



## Typical Characteristics For P2T-6G18G-40-R-570-TFF-120WCW

PMI MODEL P2T-6G18G-40-R-570-TFF-120WCW IS A 6.0 GHz TO 18.0 GHz SINGLE-POLE, DOUBLE THROW SOLID-STATE SWITCH CAPABLE OF HANDLING INPUT POWER LEVELS UP TO 120 W CW (1.5 KW PEAK) HAVING A DUTY CYCLE OF 8% AND A PULSE WIDTH OF 250 us. THIS SWITCH OFFERS LOW LOSS OF 2.2 dB MAXIMUM AND 40 dB OF ISOLATION WITH A SWITCHING SPEED OF 1.25 us MAXIMUM. DC OPERATING VOLTAGES ARE +5VDC & -70VDC. THE HOUSING IS HARD EPOXY SEALED, MEASURES 2.0" x 2.0" x 0.75" AND IS SUPPLIED WITH TNC FEMALE CONNECTORS.



Revised on March 15, 2018  
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## Table of Contents

<b>1. Product Feature Drawing</b>	<b>Page 3</b>
<b>2. Summary Data</b>	<b>Page 4</b>
<b>3. Insertion Loss and Return Loss</b>	<b>Page 5</b>
<b>4. Isolation</b>	<b>Page 6</b>
<b>5. High Power</b>	<b>Page 7-10</b>
<b>6. Switching Speed</b>	<b>Page 11-13</b>



# Typical Characteristics For P2T-6G18G-40-R-570-TFF-120WCW

## Product Feature Drawing

ZONE		REVISIONS			
		REV.	DESCRIPTION	DATE	APPROVED
		—	PRELIMINARY	6/21/20	

**DESCRIPTION**

PMI MODEL P2T-6G18G-40-R-570-TFF-120WCW IS A REFLECTIVE 50W CW HIGH-POWER COLD SWITCHING SINGLE POLE DOUBLE THROW SWITCH OPERATING IN THE 6-18 GHz FREQUENCY RANGE.

**SPECIFICATIONS**

- FREQUENCY RANGE: 6-18 GHz
- POWER: 120 W CW (1.5 KW PEAK)
- INSERTION LOSS: 2.2dB MAX. AT BAND EDGES FOR 20% BANDWIDTH AND TYPICALLY 1.75 dB GOAL FOR MID-BAND OF 80% OF THE BANDWIDTH 2.0 dB MAX. AND TYPICALLY 1.5dB GOAL.
- ISOLATION: 40dB
- PULSE WIDTH: 250 uSEC MAX.
- SWITCHING SPEED: 1.25 us MAX., 1.1 US TYP. (50% TTL TO 90% RF & 50% TTL TO 10% RF) 2:1 MAX.
- VSWR IN/OUT: BETTER THAN 1.5:1
- LOAD VSWR: BETTER THAN 1.5:1
- DC VOLTAGE & CURRENT: +5V @ 300mA AND -70V @ 60mA
- CONTROL: SINGLE TTL (TTL "0" J1-J3 " LOW LOSS)
- CONNECTOR FOR RF PORT: TNC FEMALE
- CONNECTOR FOR CONTROL: 9 PIN MICRO D TYPE FEMALE, MATING WITH M83513/03A/03C (SEE CONNECTION TABLE BELOW)
- SIZE (NOT INCL. CONNECTORS): (L) 2.00" X (W) 2.00" X (H) 0.75"
- FINISH: PAINTED BLUE - NO PAINT ON MOUNTING SURFACE
- J4 CONNECTIONS

J4 PIN	CONNECT TO
1	U1 +70V
2	GROUND
3	U1 CONTROL
4	U1 +5V
5	U1 NC
6	U1 GROUND
7	U1 GROUND
8	U1 GROUND
9	U1 GROUND

**ENVIRONMENTAL RATINGS**

- TEMPERATURE: -40°C TO +65°C
- ENVIRONMENTAL: MIL-STD-810E
- EM/EMC: MIL-STD-461

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

**MECHANICAL OUTLINE**

**PMI CONFIDENTIAL AND PROPRIETARY**

**PLANAR MONOLITHICS INDUSTRIES, INC.**  
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ISO 9001 CERTIFIED

APPROVALS		DATE		TITLE	
DRWN	NJA		11/17/18	PRODUCT FEATURE	
EDRWN	CW		6/21/20	P2T-6G18G-40-R-570-TFF-120WCW	
ISSUED		SIZE / PSOW NO.	A / 05X00	DWG NO.	PRELIMINARY
		SCALE	N: S	SHEET	1 OF 1

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# Typical Characteristics For **P2T-6G18G-40-R-570-TFF-120WCW**

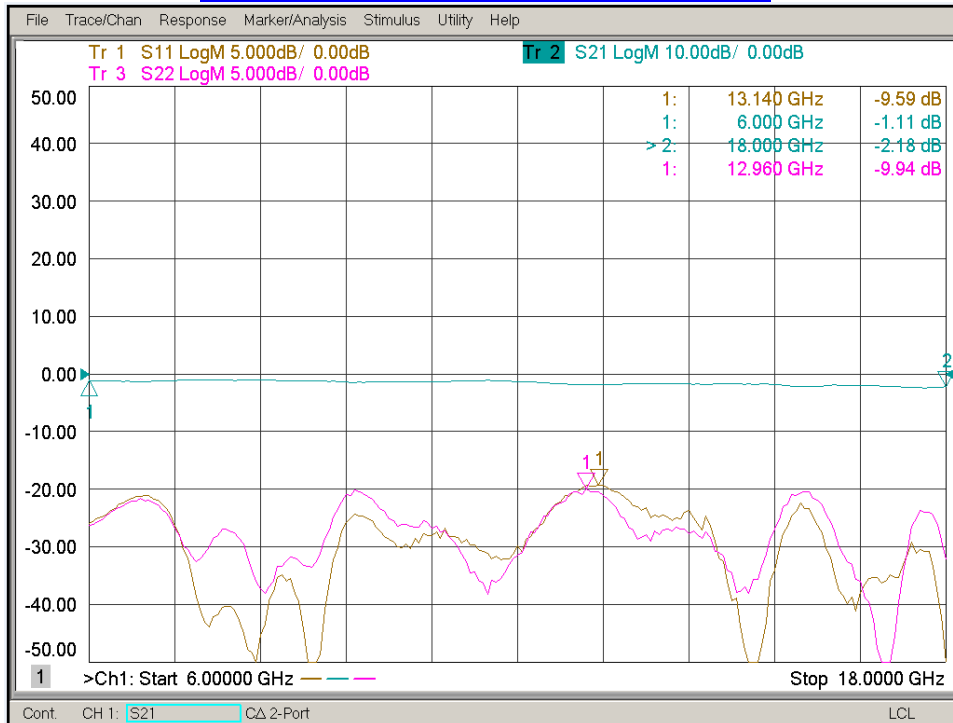
## Summary Data Sheet

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range:	6.0 to 18.0 GHz	<b>6.0 to 18.0 GHz (See Plots)</b>	
2	Power:	120 W CW (1.5 KW Peak)	<b>Not Tested for Peak Power Tested 125 W CW (See Graph)</b>	
3	Duty Cycle:	8%	<b>Not Tested for Peak Power</b>	
4	Insertion Loss:	2.2dB Max. at band edges for 20% bandwidth and typically 1.75 dB goal. For mid-band of 80% of the bandwidth 2.0dB Max., and typically 1.5 dB goal	<b>2.18 dB Max. (See Plots)</b>	
5	Isolation:	40dB	<b>Max. 51.27 dB Min. 41.24 dB</b>	
6	Pulse Width:	250 μSec. Max.	<b>Used for CW Power Calculation</b>	
7	Switching Speed:	1.25 us Max. 1.1 us Typ. (50% TTL to 90% RF and 50% TTL to 10% RF)	<b>1.10 us (See Plots) Tested at Low Power</b>	
8	VSWR in/out:	2:1 Max.	<b>Input 1.99:1 Output 1.93:1 (See Plots)</b>	
9	Load VSWR:	Better than 1.5:1	<b>1.5:1 Typical</b>	
10	Power Supply:	+5V @ 300mA -70V @ 60mA	<b>+5V @ 300 mA -70V @ 0 mA</b>	

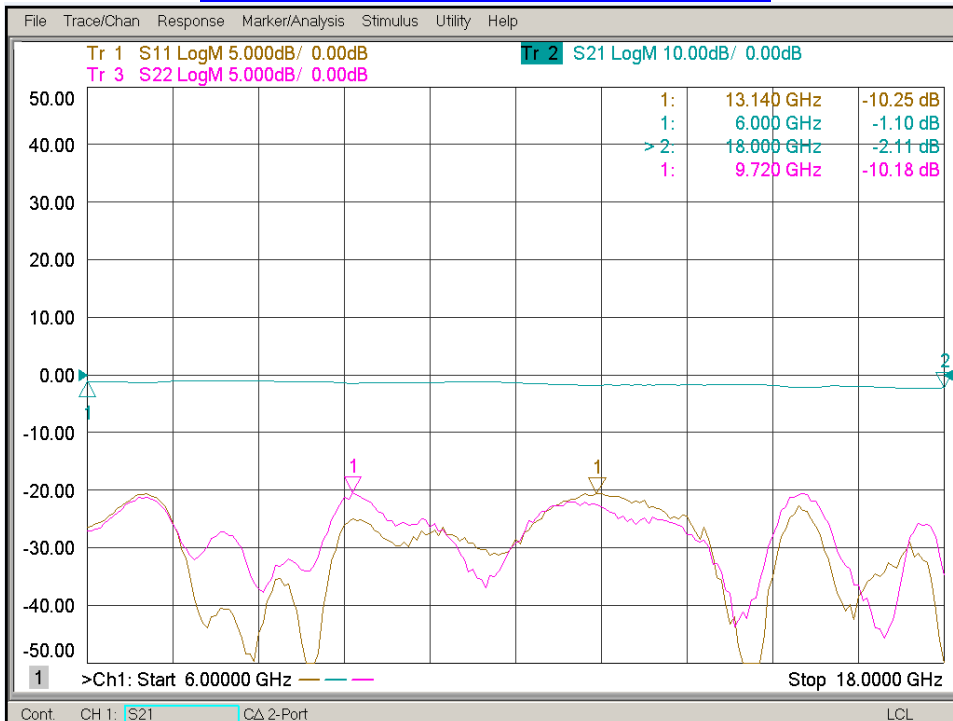


# Typical Characteristics For P2T-6G18G-40-R-570-TFF-120WCW

## J1-J2 Insertion Loss and Return Loss



## J1-J3 Insertion Loss and Return Loss

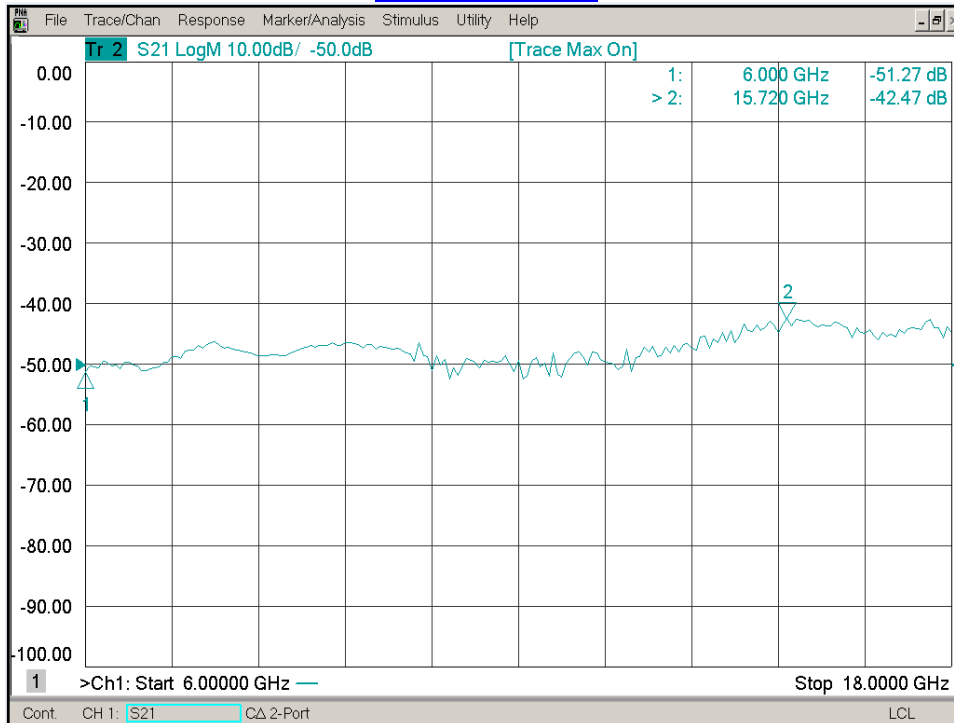


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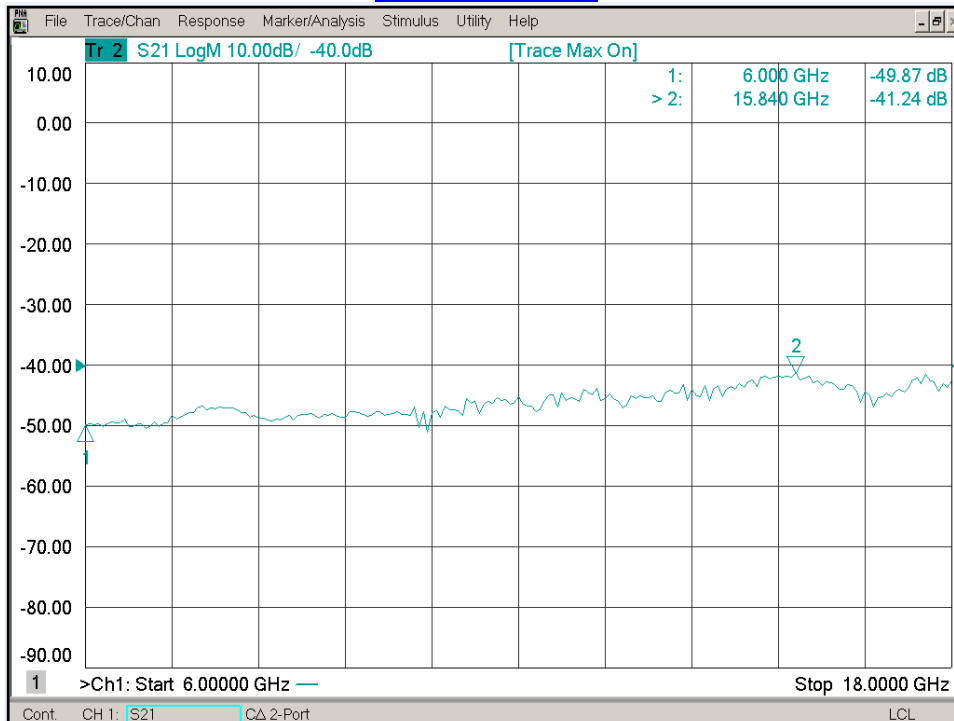


# Typical Characteristics For P2T-6G18G-40-R-570-TFF-120WCW

## J1-J2 Isolation



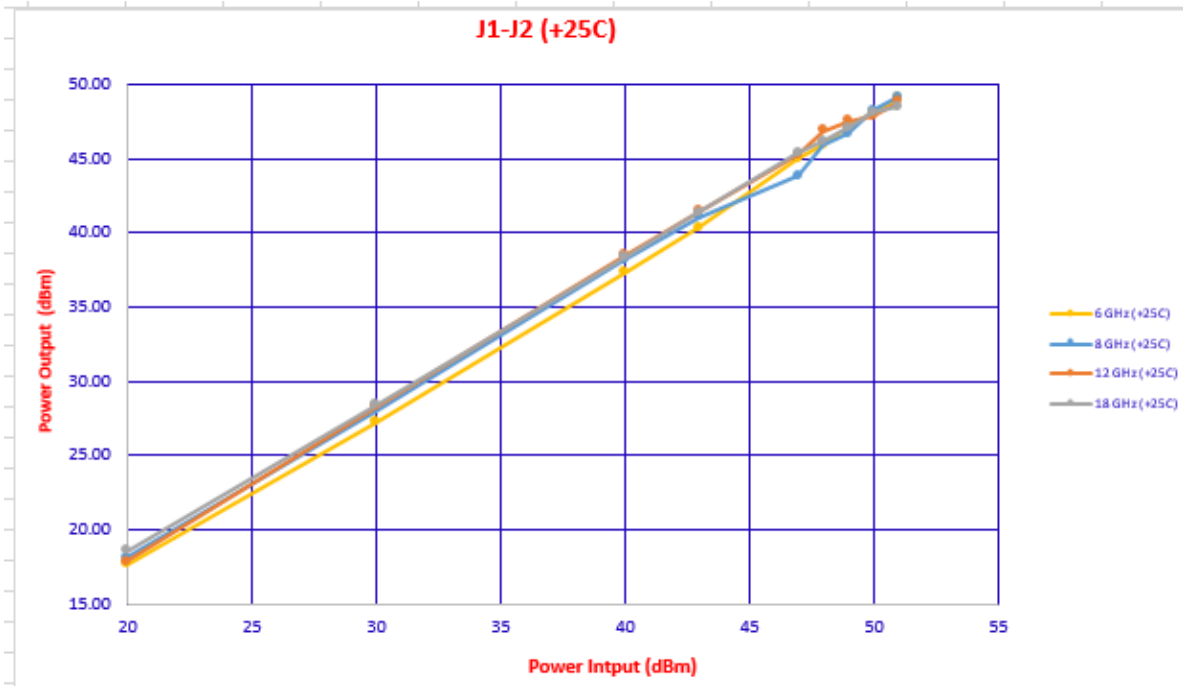
## J1-J3 Isolation





# Typical Characteristics For P2T-6G18G-40-R-570-TFF-120WCW

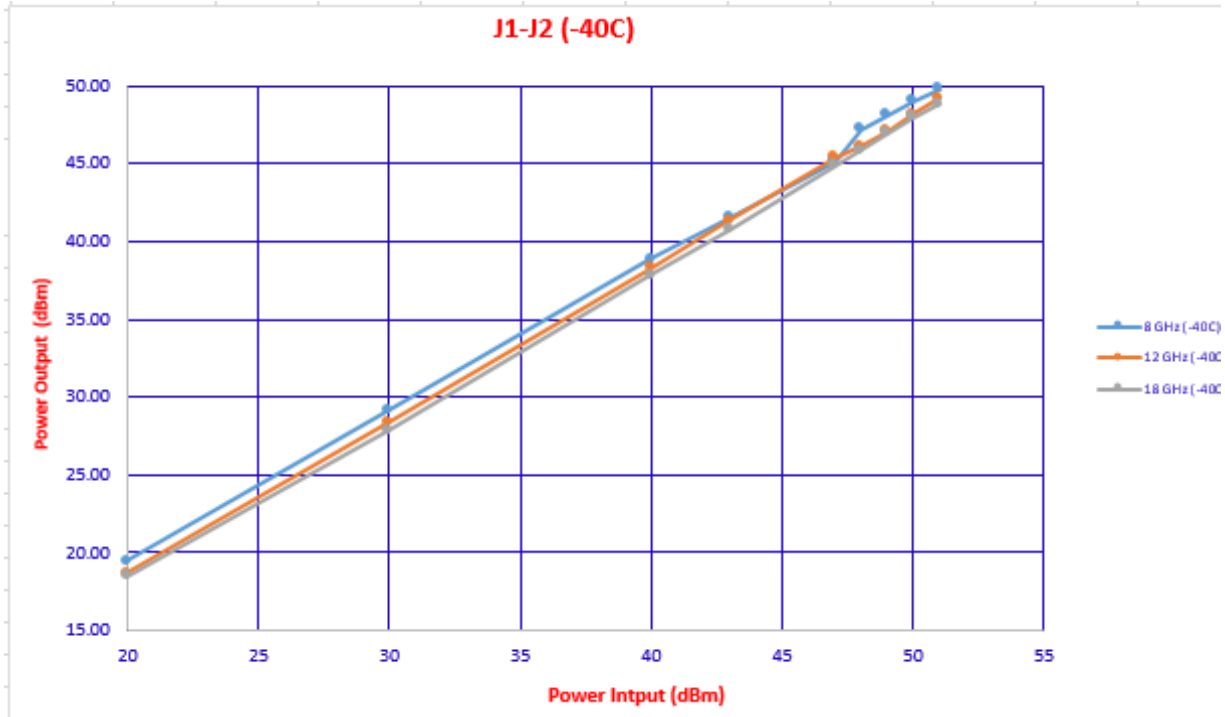
## High Power Test



+25C			+25C			+25C			+25C		
POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)
20	0.1	17.65	20	0.1	18.08	20	0.1	17.80	20	0.1	18.5
30	1	27.20	30	1	28	30	1	28.25	30	1	28.36
40	10	37.30	40	10	38.15	40	10	38.45	40	10	38.35
43	19.96	40.30	43	19.96	41.05	43	19.96	41.44	43	19.96	41.39
47	50.12	45.00	47	50.12	43.8	47	50.12	45.24	47	50.12	45.38
48	63.1	45.90	48	63.1	45.98	48	63.1	46.87	48	63.1	46.12
49	79.43	47.10	49	79.43	46.66	49	79.43	47.49	49	79.43	47.06
50	100	48.10	50	100	48.22	50	100	47.80	50	100	48.1
51	125.89	49.06	51	125.89	49.15	51	125.89	48.8	51	125.89	48.5



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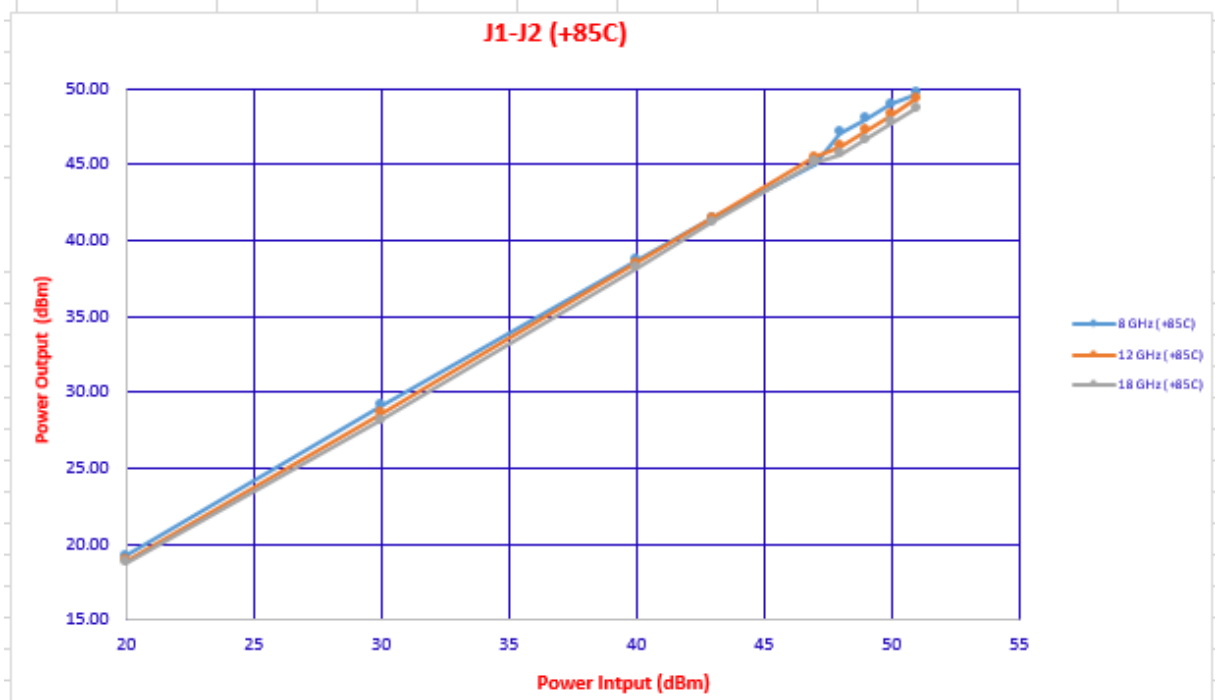
-40C			-40C			-40C		
POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)
20	0.1	19.45	20	0.1	18.68	20	0.1	18.48
30	1	29.15	30	1	28.37	30	1	27.87
40	10	38.87	40	10	38.28	40	10	37.80
43	19.96	41.51	43	19.96	41.32	43	19.96	40.73
47	50.12	45.13	47	50.12	45.37	47	50.12	44.84
48	63.1	47.18	48	63.1	46.08	48	63.1	45.85
49	79.43	48.11	49	79.43	47.07	49	79.43	46.90
50	100	48.99	50	100	48.15	50	100	48.00
<b>51</b>	<b>125.89</b>	<b>49.8</b>	<b>51</b>	<b>125.89</b>	<b>49.2</b>	<b>51</b>	<b>125.89</b>	<b>48.8</b>

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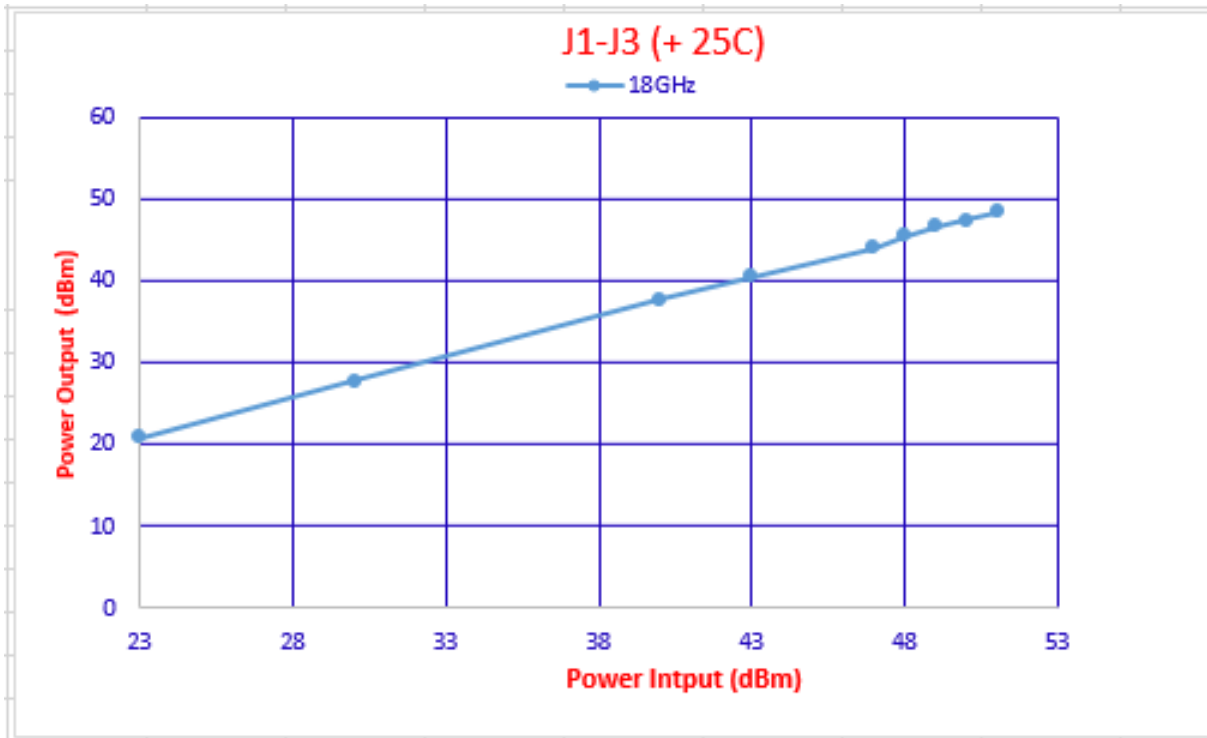
# Typical Characteristics For P2T-6G18G-40-R-570-TFF-120WCW



+85C			+85C			+85C		
POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)
20	0.1	19.20	20	0.1	18.90	20	0.1	18.78
30	1	29.10	30	1	28.59	30	1	28.15
40	10	38.70	40	10	38.47	40	10	38.14
43	19.96	41.45	43	19.96	41.45	43	19.96	41.20
47	50.12	45.00	47	50.12	45.49	47	50.12	45.17
48	63.1	47.08	48	63.1	46.20	48	63.1	45.69
49	79.43	48.01	49	79.43	47.23	49	79.43	46.65
50	100	48.97	50	100	48.25	50	100	47.77
51	125.89	49.68	51	125.89	49.35	51	125.89	48.7



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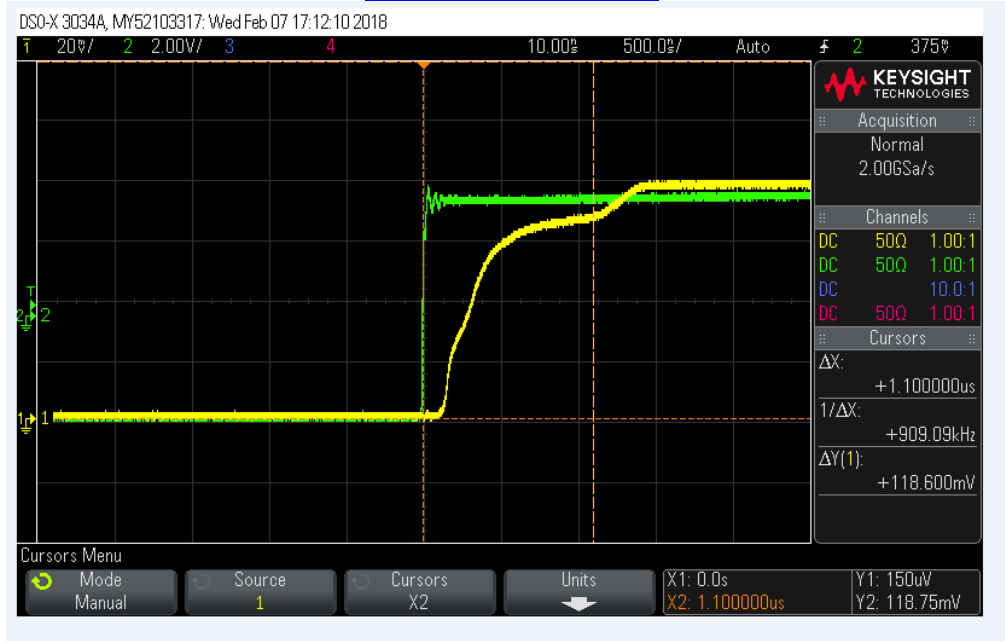


POWER INPUT (dBm)	POWER INPUT (Watts)	POWER OUTPUT (dBm)	TEMPERATURE C
23	0.1	20.8	23.4
30	1	27.72	23.5
40	10	37.72	24.4
43	19.96	40.51	26.3
47	50.12	44.05	28.3
48	63.1	45.56	32
49	79.43	46.77	36.5
50	100	47.48	38.7
51	125.89	48.42	42

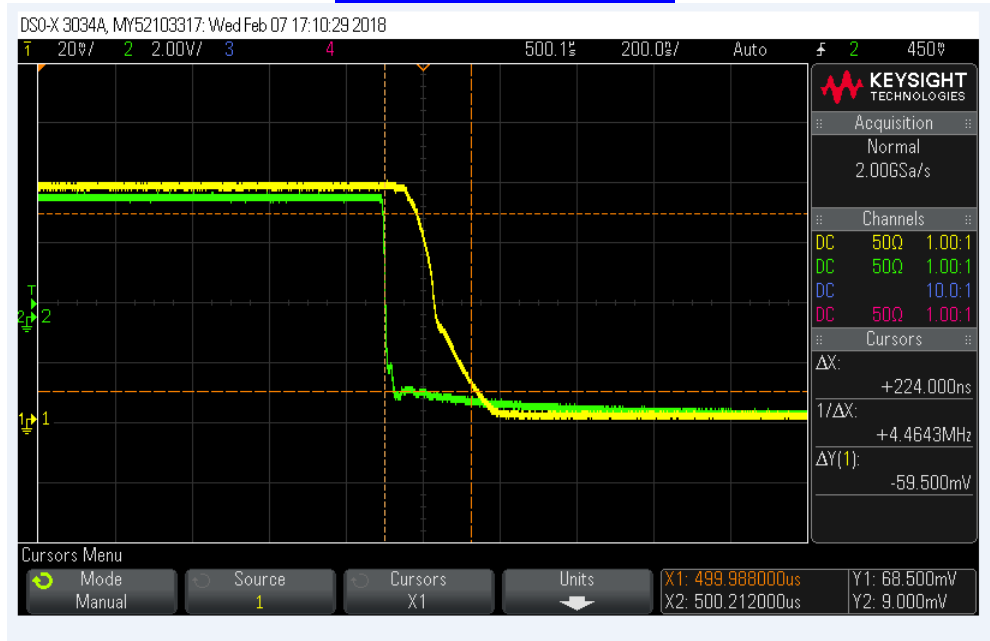


# Typical Characteristics For P2T-6G18G-40-R-570-TFF-120WCW

## Switching Speed ON 500 ns Per Division



Yellow Trace: RF Signal  
Green Trace: TTL Signal  
Switching Speed OFF  
200 nseg Per Division

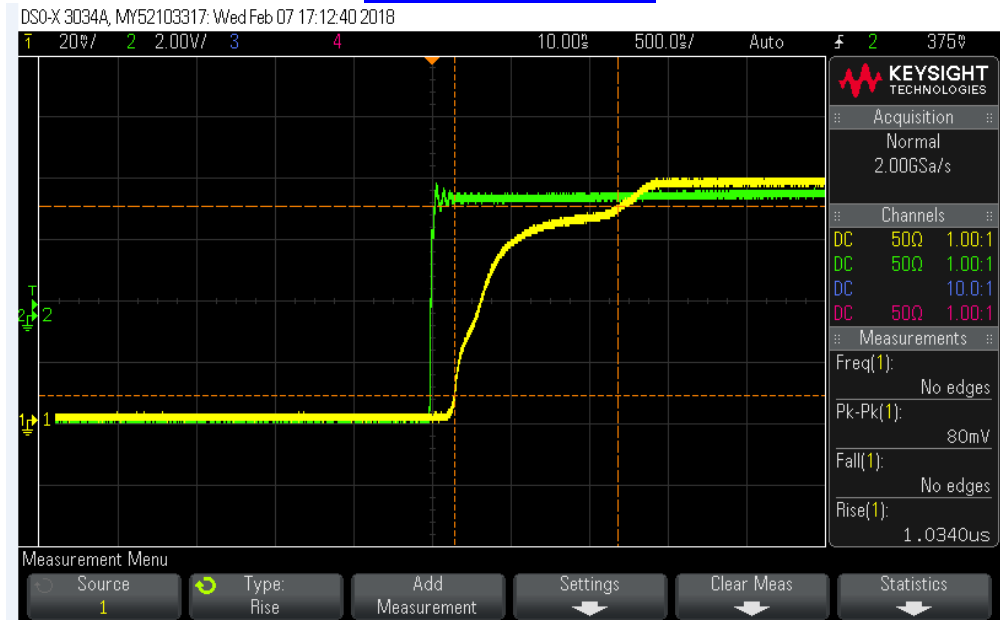


Yellow Trace: RF Signal  
Green Trace: TTL Signal



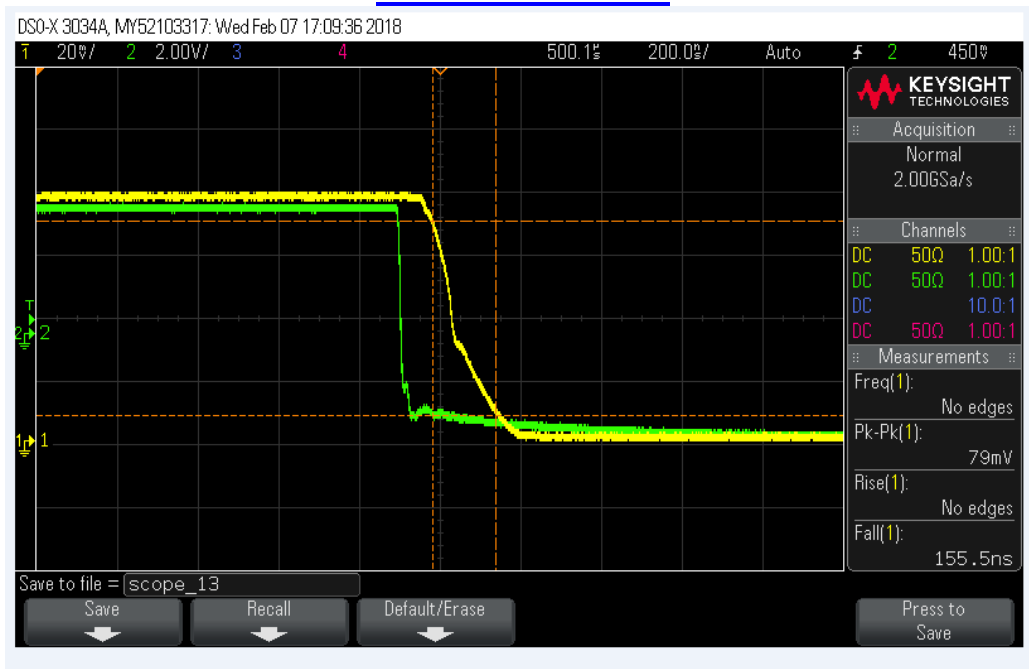
# Typical Characteristics For P2T-6G18G-40-R-570-TFF-120WCW

## Rise Time 500 ns per Division



Yellow Trace: RF Signal  
Green Trace: TTL Signal

## Fall Time 200 ns Per Division



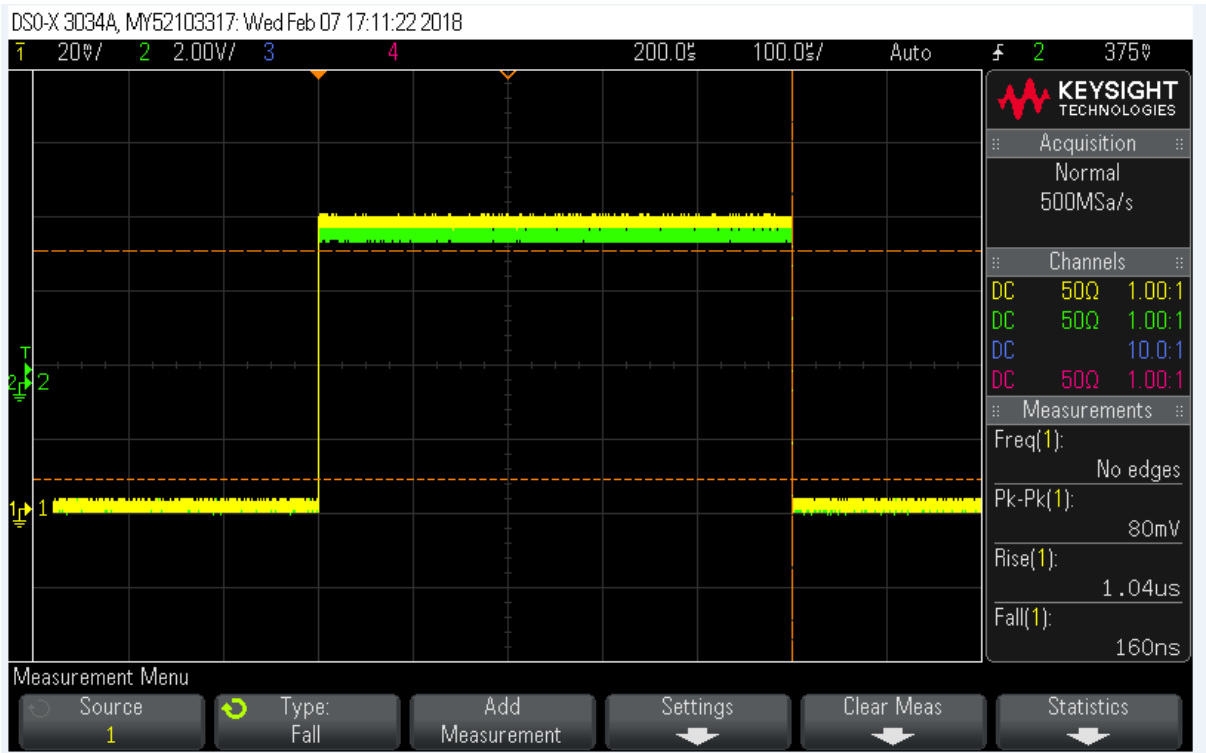
Yellow Trace: RF Signal  
Green Trace: TTL Signal

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# Typical Characteristics For P2T-6G18G-40-R-570-TFF-120WCW

## Full Pulse 100 us per Division



**Yellow Trace: RF Signal**  
**Green Trace: TTL Signal**