



**Typical Characteristics  
On  
P3T-9G10G-45-R-SFF**

**P3T-9G10G-45-R-SFF IS A 9.0 TO 10.0 GHz, SP3T REFLECTIVE SWITCH CAPABLE OF SWITCHING WITHIN 100 ns MAXIMUM. THIS UNIT HAS A TYPICAL INSERTION LOSS OF 2.7 dB MAXIMUM AND ISOLATION OF 45 dB MINIMUM WITH A VSWR OF 1.8:1.**



March 31, 2017

Designed By:

Matthew Berry / Sebastian Palacio / Narayanaswamy Shanmugam

Tested & Reported By:

Sebastián Palacio / Alfredo López

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# Typical Characteristics On P3T-9G10G-45-R-SFF

## DESCRIPTION

PMI MODEL: P3T-9G10G-45-R-SFF IS A 9.0 TO 10.0 GHz, SP3T REFLECTIVE SWITCH CAPABLE OF SWITCHING WITHIN 100 ns MAXIMUM. THIS UNIT HAS A TYPICAL INSERTION LOSS OF 2.0 dB AND ISOLATION OF 45 dB MINIMUM WITH A VSWR OF 1.8:1.

## SPECIFICATIONS

- FREQUENCY: 9.0 TO 10.0 GHz
- INSERTION LOSS: 2.5 dB TYPICAL  
2.7 dB MAXIMUM
- ISOLATION: 45 dB MINIMUM
- VSWR: 1.8:1 TYPICAL
- LOGIC CONTROL: SEE LOGIC TABLE BELOW
- SWITCHING SPEED: 100 ns MAXIMUM
- POWER HANDLING: 10 W CW MINIMUM  
57 dBm PEAK @ 1 μs PULSE WIDTH, 1% DUTY CYCLE
- SUPPLY: +5 V @ 85 mA  
-15 V @ 75 mA
- FINISH: BLUE EPOXY POLIMIDE COATING IAW  
MIL-C-22750, TYPE I OVER EPOXY POLIMIDE  
PRIMER IAW MIL-P-23377, TYPE I, CLASS 1 OR 3.  
MOUNTING SURFACE FREE OF PAINT

## LOGIC CONTROL TTL

L1	L2	L3	J0-J1	J0-J2	J0-J3
TTL LO	TTL HI	TTL HI	INSERTION LOSS	ISOLATION	ISOLATION
TTL HI	TTL LO	TTL HI	ISOLATION	INSERTION LOSS	ISOLATION
TTL HI	TTL HI	TTL LO	ISOLATION	ISOLATION	INSERTION LOSS

## ENVIRONMENTAL RATINGS

- TEMPERATURE: -54 °C TO +85 °C (OPERATING)  
-65 °C TO +125 °C (STORAGE)
- HUMIDITY: MIL-STD-202, METHOD 103B COND. B MAINTAIN  
RH 95±4% @ 63 °C (ALLOWED RF 85% WHEN  
TEMPERATURE-DOWN TRANSITION TIME.) THE  
RATE OF TEMPERATURE CHANGE: ABOVE 8  
°C/HOURS
- SHOCK: MIL-STD-202, METHOD 213, COND J  
20G (DURING OPERATION) & 125g, 6 ms SAW  
TOOTH TYPE, 3-AXIS (NO OPERATION)
- VIBRATION: MIL-STD-202, METHOD 214, COND A  
12G 30 MIN, X, Y, Z-AXIS (DURING OPERATION)  
& 20G 30 MIN X, Y, Z-AXIS (DURING OPERATION)
- ALTITUDE: MIL-STD-202, METHOD 105C, COND B  
200Km (8.47e-7 hPa or 6.353e-7 torr) DURING  
OPERATION)
- TEMPERATURE CYCLE: MIL-STD-202, METHOD 107D COND. A

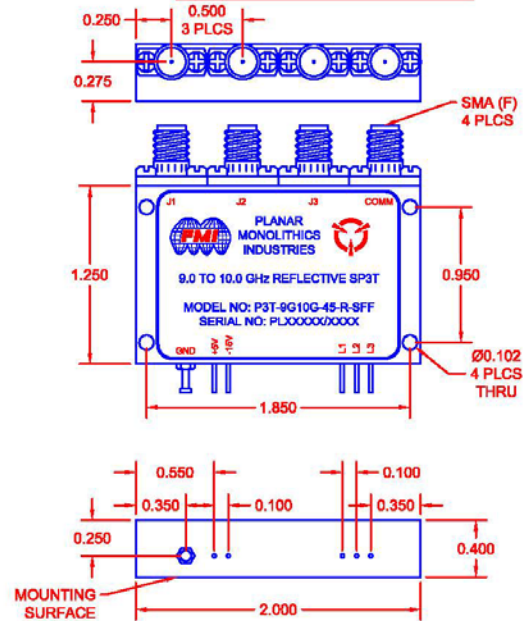
NOTE: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE  
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

**PMI CONFIDENTIAL AND PROPRIETARY**

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

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	1	ORIGINAL RELEASE	10/11/10	
	2	Insertion Loss Update	8/21/2017	
	A1	ECN # 17-0175	7/15/17	

## MECHANICAL OUTLINE



**PLANAR MONOLITHICS INDUSTRIES, INC.**  
7311-F GROVE ROAD

FREDERICK, MARYLAND 21704 USA  
TEL: (301)-662-5019, FAX: (301)-662-1731  
WEB: [www.pmi-rf.com](http://www.pmi-rf.com), EMAIL: [sales@pmi-rf.com](mailto:sales@pmi-rf.com)  
ISO 9001 CERTIFIED



APPROVALS		DATE	TITLE		
DRAWN <i>M. Berry</i>		10/11/10	PRODUCT FEATURE P3T-9G10G-45-R-SFF		
CHECKED			9.0 to 10.0 GHz, Single Pole, Three Throw Reflective Switch		
ISSUED			SIZE A	FRGM NO. 05XQ0	DWG NO. 27030780
			SCALE N:S		REV. A1
					SHEET 1 OF 1



**Typical Characteristics  
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Typical Data @ 25°C

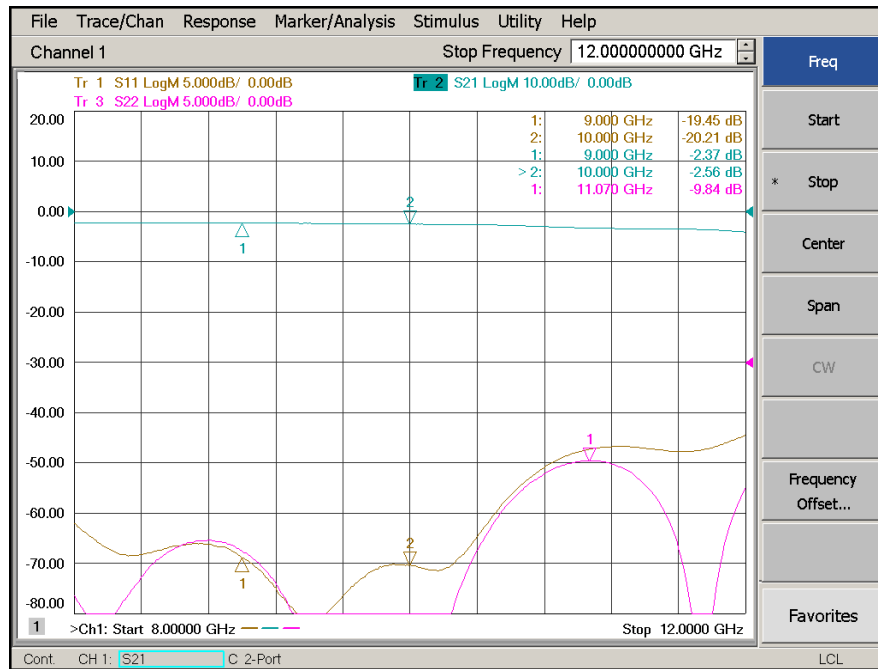
TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range	9.0 to 10.0 GHz	9.0 to 10.0 GHz See Plots	
2	Insertion Loss	2.50 dB Typ 2.70 dB Max	2.56dB See Plots	
3	Isolation	45 dB Min	51.07dB See Plots	
4	Power Handling	+40 dBm CW Mlin +57 dBm @ 1 $\mu$ s Pulse Width & 1% Duty Cycle	+40 dBm CW Mlin +57 dBm @ 1 $\mu$ s Pulse Width & 1% Duty Cycle See Graph	
5	VSWR	1.8:1 Typ	1.24:1 See Plots	
6	Switching Speed	100 ns Max	ON – 52ns OFF - 98ns See Plots	
7	Control Logic	See Table Below	Pass	
8	Supply	+5 V @ 85 mA -15 V @ 75 mA	+5 V @ 80mA -15 V @ 0mA	

<b>Logic Control TTL</b>					
L1	L2	L3	J0-J1	J0-J2	J0-J3
LOW	HIGH	HIGH	INSERTION LOSS	ISOLATION	ISOLATION
HIGH	LOW	HIGH	ISOLATION	INSERTION LOSS	ISOLATION
HIGH	HIGH	LOW	ISOLATION	ISOLATION	INSERTION LOSS



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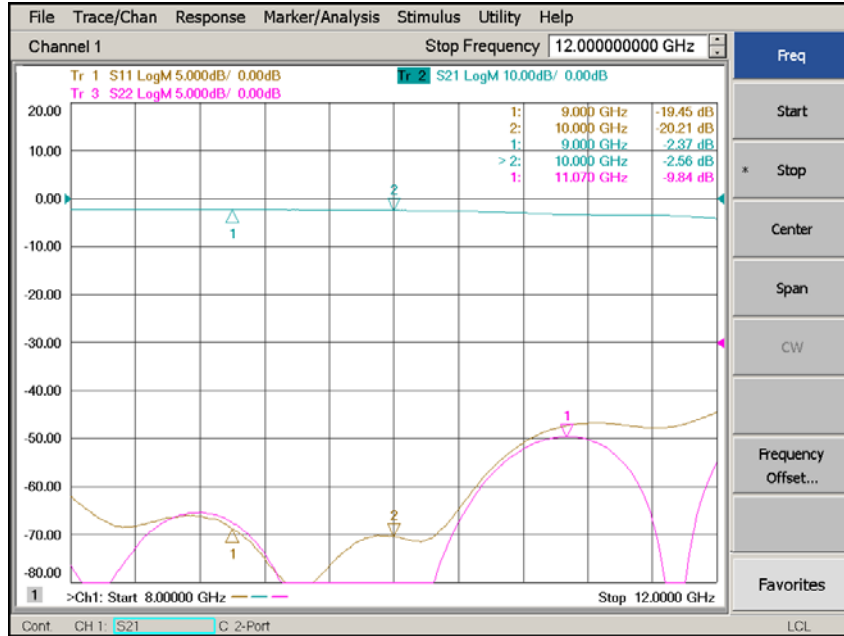
### J0 – J1 Insertion Loss, Return Loss



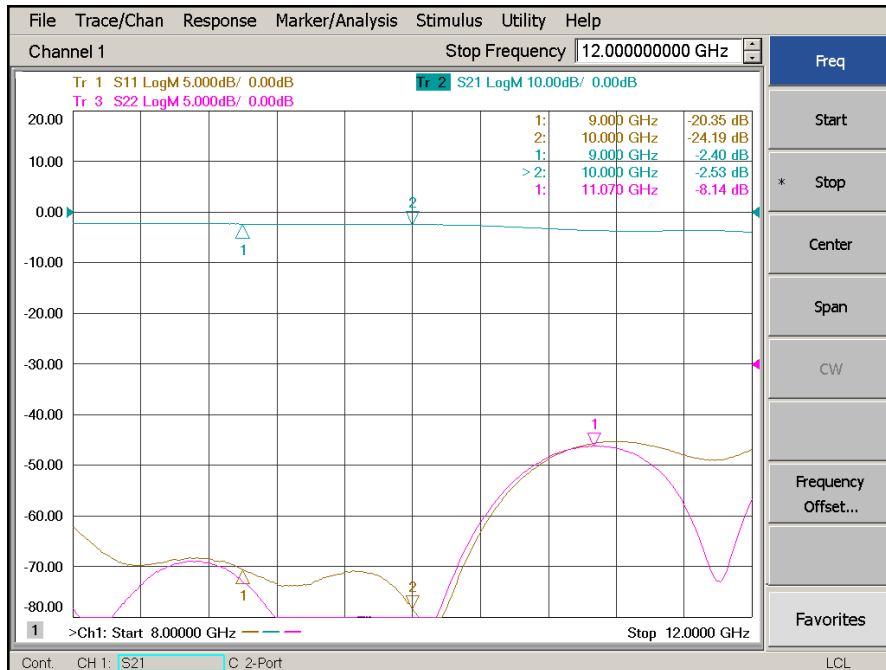
### J0 – J2 Insertion Loss, Return Loss



## Typical Characteristics On P3T-9G10G-45-R-SFF



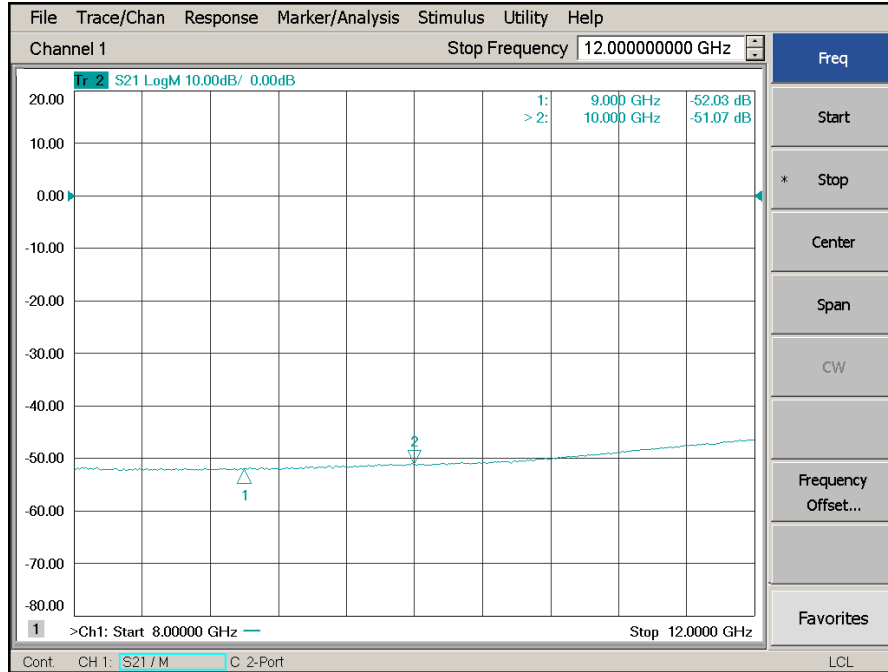
**J0 – J3 Insertion Loss, Return Loss**



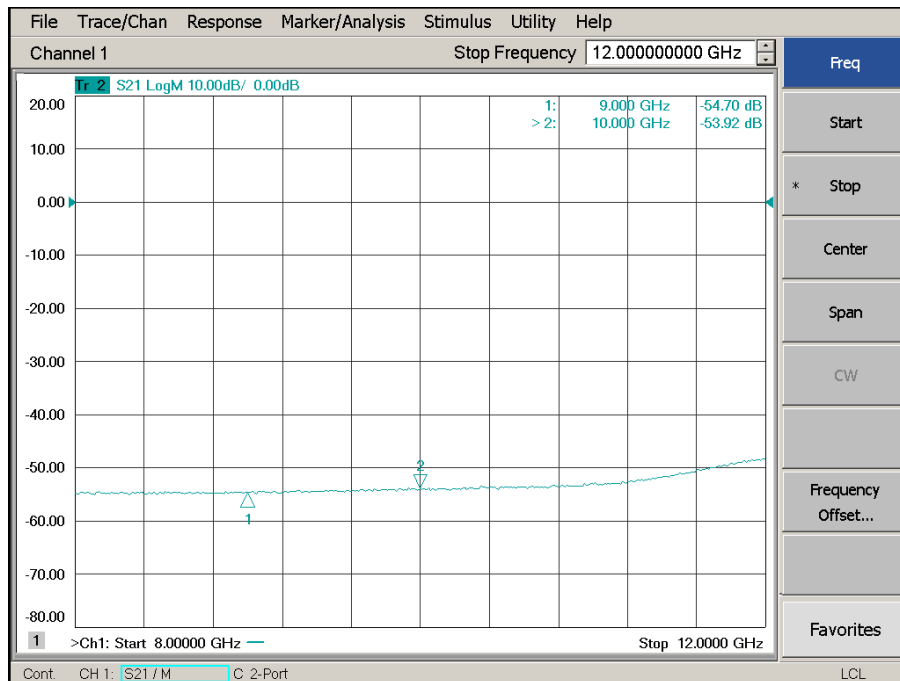
**J1 Isolation**



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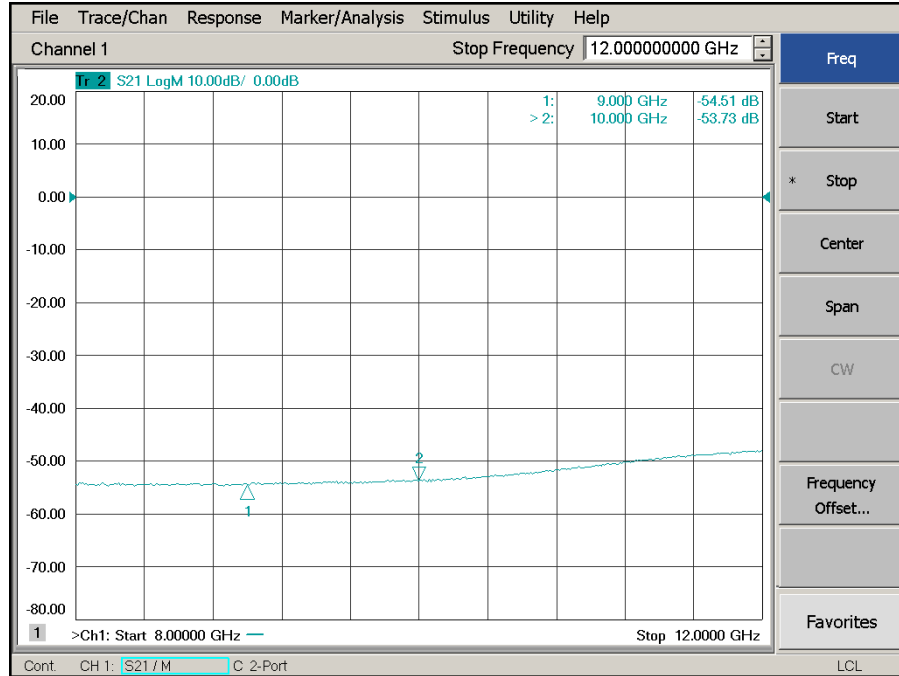
### J2 Isolation



### J3 Isolation



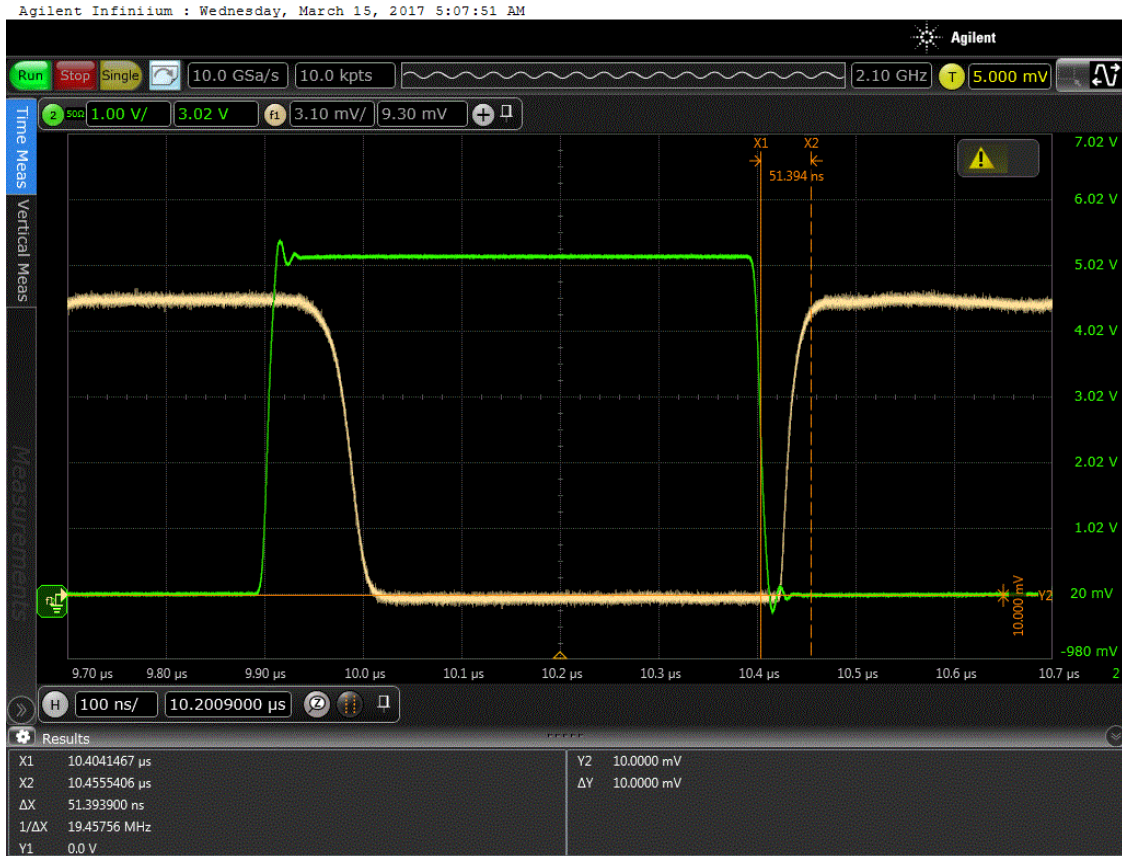
## Typical Characteristics On P3T-9G10G-45-R-SFF



**Switching Speed**  
**ON Speed – 100ns per Div.**



# Typical Characteristics On P3T-9G10G-45-R-SFF



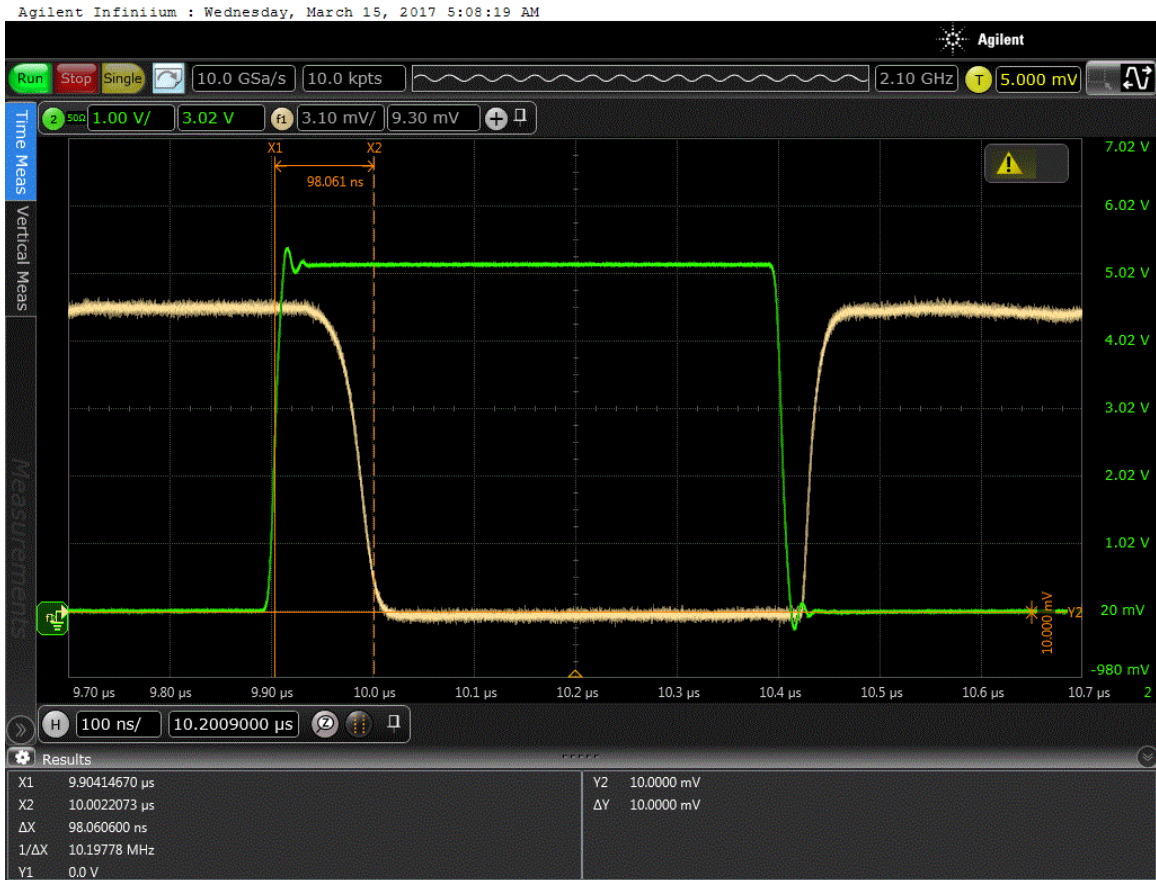
Green Trace = TTL Signal  
Light Brown Trace = RF Signal

Switching Speed  
OFF Speed – 100ns per Div.





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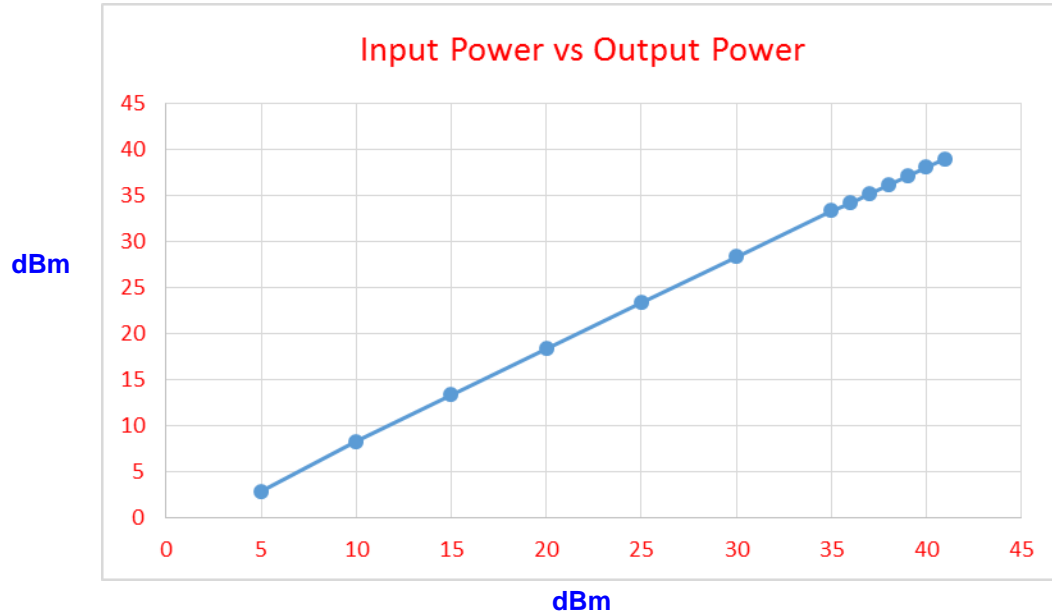


Green Trace = TTL Signal  
Light Brown Trace = RF Signal

## High Power Test



## Typical Characteristics On P3T-9G10G-45-R-SFF



INPUT POWER	OUTPUT POWER
5	2.88
10	8.28
15	13.36
20	18.4
25	23.39
30	28.38
35	33.35
36	34.21
37	35.17
38	36.13
39	37.1
40	38.04
41	38.94