and Return Loss



## (J1-J5) Insertion Loss and Return Loss

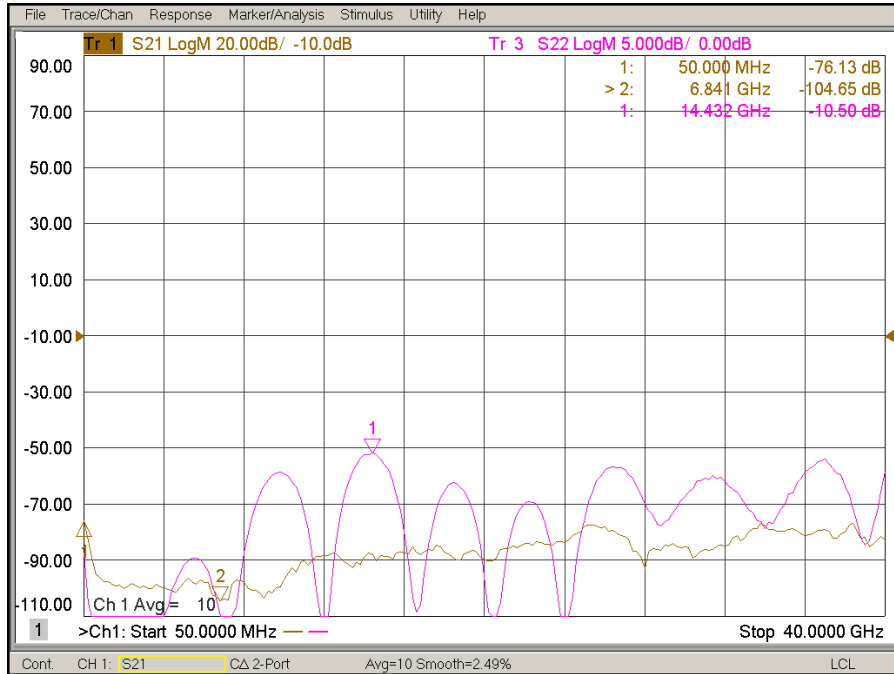




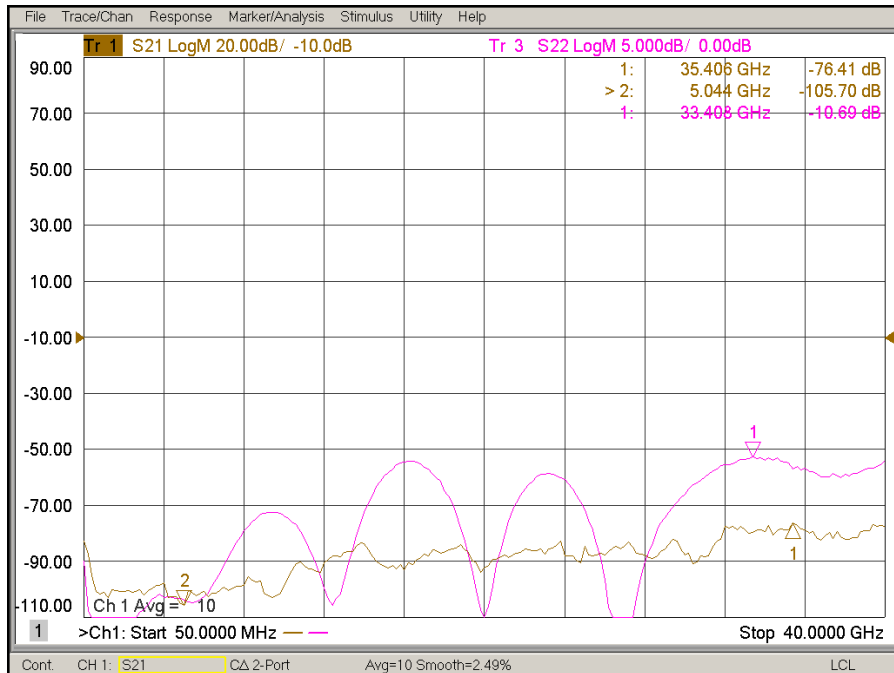
# Typical Characteristics On P4T-50M40G-55-T-292FF

PL13569/1332

## (J1 – J2) Isolation and Termination Return Loss



## (J1 – J3) Isolation and Termination Return Loss

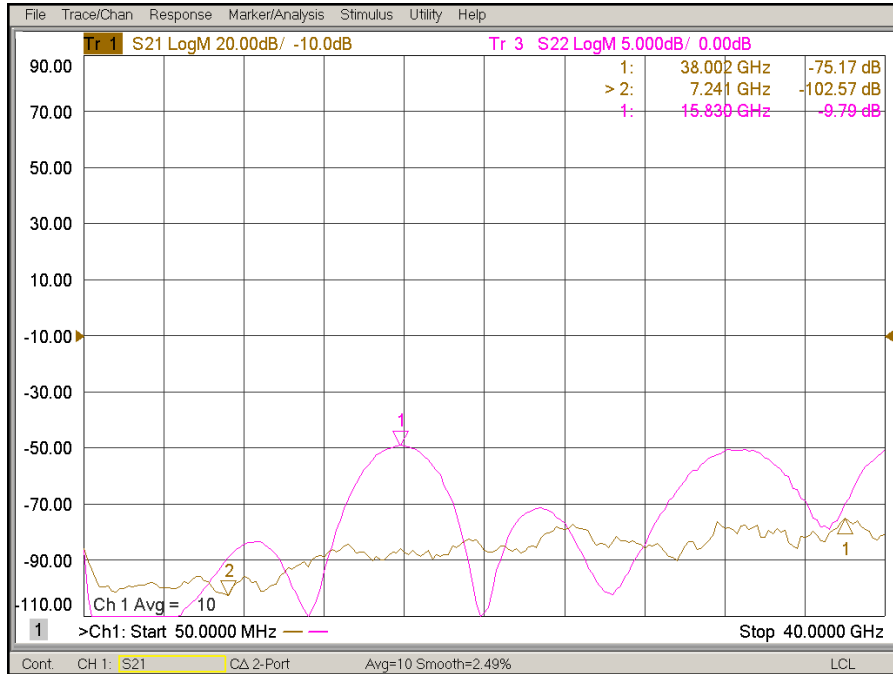




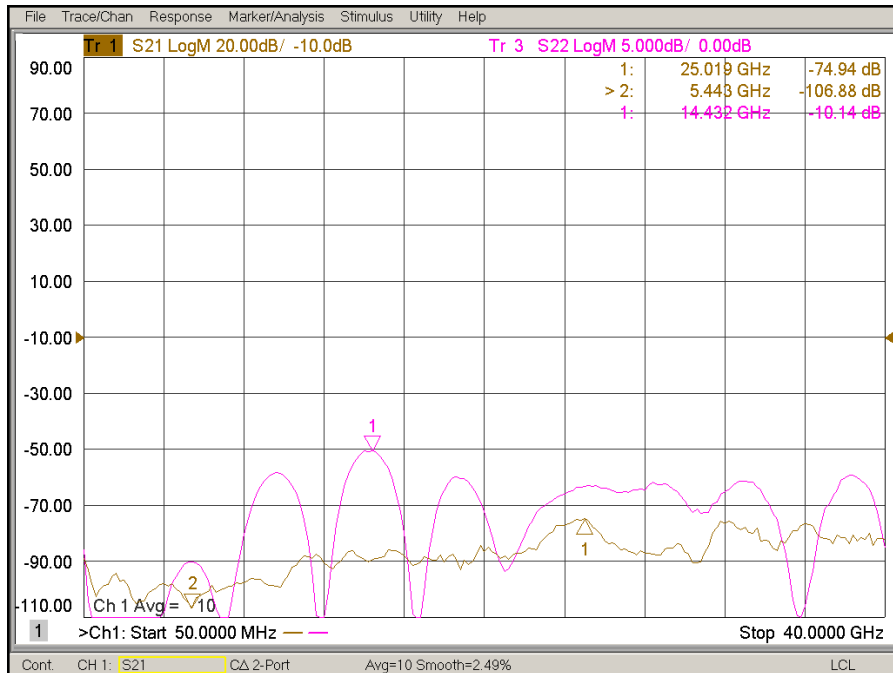
# Typical Characteristics On P4T-50M40G-55-T-292FF

PL13569/1332

## (J1 – J4) Isolation and Termination Return Loss



## (J1 – J5) Isolation and Termination Return Loss



## Switching Speed

7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731  
Email: [sales@pmi-rf.com](mailto:sales@pmi-rf.com)



# Typical Characteristics On P4T-50M40G-55-T-292FF

PL13569/1332

## OFF Delay 10ns per Div.



## ON Delay 10ns per Div.



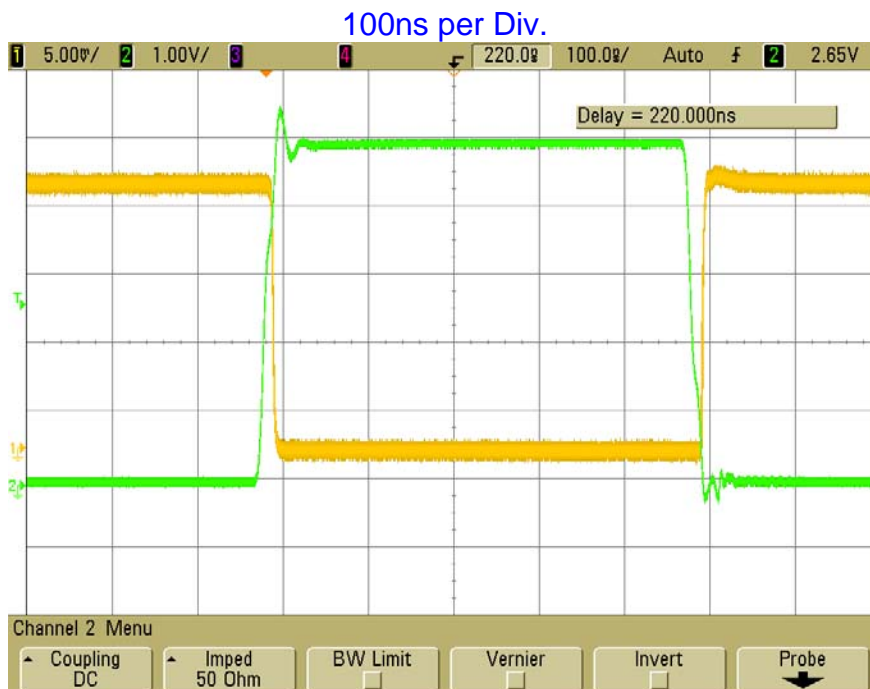
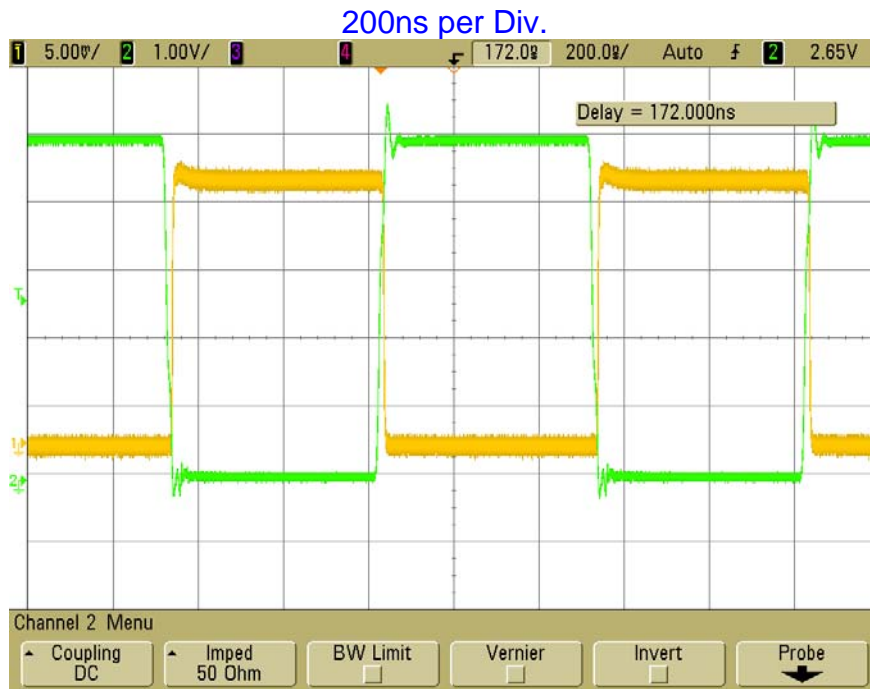
GREEN TRACE: TTL SIGNAL  
YELLOW TRACE: RF SIGNAL  
**Full Pulse**





# Typical Characteristics On P4T-50M40G-55-T-292FF

PL13569/1332



GREEN TRACE: TTL SIGNAL  
YELLOW TRACE: RF SIGNAL

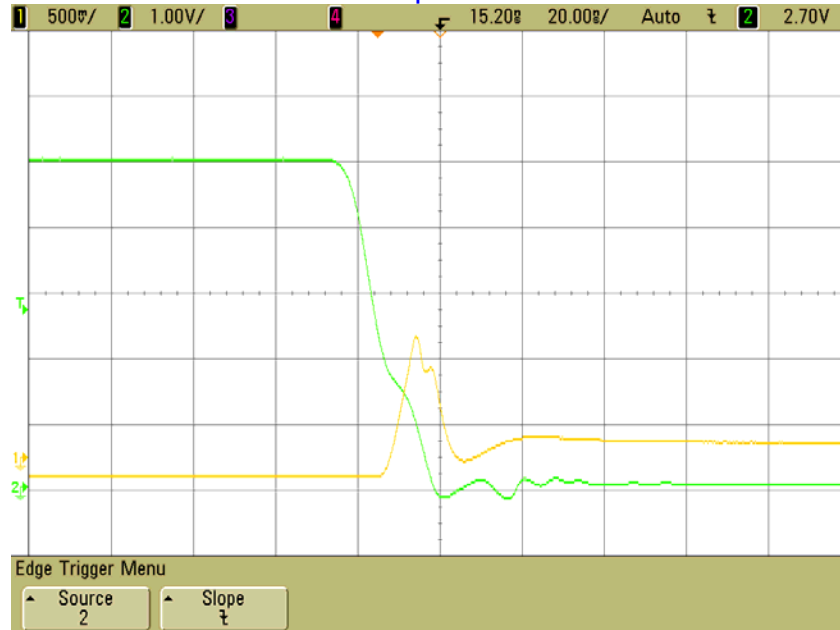
## Video Transients



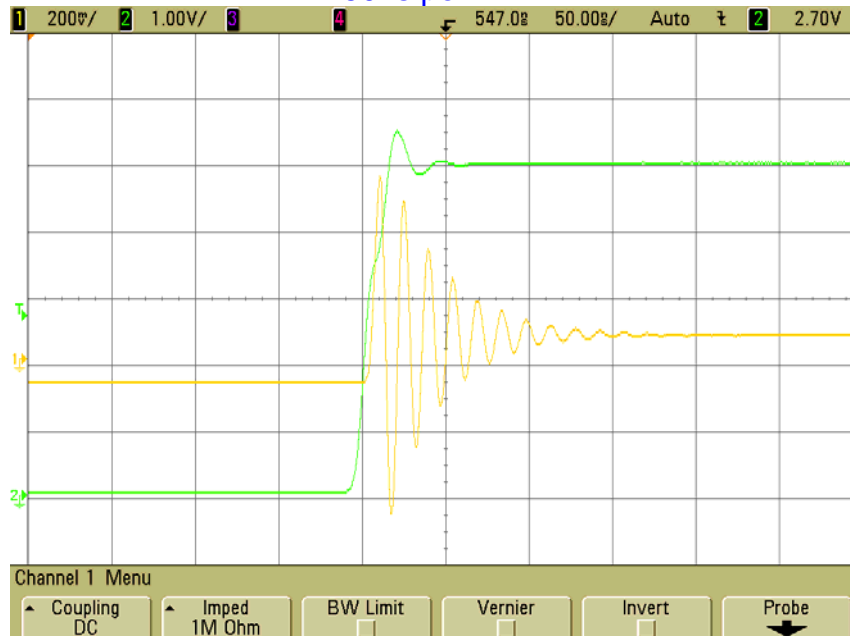
# Typical Characteristics On P4T-50M40G-55-T-292FF

PL13569/1332

## Common Arm (J1) 20ns per Div.



## 50ns per Div.



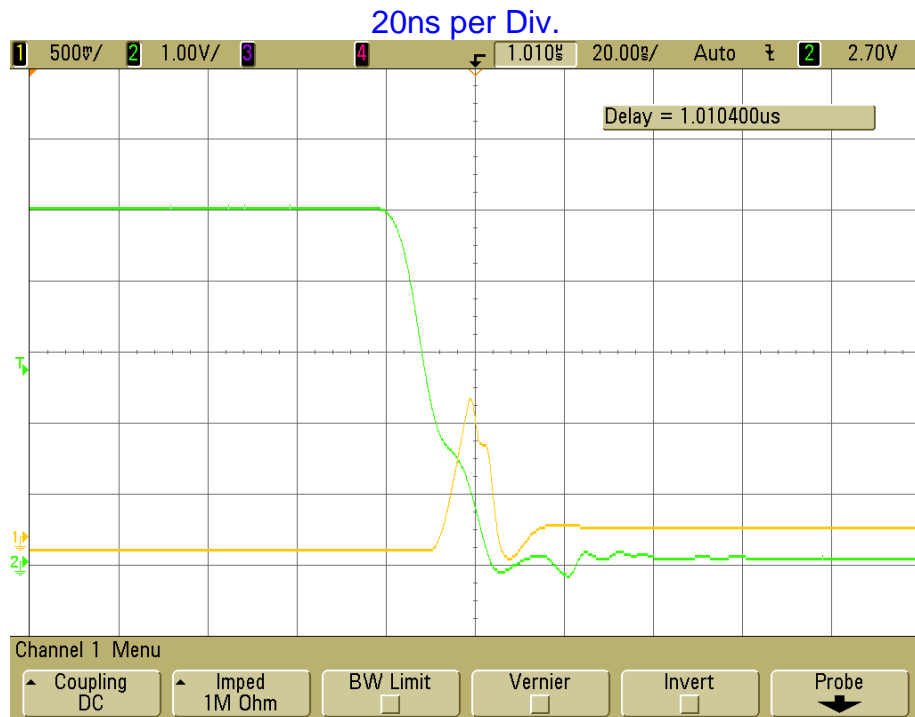
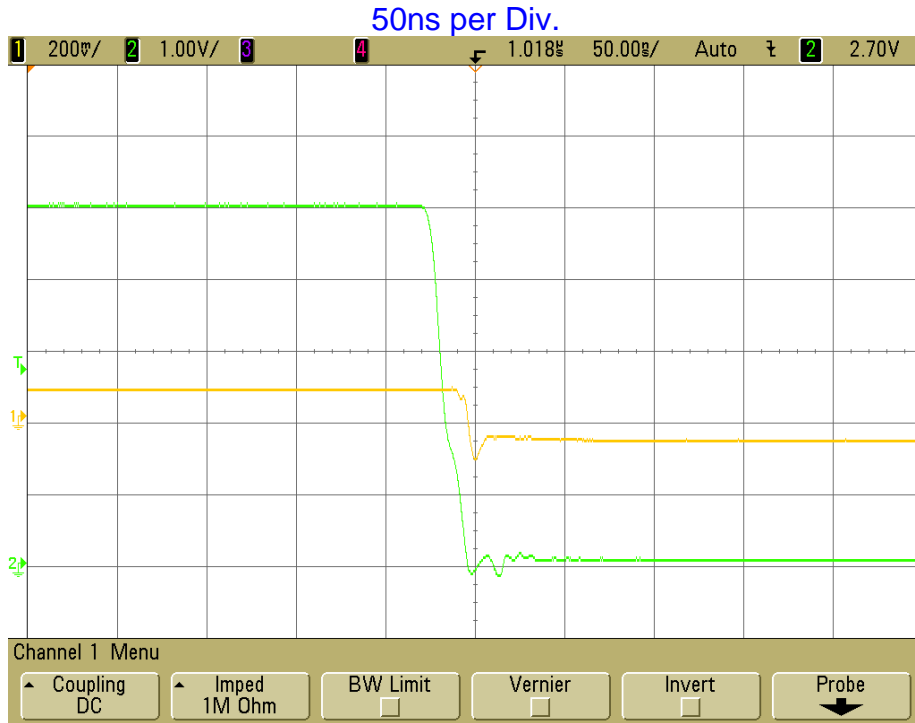
GREEN TRACE: TTL SIGNAL  
YELLOW TRACE: VIDEO TRANSIENTS

## Output Arm (J2)



# Typical Characteristics On P4T-50M40G-55-T-292FF

PL13569/1332



GREEN TRACE: TTL SIGNAL  
YELLOW TRACE: VIDEO TRANSIENTS