



Typical Characteristics ON P2T-8G12G-40-R-570-TFF-1D5KW-120W

PMI MODEL P2T-8G12G-40-R-570-TFF-1D5KW-120W IS A REFLECTIVE
1.5 KILOWATT HIGH-POWER COLD SWITCHING SINGLE POLE DOUBLE THROW SWITCH
OPERATING IN THE 8-12 GHz FREQUENCY RANGE.



July 27, 2021

Designed By:
Engineering PMI

Tested and Reported By:
Alfredo Lopez



Typical Characteristics ON P2T-8G12G-40-R-570-TFF-1D5KW-120W

Outline Drawing

DESCRIPTION

PMI MODEL P2T-8G12G-40-R-570-TFF-1D5KW-120W IS A REFLECTIVE 1.5 KILOWATT HIGH-POWER COLD SWITCHING SINGLE POLE DOUBLE THROW SWITCH OPERATING IN THE 8-12 GHz FREQUENCY RANGE.

SPECIFICATIONS

- FREQUENCY RANGE: 8-12 GHz
- POWER: 1.5KW PEAK (120 W CW)
- DUTY CYCLE: 8%
- INSERTION LOSS: 2.0dB MAX.
- ISOLATION: 40dB
- PULSE WIDTH: 250 uSEC MAX.
- SWITCHING SPEED: 1.25 μ s Max, 1.1 μ s Typ. (50% TTL TO 90% RF & 50% TTL TO 10% RF).
- VSWR IN/OUT: 1.80:1 MAX.
- 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 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

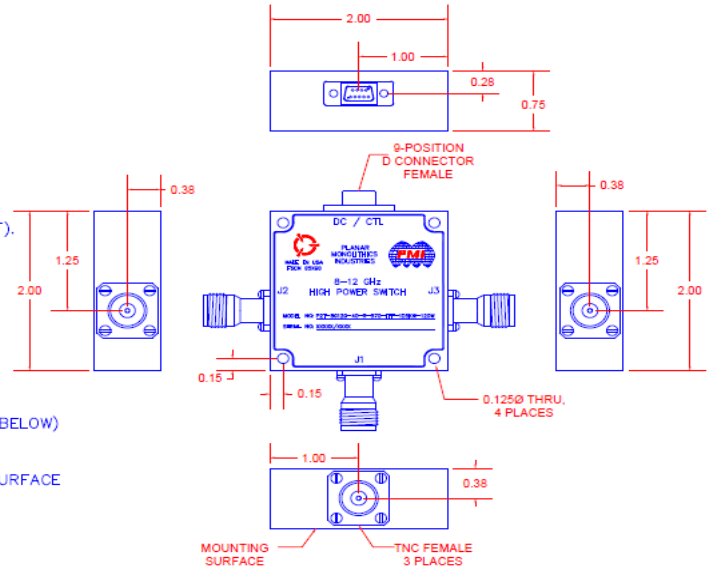
- TEMPERATURE: -40°C TO +85°C
- ENVIRONMENTAL: MIL-STD-810E
- EMI/EMC: MIL-STD-461

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

ALL DIMENSIONS ARE IN INCHES
TOLERANCES:
XXX ±0.020
XXXX ±0.010

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	02/16/20	

MECHANICAL OUTLINE



PMI CONFIDENTIAL AND PROPRIETARY

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ISO 9001 CERTIFIED



APPROVALS		DATE	TITLE		
DRAWN: ALC		02/16/20	PRODUCT FEATURE		
CHECKED:			P2T-8G12G-40-R-570-TFF-1D5KW-120W		
ISSUED:			SIZE: A	FSCM NO. 05XQ0	DWG NO. 27040960
			SCALE: N: S	REV: A1	
					SHEET 1 OF 1



Typical Characteristics ON P2T-8G12G-40-R-570-TFF-1D5KW-120W

Technical Specifications

CONTROL: SINGLE TTL (TTL "0" J1-J3 "LOW LOSS")

J4 CONNECTIONS

PIN	CONNECT TO
1	U1 -70V
2	GROUND
3	U1 IN2, 2 (CTRL J3)
4	U1 +5V
5	U1 IN1, (CTRL J2)

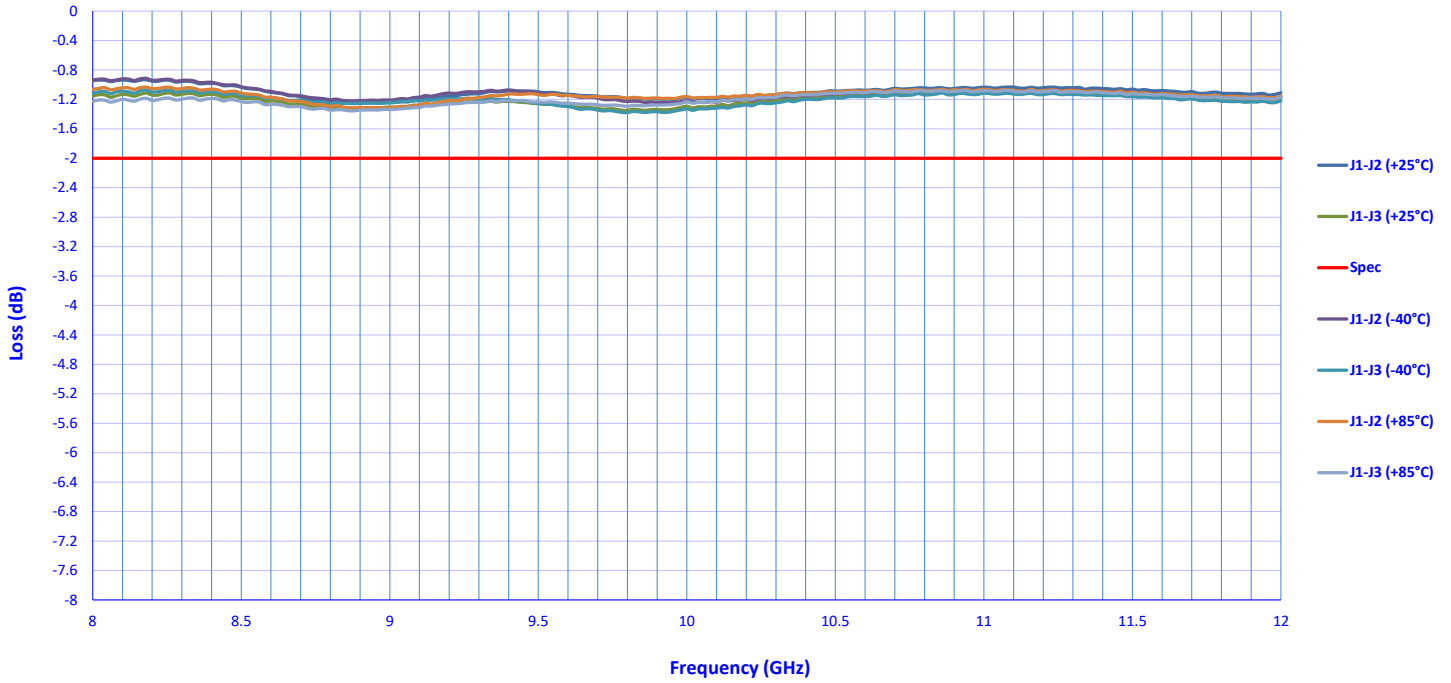
PIN	CONNECT TO
6	U1 GROUND
7	U1 GROUND
8	U1 GROUND
9	U1 GROUND

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS			QA QC
			+25°C	-40°C	+85°C	
1	Frequency Range:	8.0 to 12.0 GHz	8.0 to 12.0 GHz	8.0 to 12.0 GHz	8.0 to 12.0 GHz	
2	Power:	120W CW	Pass 126W CW See Graphs	Pass 126W CW See Graphs	Pass 126W CW See Graphs	
3	Power:	1.5KW	Pass By Design, Not Tested Peak Power	Pass By Design, Not Tested Peak Power	Pass By Design, Not Tested Peak Power	
4	Duty Cycle:	8%	Not Tested Peak Power	Not Tested Peak Power	Not Tested Peak Power	
5	Insertion Loss:	2.0dB Max.	1.35 dB See Graph	1.38 dB See Graph	1.36 dB See Graph	
6	Isolation:	40dB Typ.	44.32 dB See Graph	44.29 dB See Graph	44.32 dB See Graph	
7	Pulse Width:	250 μ s. Max.	Not Tested Peak Power	Not Tested Peak Power	Not Tested Peak Power	
8	Switching Speed:	1.25 μ s Max, 1.1 μ s Typ, (50% TTL to 90% RF and 50% TTL to 10% RF)	Rise Time - 923 ns	Rise Time - 923 ns	Rise Time - 923 ns	
			Fall Time - 191 ns	Fall Time - 191 ns	Fall Time - 191 ns	
			Speed ON - 1.10 μ s	Speed ON - 1.10 μ s	Speed ON - 1.10 μ s	
			Speed OFF - 272 ns	Speed OFF - 272 ns	Speed OFF - 272 ns	
			See Plots	See Plots	See Plots	
9	VSWR in/out:	1.80:1 Max	1.7:1 See Graph	1.7:1 See Graph	1.7:1 See Graph	
10	Load VSWR:	Better than 1.5:1	1.5:1	1.5:1	1.5:1	
11	Power Supply:	+5 VDC @ 300 mA -70 VDC @ 60 mA	+5 VDC @ 157 mA -70 VDC @ 20 mA	+5 VDC @ 143 mA -70 VDC @ 20 mA	+5 VDC @ 168 mA -70 VDC @ 20 mA	

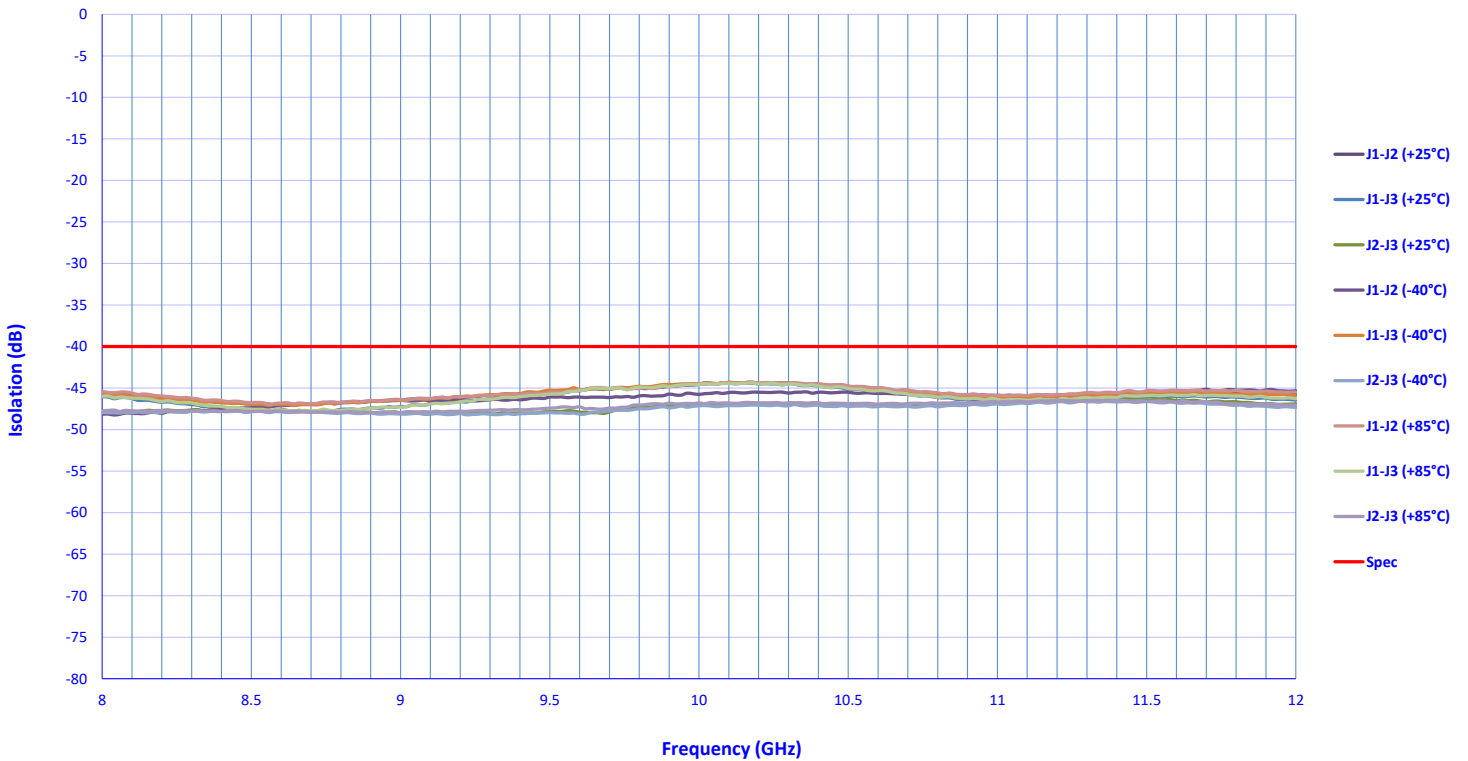


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Insertion Loss



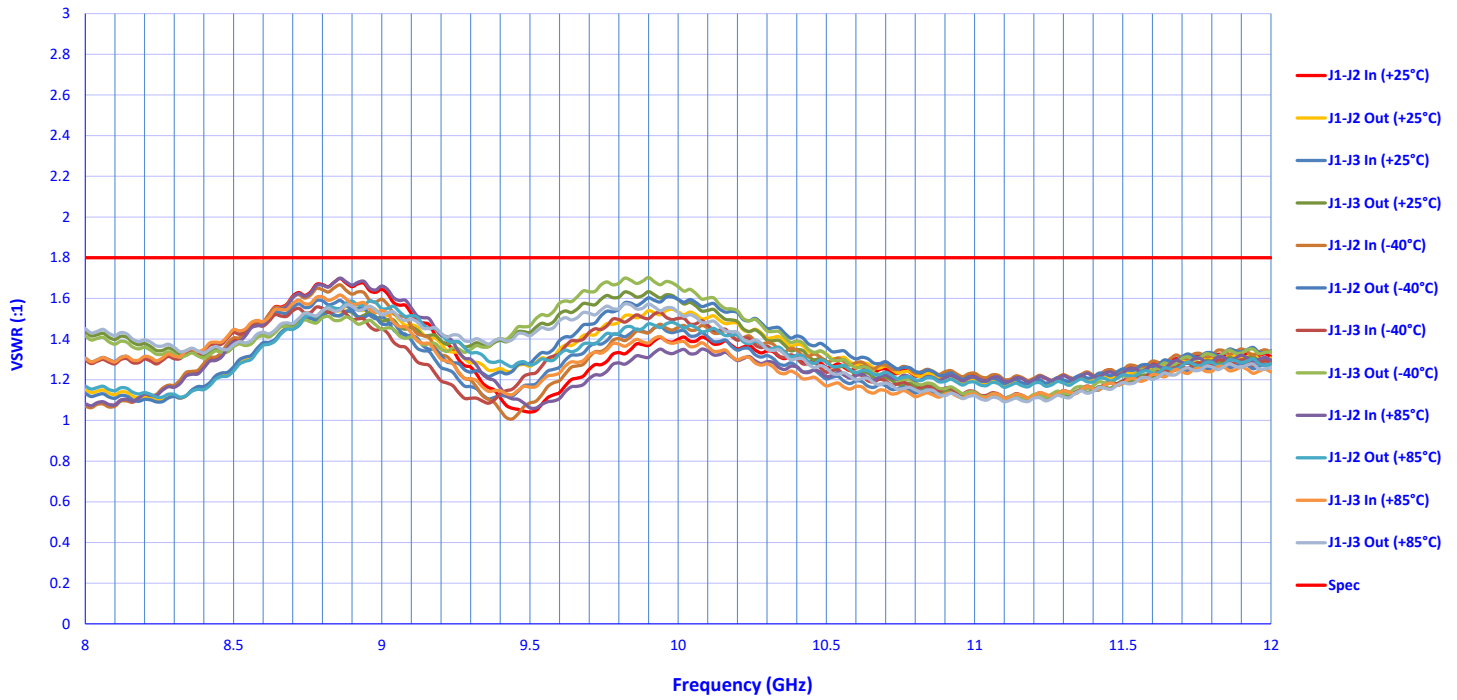
Isolation



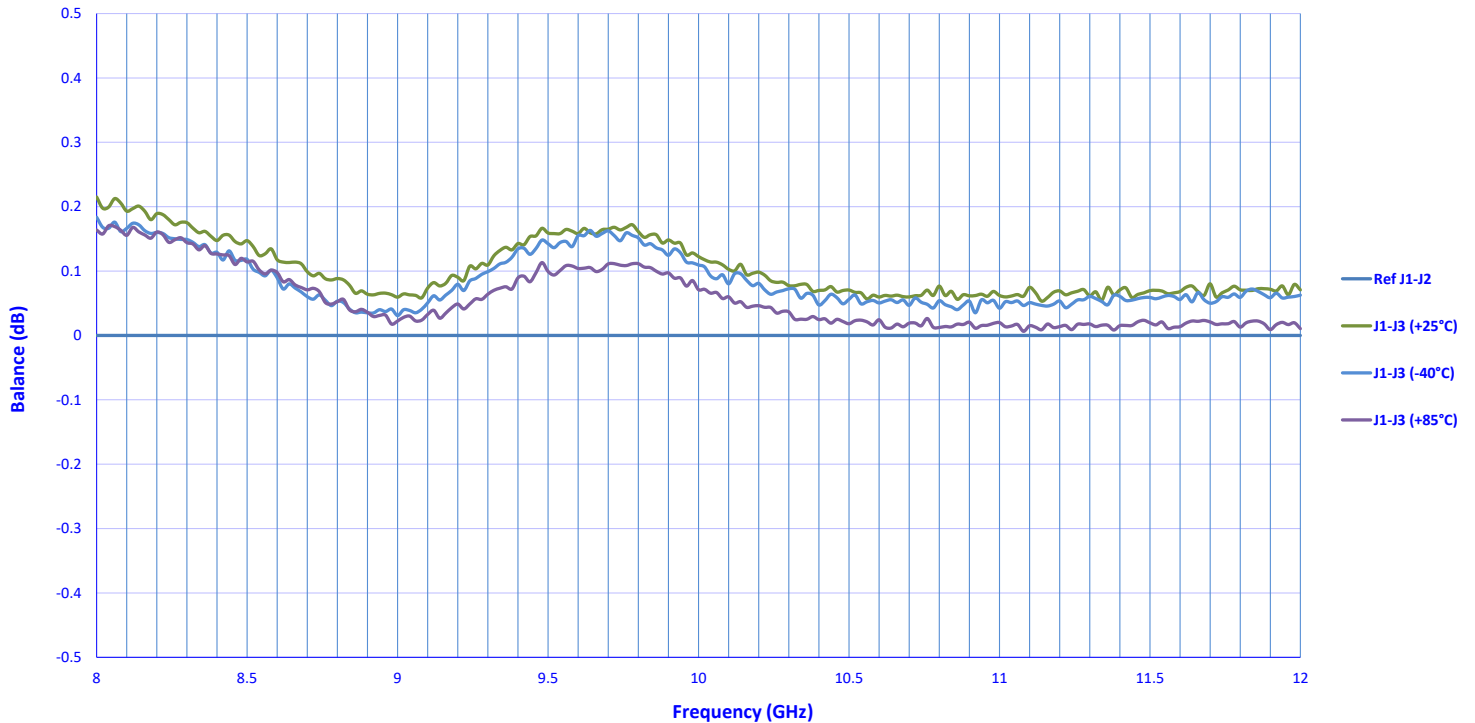


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VSWR



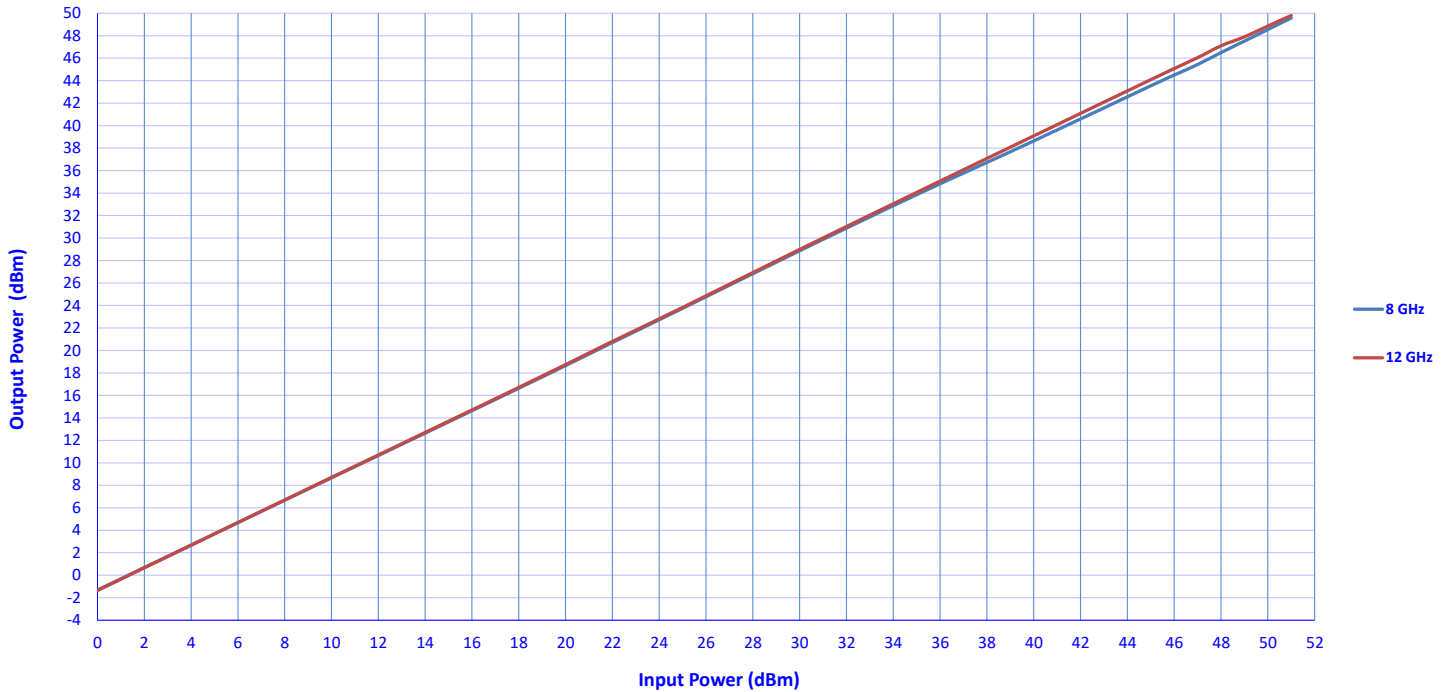
Amplitude Balance





Typical Characteristics ON P2T-8G12G-40-R-570-TFF-1D5KW-120W

High Power Test Graph (CW)



High Power Test Data (CW)								Power Input (Watts)
8 GHz				12 GHz				
Power In (dBm)	Power Out (dBm)	Loss	Compression (dBm)	Power In (dBm)	Power Out (dBm)	Loss	Compression (dBm)	
0	-1.318	1.318	0.000	0	-1.355	1.355	0.000	
1	-0.319	1.319	0.001	1	-0.349	1.349	0.006	
2	0.686	1.314	0.004	2	0.662	1.338	0.017	
3	1.683	1.317	0.001	3	1.668	1.332	0.023	
4	2.681	1.319	0.001	4	2.676	1.324	0.031	
5	3.682	1.318	0.000	5	3.684	1.316	0.039	
6	4.680	1.320	0.002	6	4.691	1.309	0.046	
7	5.679	1.321	0.003	7	5.696	1.304	0.051	
8	6.676	1.324	0.006	8	6.696	1.304	0.051	
9	7.676	1.324	0.006	9	7.704	1.296	0.059	
10	8.668	1.332	0.014	10	8.707	1.293	0.062	
11	9.662	1.338	0.020	11	9.702	1.298	0.057	
12	10.653	1.347	0.029	12	10.702	1.298	0.057	
13	11.654	1.346	0.028	13	11.701	1.299	0.056	
14	12.645	1.355	0.037	14	12.705	1.295	0.060	
15	13.645	1.355	0.037	15	13.705	1.295	0.060	0.03
16	14.639	1.361	0.043	16	14.704	1.296	0.059	0.04
17	15.637	1.363	0.045	17	15.707	1.293	0.062	0.05
18	16.638	1.362	0.044	18	16.713	1.287	0.068	0.06
19	17.645	1.355	0.037	19	17.727	1.273	0.082	0.08
20	18.656	1.344	0.026	20	18.744	1.256	0.099	0.10
21	19.679	1.321	0.003	21	19.776	1.224	0.131	0.13
22	20.704	1.296	0.022	22	20.806	1.194	0.161	0.16
25	23.750	1.250	0.068	25	23.830	1.170	0.185	0.32
30	28.870	1.130	0.188	30	28.990	1.010	0.345	1.00
35	33.860	1.140	0.178	35	34.060	0.940	0.415	3.16
40	38.640	1.360	0.042	40	39.090	0.910	0.445	10.0
45	43.550	1.450	0.132	45	44.090	0.910	0.445	31.6
46	44.500	1.500	0.182	46	45.080	0.920	0.435	39.8
47	45.440	1.560	0.242	47	46.050	0.950	0.405	50.1
48	46.500	1.500	0.182	48	47.100	0.900	0.455	63.1
49	47.520	1.480	0.162	49	47.900	1.100	0.255	79.4
50	48.550	1.450	0.132	50	48.860	1.140	0.215	100
51	49.580	1.420	0.102	51	49.800	1.200	0.155	126



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Switching Speed ON
500 ns Per Div.
Measured value (1.10 μs)



Switching Speed OFF
200 ns Per Div.
Measured value (272 ns)



Green Trace = TTL Signal
Yellow Trace = RF Signal



Typical Characteristics ON P2T-8G12G-40-R-570-TFF-1D5KW-120W

Rise Time
500 ns Per Div.
Measured value (923 ns)



Fall Time
100 ns Per Div.
Measured value (191 ns)



Green Trace = TTL Signal
Yellow Trace = RF Signal



Typical Characteristics ON P2T-8G12G-40-R-570-TFF-1D5KW-120W

Full Pulse
200 μ s Per Div.



Green Trace = TTL Signal
Yellow Trace = RF Signal