



**TYPICAL CHARACTERISTICS
ON
P2T-0R1G8G-45-R-50W-AL**

PMI MODEL: P2T-0R1G8G-45-R-50W-AL IS A SINGLE POLE, TWO THROW, REFLECTIVE SWITCH DESIGNED TO OPERATE OVER THE 0.1 GHz TO 8.0 GHz FREQUENCY RANGE. THIS MODEL IS DESIGNED TO HANDLE 50 WATTS.



AUGUST 05, 2018

DESIGNED BY: PMI ENGINEERING

TESTED BY: A. LOPEZ & M. BERRY

REPORTED BY: A. LOPEZ



TYPICAL CHARACTERISTICS ON P2T-0R1G8G-45-R-50W-AL

OUTLINE DRAWING

DESCRIPTION

PMI MODEL: P2T-0R1G8G-45-R-50W-AL IS A SINGLE POLE, TWO THROW REFLECTIVE SWITCH DESIGNED TO OPERATE OVER THE 0.1 GHz TO 8 GHz FREQUENCY RANGE. THIS MODEL IS DESIGNED TO HANDLE 50 WATTS AVERAGE INPUT POWER.

SPECIFICATIONS

- FREQUENCY: ——— 0.1 TO 8 GHz
- RF INPUT POWER: — 50 WATTS AVERAGE
- INSERTION LOSS: — 1.70 dB MAX, 0.90dB TYP @ 0.1 - 2GHZ
1.30 dB MAX, 1.0dB TYP @ 2 - 4GHZ
2.50 dB MAX, 2.2dB TYP @ 4 - 8GHZ
- ISOLATION: ——— 50 dB MIN, 45 dB TYP @ 0.1 - 2GHZ
40 dB MIN, 41 dB TYP @ 2 - 4GHZ
35 dB MIN, 37 dB TYP @ 4 - 8GHZ
- VSWR: ——— 2.2:1 MAX, 2.0:1 TYP @ 0.1 - 2GHZ
1.80:1 MAX, 1.75:1 TYP @ 2 - 4GHZ
2.00:1 MAX, 1.80: TYP @ 4 - 8GHZ
- SWITCHING SPEED: — 100 ns TYP
- SWITCHING RATE: — 15 kHz MAXIMUM, 50% DUTY CYCLE
- COLD SWITCHING: — YES
- POWER SUPPLY: — +5V @ 100 mA MAXIMUM
- CONTROL: ——— TTL (SEE LOGIC TABLE BELOW)
- FINISH: ——— PAINTED BLUE
(NO PAINT ON MOUNTING SURFACE)
- CONNECTORS: ——— FIELD REPLACEABLE SMA FEMALE

ENVIRONMENTAL RATINGS

- TEMPERATURE: ——— -45 °C TO +85 °C (OPERATING)
-54 °C TO +125 °C (STORAGE)
- ENVIRONMENTAL: ——— MIL-STD-810E
- EMI/EMC: ——— MIL-STD-461

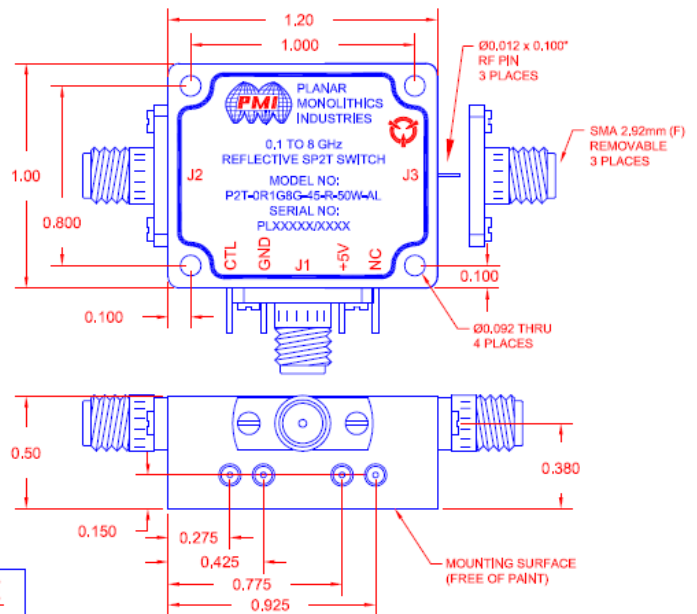
NOTE: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE
NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

LOGIC TABLE		
CTL	J1 - J2	J1 - J3
0	ON	OFF
1	OFF	ON

ALL DIMENSIONS
ARE IN INCH [MM]
TOLERANCES:
X.XX ± 0.020 [0.508]
X.XXX ± 0.010 [0.254]

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	08/05/18	

MECHANICAL OUTLINE



PMI CONFIDENTIAL AND PROPRIETARY

PLANAR MONOLITHICS INDUSTRIES, INC.

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FREDERICK, MARYLAND 21704 USA
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WEB: www.pmi-rf.com, EMAIL: sales@pmi-rf.com
ISO 9001 CERTIFIED



APPROVALS		DATE	TITLE			REV.
DRAWN <i>A. Lopez</i>		08/05/18	PRODUCT FEATURE P2T-0R1G8G-45-R-50W-AL 3.0 to 3.5 GHz Reflective SP2T Switch			A1
REDRAWN						
ISSUED			SIZE	PBOM NO.	DWG NO.	
			A	05XQ0	27033080	
			SCALE	N:S	SHEET	1 OF 1



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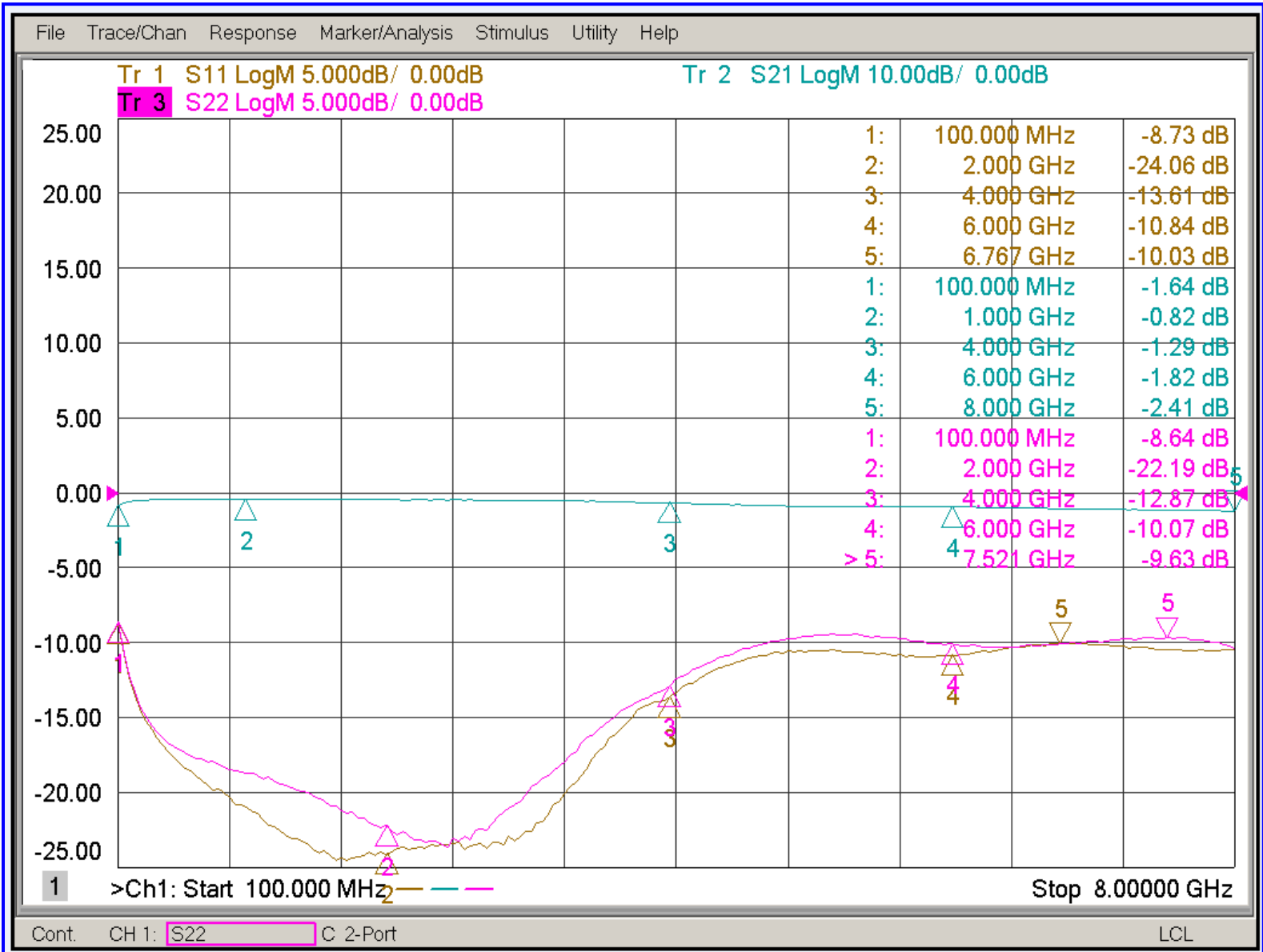
TEST DATA SUMMARY

TEST ITEM	PARAMETER	SPECIFIED VALUE	TEST MEASUREMENT @ +25°C		
1	Frequency Range	0.1 GHz - 8.0 GHz	0.1 GHz - 8.0 GHz		
2	RF Input Power	50 W CW	47 dBm (50.12 W) Tested @ 0.1, 0.3, 0.5, 3.0, 3.5, & 8.0 GHz		
			FREQUENCY	J1-J2	J1-J3
3	Insertion Loss	1.70 dB MAX	0.1GHz – 2 GHz	1.64 dB MAX	1.57 dB MAX
		1.40 dB MAX	2 GHz - 4 GHz	1.29 dB MAX	1.35 dB MAX
		2.50 dB MAX	4 GHz - 8 GHz	2.41 dB MAX	2.40 dB MAX
4	Isolation	50 dB MIN	0.1 GHz – 2 GHz	52.00 dB MIN	52.00 dB MIN
		40 dB MIN	2 GHz - 4 GHz	42.67 dB MIN	43.01 dB MIN
		35 dB MIN	4 GHz - 8 GHz	38.33 dB MIN	38.48 dB MIN
5	VSWR	2.2:1 MAX	0.1 GHz – 2 GHz	2.17:1 MAX	2.11:1 MAX
		1.8:1 MAX	2 GHz - 4 GHz	1.59:1 MAX	1.67:1 MAX
		2.0:1 MAX	4 GHz - 8 GHz	1.98:1 MAX	1.97:1 MAX
6	Switching Speed	100 ns TYP	69 ns		
7	Switching Rate	15 kHz (50% Duty Cycle)	15 kHz (50% Duty Cycle)		
8	Cold Switching	TRUE	TRUE		
9	Power Supply	+5 VDC @ 100 mA MAX	+5 VDC @ 32 mA		



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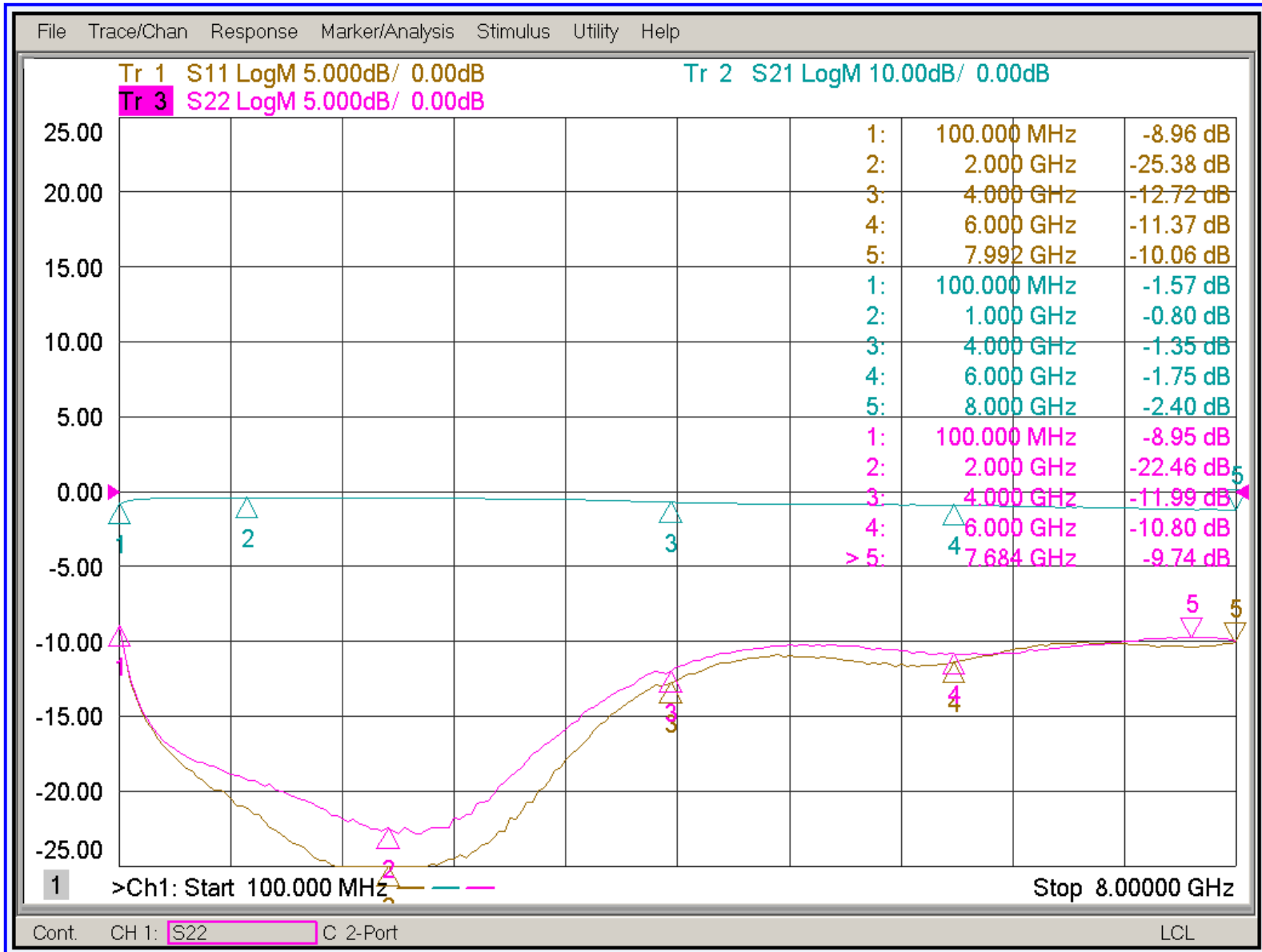
J1-J2 INSERTION LOSS AND RETURN LOSS





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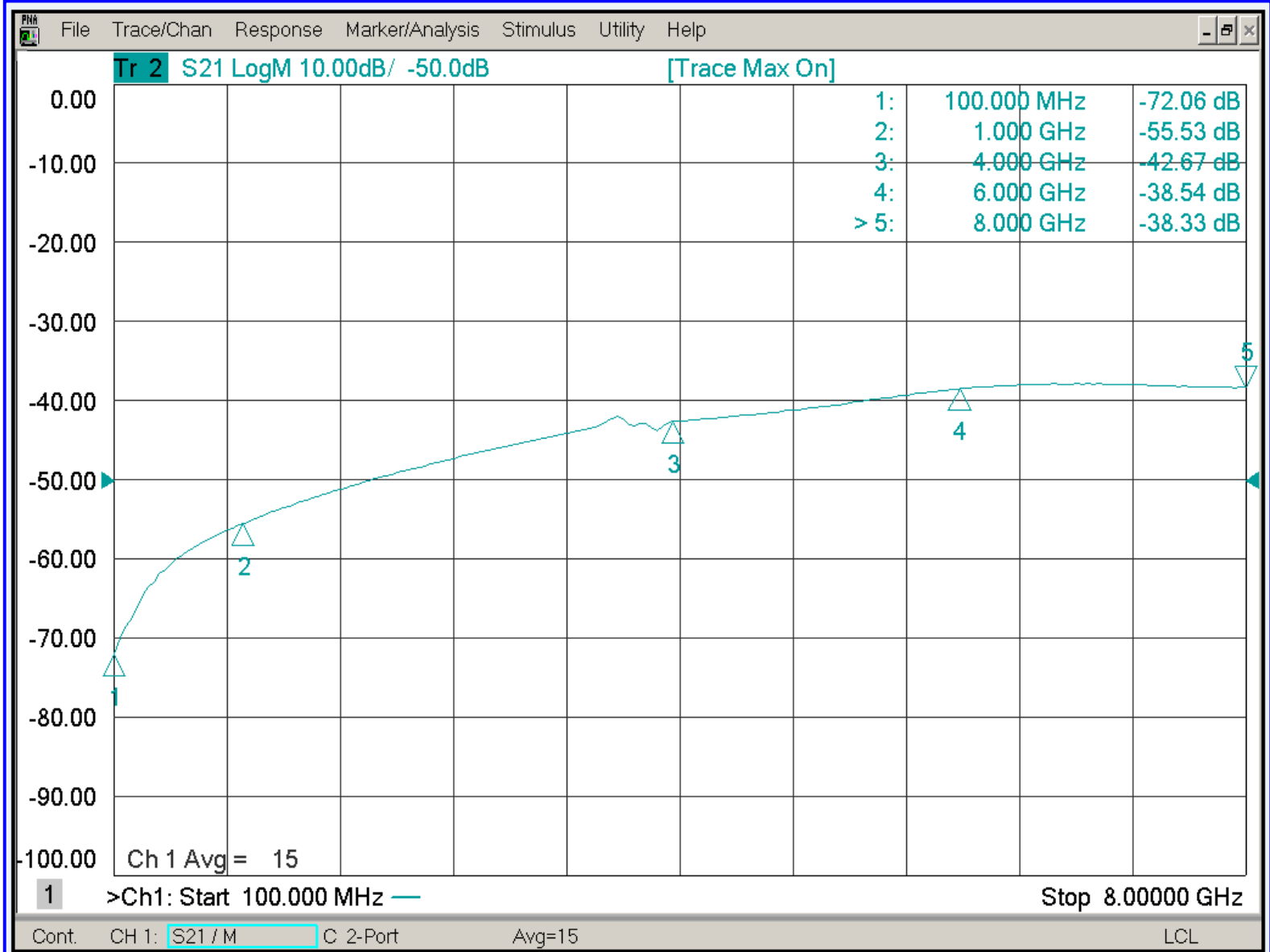
J1-J3 INSERTION LOSS AND RETURN LOSS





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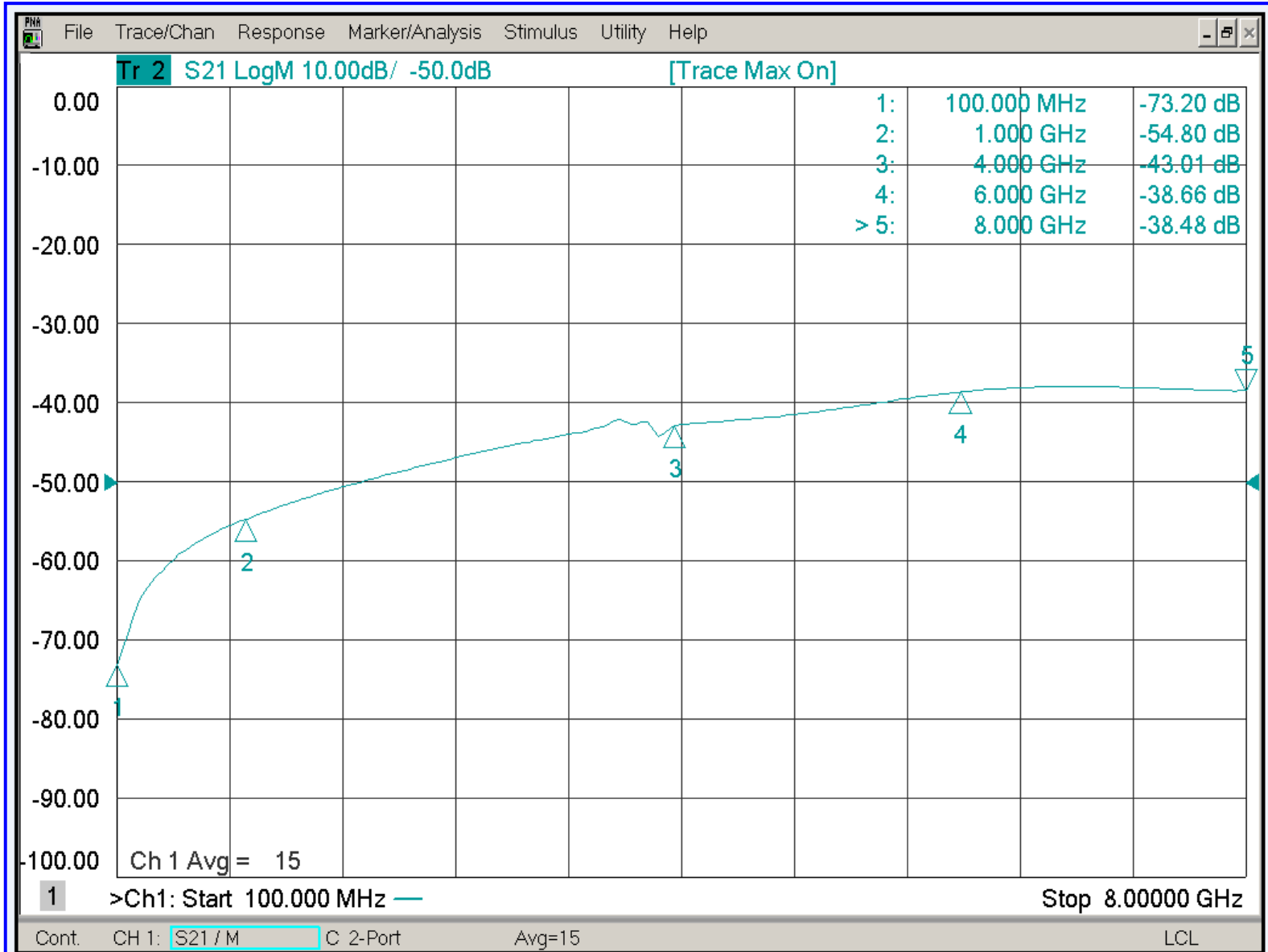
J1-J2 ISOLATION





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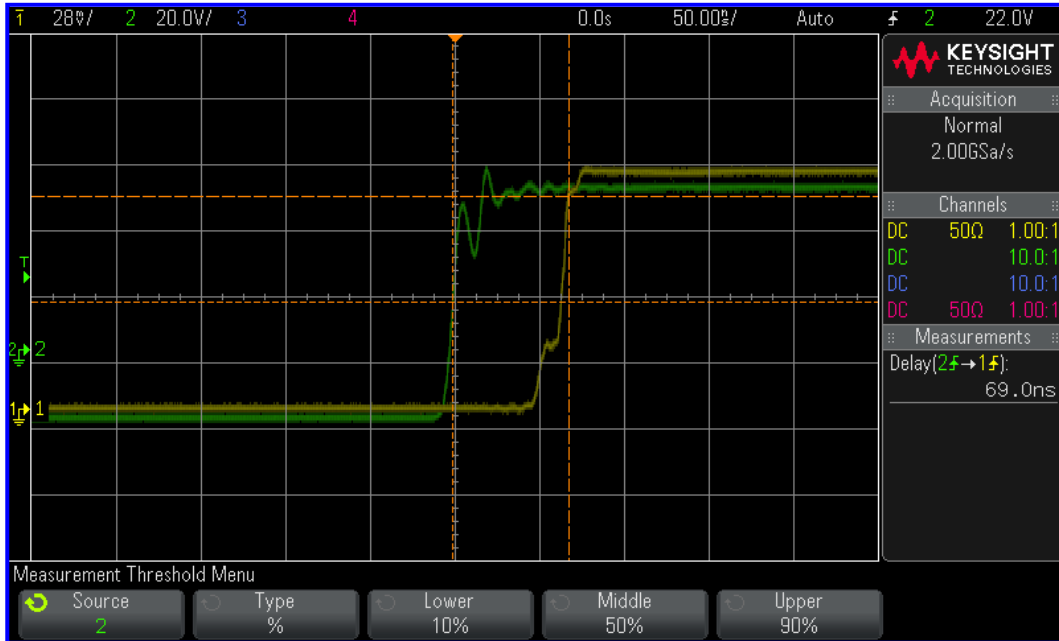
J1-J3 ISOLATION





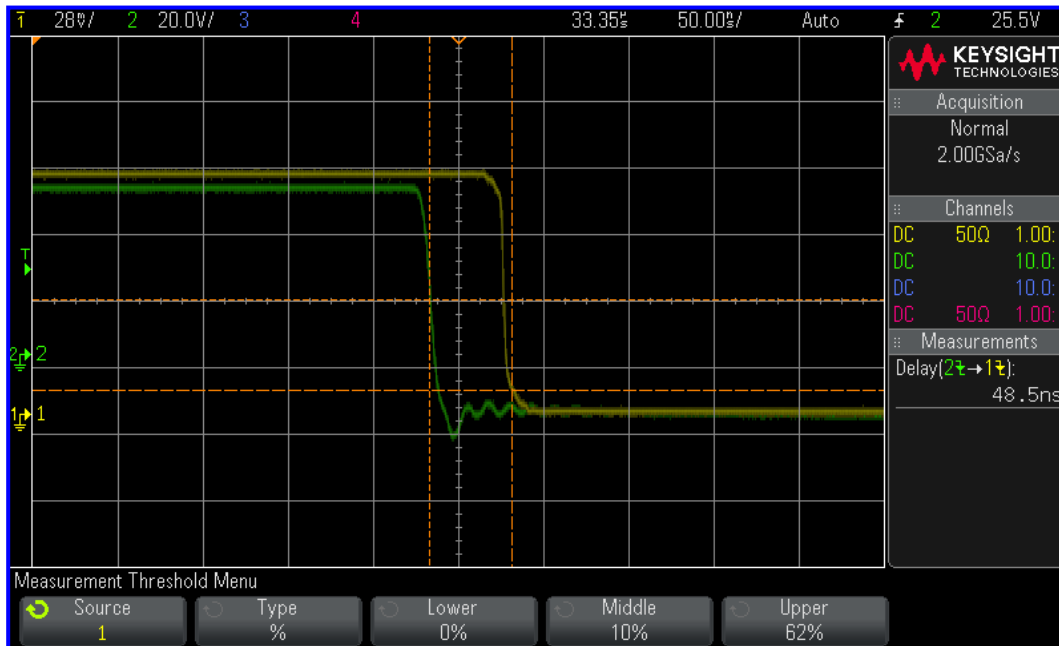
TYPICAL CHARACTERISTICS ON P2T-0R1G8G-45-R-50W-AL

ON SWITCHING SPEED



GREEN TRACE = TTL, YELLOW TRACE = RF

OFF SWITCHING SPEED

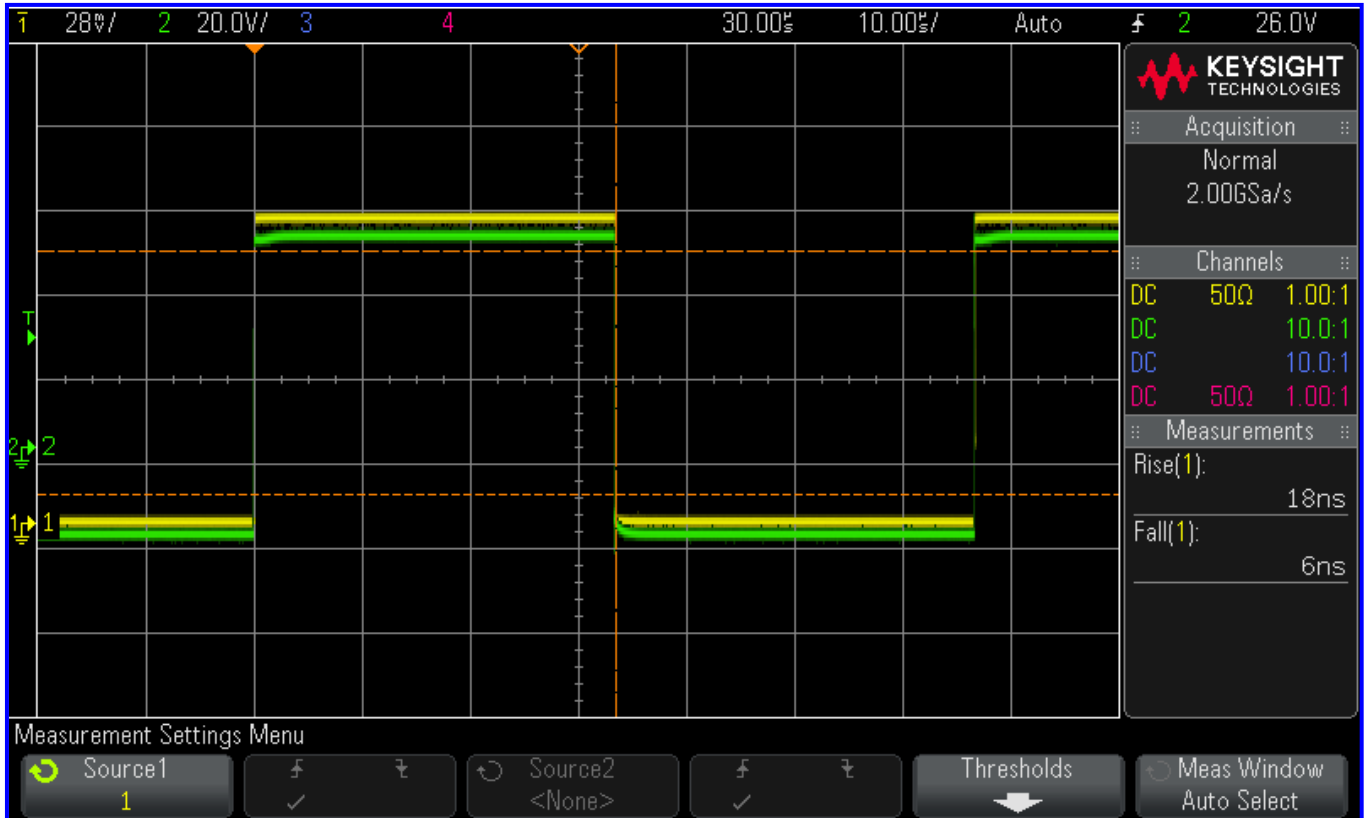


GREEN TRACE = TTL, YELLOW TRACE = RF



TYPICAL CHARACTERISTICS
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SWITCHING SPEED – FULL PULSE

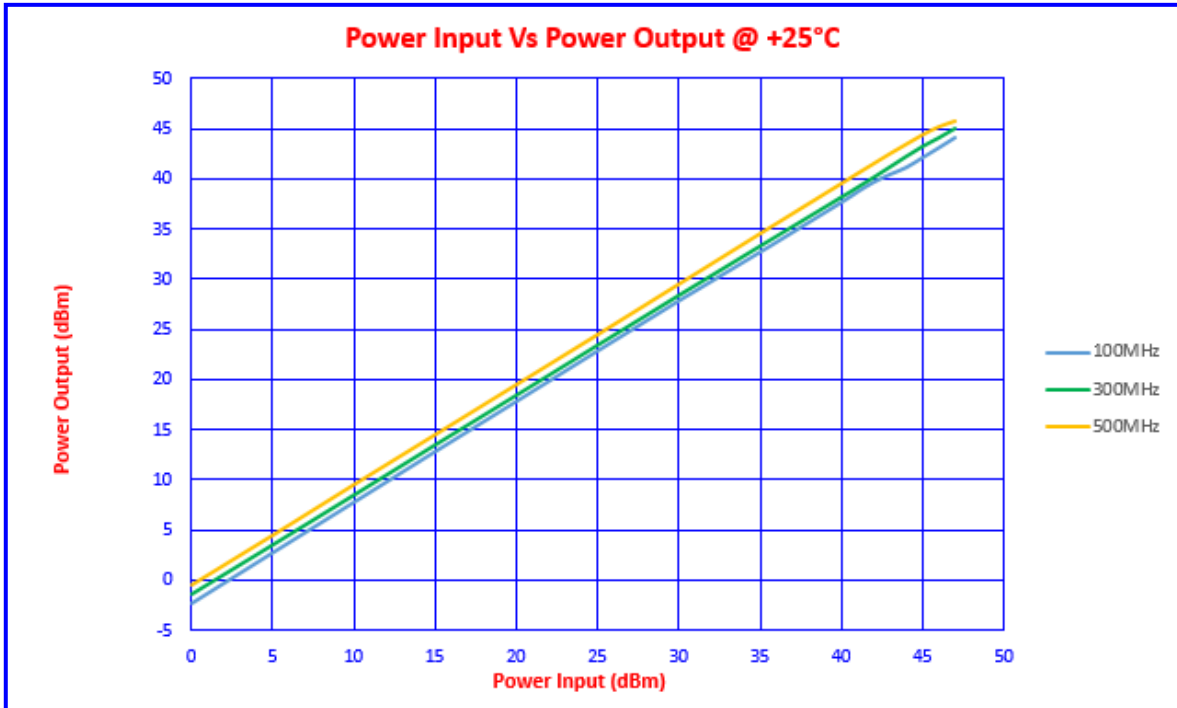


GREEN TRACE = TTL, YELLOW TRACE = RF



**TYPICAL CHARACTERISTICS
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P2T-0R1G8G-45-R-50W-AL**

HIGH POWER DATA – INPUT POWER VS OUTPUT POWER @ +25°C (0.1GHz TO 0.5GHz)

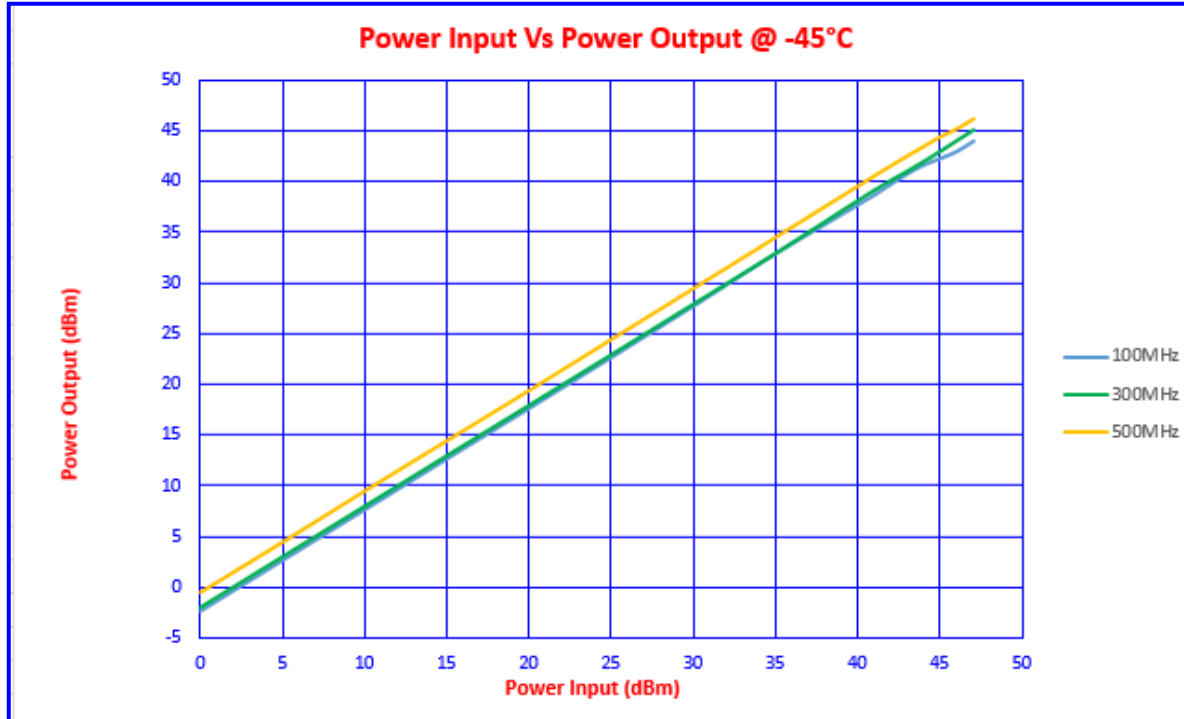


0.1 GHz		0.3 GHz		0.5 GHz	
POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)
0	-2.35	0	-1.47	0	-0.40
5	2.72	5	3.46	5	4.56
10	7.77	10	8.43	10	9.60
15	12.83	15	13.43	15	14.58
20	17.84	20	18.39	20	19.56
25	22.89	25	23.38	25	24.54
30	27.89	30	28.35	30	29.56
35	32.76	35	33.26	35	34.59
40	37.73	40	38.14	40	39.58
41	38.78	41	39.12	41	40.58
42	39.76	42	40.13	42	41.57
43	40.53	43	41.17	43	42.56
44	41.22	44	42.21	44	43.50
45	42.20	45	43.2	45	44.43
46	43.19	46	44.07	46	45.23
47	44.20	47	45	47	45.80



**TYPICAL CHARACTERISTICS
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HIGH POWER DATA – INPUT POWER VS OUTPUT POWER @ -45°C (0.1GHz TO 0.5GHz)

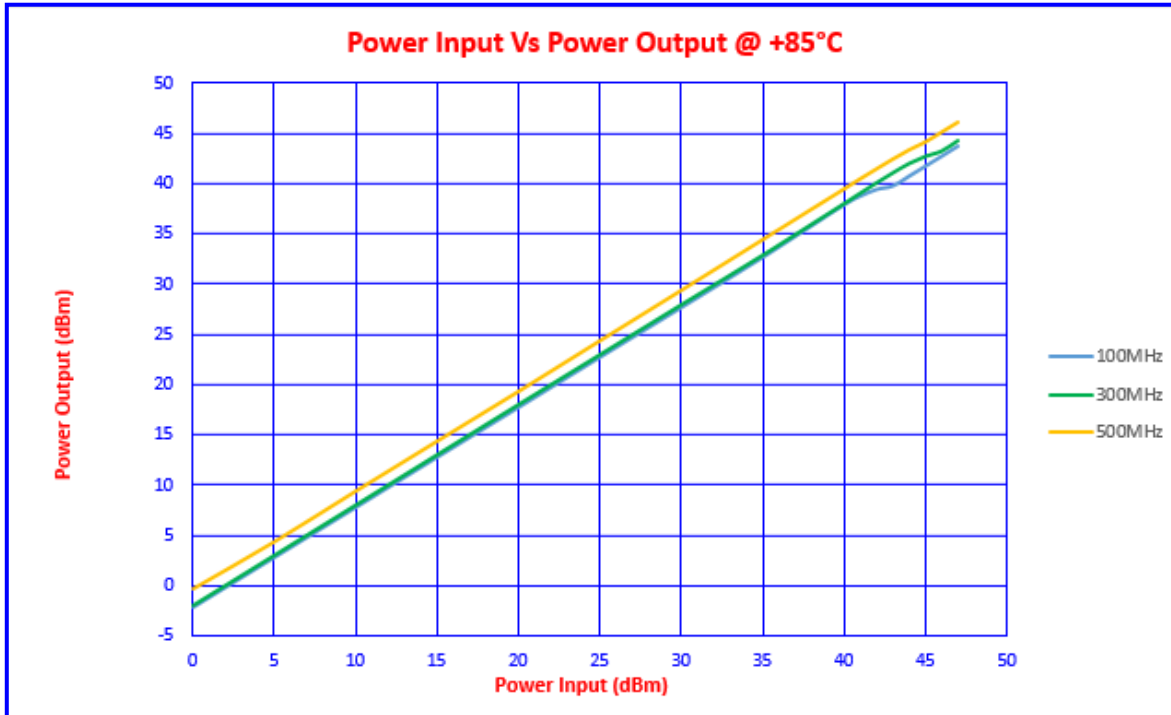


0.1 GHz		0.3 GHz		0.5 GHz	
POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)
0	-2.27	0	-1.96	0	-0.53
5	2.73	5	3.04	5	4.43
10	7.72	10	8.03	10	9.48
15	12.72	15	13.03	15	14.45
20	17.69	20	17.99	20	19.40
25	22.70	25	23	25	24.44
30	27.76	30	28	30	29.47
35	32.91	35	33.02	35	34.53
40	37.72	40	38.22	40	39.57
41	38.69	41	39.23	41	40.58
42	39.74	42	40.2	42	41.57
43	40.76	43	41.11	43	42.54
44	41.62	44	42.06	44	43.47
45	42.25	45	43.07	45	44.43
46	42.95	46	44.12	46	45.20
47	43.95	47	45.15	47	46.18



**TYPICAL CHARACTERISTICS
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HIGH POWER DATA – INPUT POWER VS OUTPUT POWER @ +85°C (0.1GHz TO 0.5GHz)

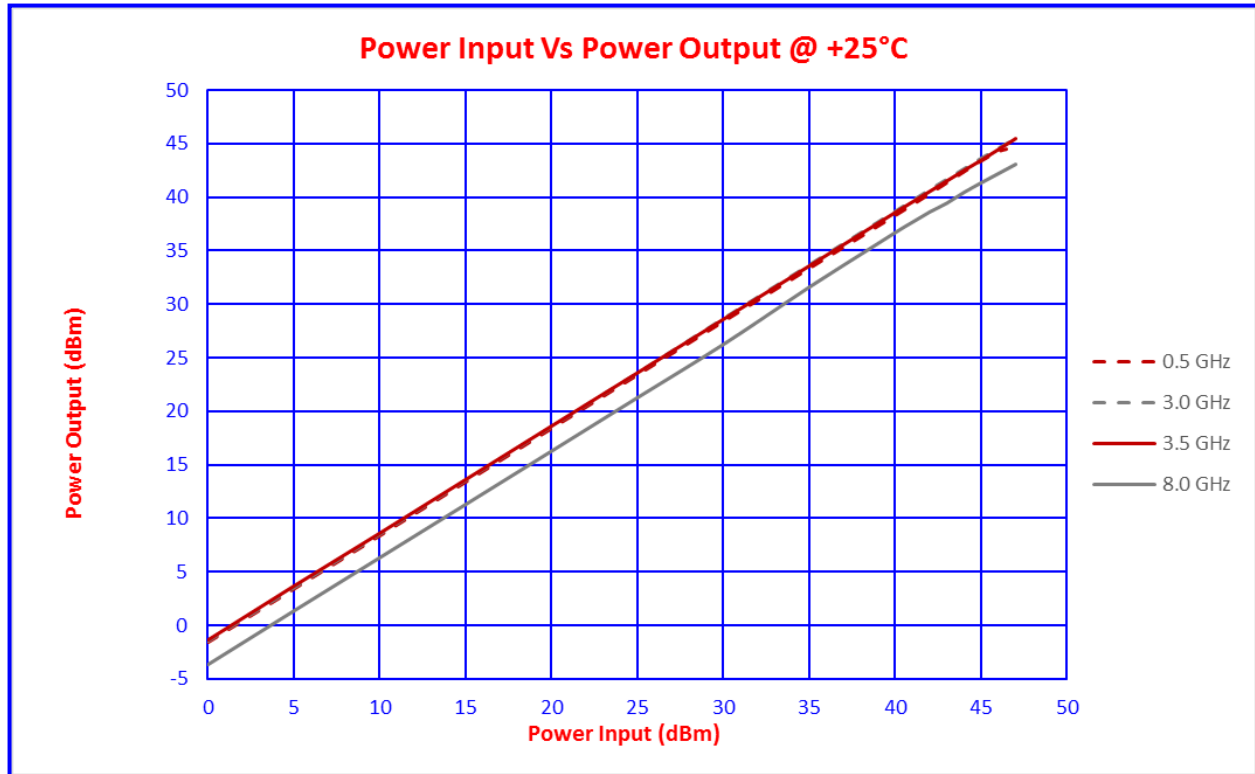


0.1 GHz		0.3 GHz		0.5 GHz	
POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)
0	-2.23	0	-1.93	0	-0.36
5	2.74	5	3.06	5	4.33
10	7.73	10	8.05	10	9.37
15	12.72	15	13.05	15	14.34
20	17.68	20	18.05	20	19.29
25	22.68	25	23.01	25	24.33
30	27.63	30	27.97	30	29.35
35	32.62	35	32.9	35	34.40
40	37.86	40	38.03	40	39.44
41	38.73	41	39.07	41	40.45
42	39.39	42	40.1	42	41.44
43	39.74	43	41.09	43	42.41
44	40.71	44	42.02	44	43.33
45	41.70	45	42.74	45	44.12
46	42.70	46	43.26	46	45.10
47	43.70	47	44.3	47	46.09



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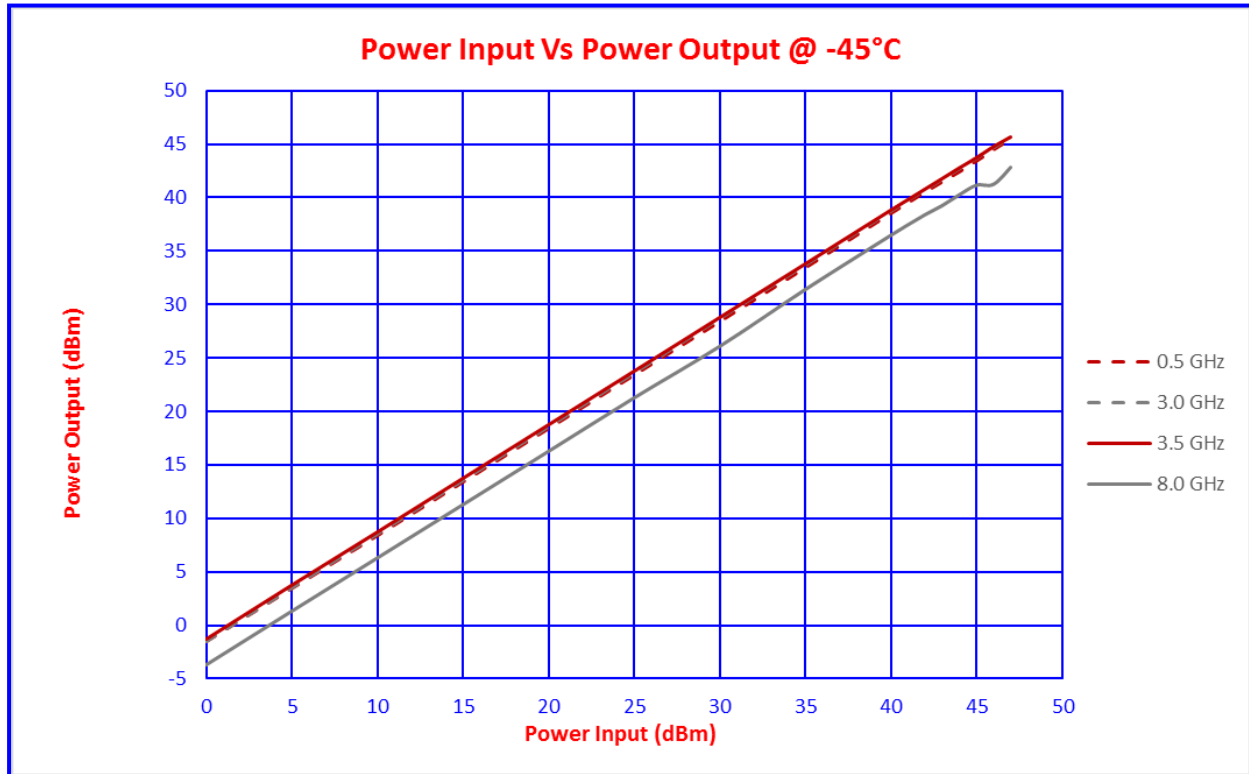


0.5 GHz		3.0 GHz		3.5 GHz		8.0 GHz	
POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)
0	-1.60	0	-1.48	0	-1.35	0	-3.66
5	3.39	5	3.51	5	3.70	5	1.36
10	8.36	10	8.51	10	8.64	10	6.34
15	13.37	15	13.54	15	13.65	15	11.32
20	18.37	20	18.55	20	18.65	20	16.30
25	23.37	25	23.56	25	23.63	25	21.30
30	28.35	30	28.64	30	28.63	30	26.28
35	33.31	35	33.65	35	33.62	35	31.63
40	38.25	40	38.65	40	38.61	40	36.73
41	39.25	41	39.65	41	39.59	41	37.70
42	40.26	42	40.66	42	40.57	42	38.65
43	41.30	43	41.63	43	41.56	43	39.48
44	42.33	44	42.61	44	42.54	44	40.49
45	43.34	45	43.59	45	43.49	45	41.38
46	44.22	46	44.53	46	44.49	46	42.24
46.5	44.47	47	45.42	47	45.50	47	43.10



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HIGH POWER DATA – INPUT POWER VS OUTPUT POWER @ -45°C

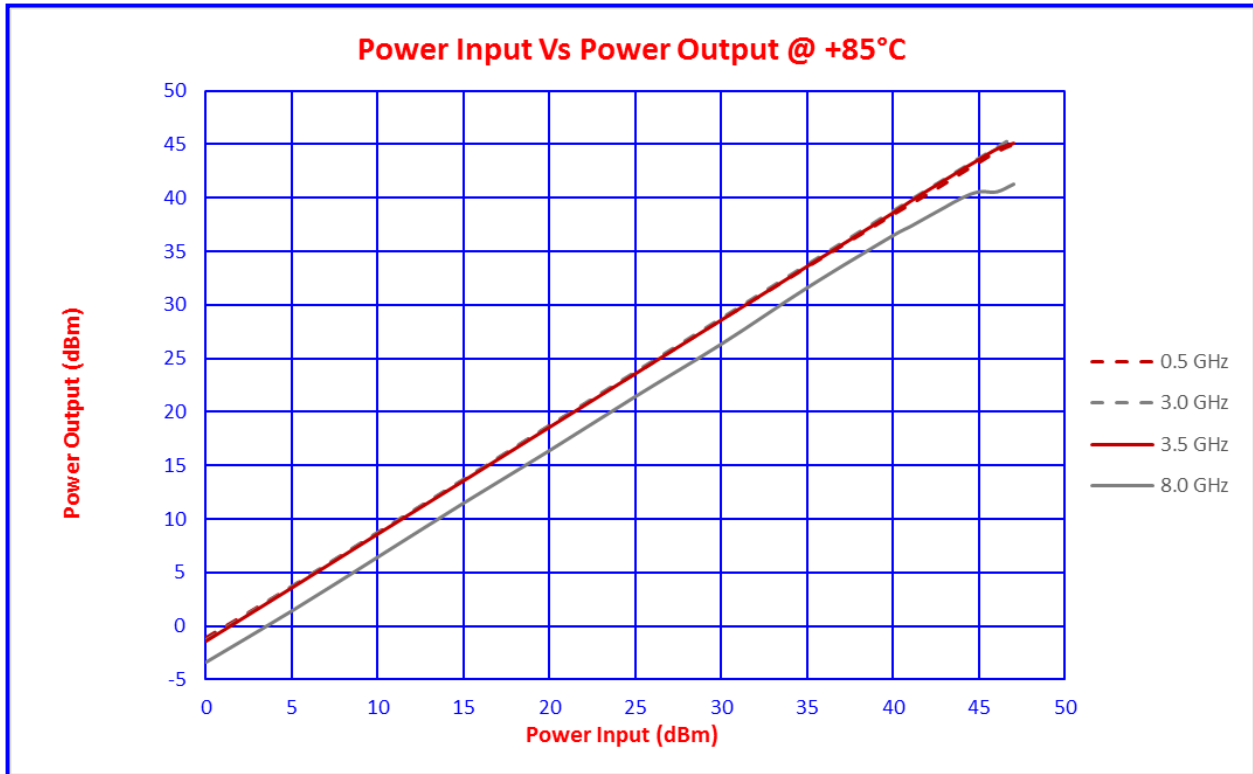


0.5 GHz		3.0 GHz		3.5 GHz		8.0 GHz	
POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)
0	-1.52	0	-1.52	0	-1.25	0	-3.66
5	3.45	5	3.50	5	3.80	5	1.36
10	8.40	10	8.54	10	8.75	10	6.34
15	13.41	15	13.56	15	13.77	15	11.32
20	18.41	20	18.57	20	18.77	20	16.30
25	23.41	25	23.59	25	23.77	25	21.30
30	28.41	30	28.69	30	28.78	30	26.11
35	33.45	35	33.70	35	33.79	35	31.43
40	38.54	40	38.74	40	38.81	40	36.50
41	39.53	41	39.76	41	39.79	41	37.48
42	40.54	42	40.73	42	40.77	42	38.43
43	41.48	43	41.71	43	41.76	43	39.28
44	42.43	44	42.70	44	42.75	44	40.29
45	43.43	45	43.69	45	43.70	45	41.18
46	44.50	46	44.68	46	44.74	46	41.27
46.5	45.00	47	45.66	47	45.63	47	42.85



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HIGH POWER DATA – INPUT POWER VS OUTPUT POWER @ +85°C



0.5 GHz		3.0 GHz		3.5 GHz		8.0 GHz	
POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)	POWER INPUT (dBm)	POWER OUTPUT (dBm)
0	-1.09	0	-1.30	0	-1.43	0	-3.38
5	3.70	5	3.73	5	3.56	5	1.42
10	8.74	10	8.76	10	8.59	10	6.45
15	13.68	15	13.72	15	13.57	15	11.50
20	18.75	20	18.74	20	18.58	20	16.40
25	23.63	25	23.76	25	23.58	25	21.45
30	28.64	30	28.76	30	28.59	30	26.35
35	33.58	35	33.78	35	33.61	35	31.62
40	38.48	40	38.78	40	38.61	40	36.50
41	39.43	41	39.79	41	39.68	41	37.33
42	40.38	42	40.78	42	40.69	42	38.23
43	41.37	43	41.76	43	41.67	43	39.12
44	42.38	44	42.74	44	42.65	44	40.00
45	43.35	45	43.70	45	43.59	45	40.57
46	44.33	46	44.68	46	44.54	46	40.55
46.5	45.02	47	45.61	47	45.09	47	41.27