Typical Characteristics
ON
P2T-500M18G-80-T-515-SFF-4W-ST

PMI MODEL P2T-500M18G-80-T-515-SFF-4W-ST IS AN ABSORPTIVE, SINGLE POLE, TWO THROW PIN DIODE SWITCH THAT OPERATES OVER THE 0.5 GHZ TO 18 GHZ FREQUENCY RANGE. THIS MODEL INCORPORATES A TTL COMPATIBLE DRIVER FOR EASY SYSTEM INTEGRATION.

May 5, 2020

Designed By:

Dr. Ashok Gorwara

Tested and Reported By:

Alfredo Lopez

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Email: sales@pmi-rf.com

Typical Characteristics
ON
P2T-500M18G-80-T-515-SFF-4W-ST

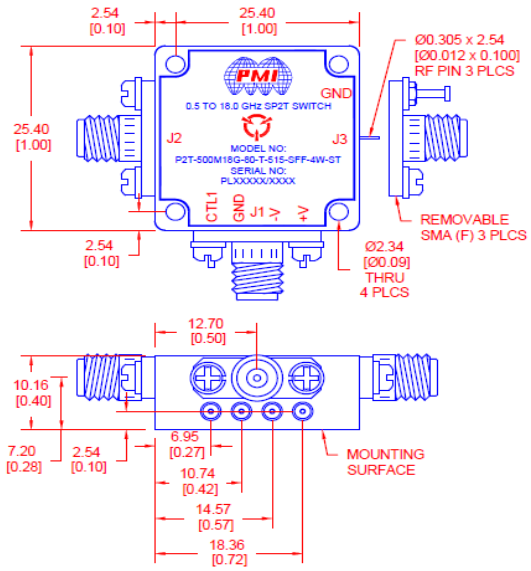
Outline Drawing

DESCRIPTION

PMI MODEL P2T-500M18G-80-T-515-SFF-4W-ST IS AN ABSORPTIVE, SINGLE POLE, TWO THROW PIN DIODE SWITCH THAT OPERATES OVER THE 0.5 GHZ TO 18 GHZ FREQUENCY RANGE. THIS MODEL INCORPORATES A TTL COMPATIBLE DRIVER FOR EASY SYSTEM INTEGRATION.

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROV.
	1	ORIGINAL RELEASE	07/14/16	
	A1	ECN # 16-0183	12/01/16	
	A2	ECN # 17-0181	07/20/17	

MECHANICAL OUTLINE



SPECIFICATIONS

- FREQUENCY RANGE: ---------- 0.5 TO 18 GHz
- ISOLATION: ---------- 70 dB MINIMUM
- INSERTION LOSS: ---------- 3.5 dB TYPICAL
- VSWR IN/OUT: ---------- 2.0:1 MAXIMUM
- INPUT POWER: ---------- 4 WATTS CW MAXIMUM
- INPUT PEAK POWER: ---------- 20 WATTS MAXIMUM, 50 ns PULSE WIDTH, 2 MHz PRF WITH A 10% DUTY CYCLE
- SWITCHING SPEED: ---------- 60 ns MAXIMUM
- DC VOLTAGE: ---------- +5 V @ 150 mA, -15 V @ 150 mA
- CONTROL SIGNAL: ---------- TTL LOGIC, SEE LOGIC TABLE
- CONNECTORS: ---------- RF: SMA FEMALE, CONTROL: SOLDER PINS
- SIZE: ---------- 25.40 mm x 25.40 mm x 10.16 mm, 1.00" x 1.00" x 0.40", EXCLUDING CONNECTORS
- FINISH: ---------- PAINTED BLUE - MOUNTING SURFACE FREE OF PAINT

LOGIC TABLE	
CTL1	FUNCTION
1	J1 - J2
0	J1 - J3

ENVIRONMENTAL RATINGS

- TEMPERATURE: ---------- -40 °C TO +85 °C (OPERATING), -55 °C TO +125 °C (STORAGE)
- HUMIDITY: ---------- MIL-STD-202, METHOD 103B COND. B
- SHOCK: ---------- MIL-STD-202, METHOD 213B COND. B
- VIBRATION: ---------- MIL-STD-202, METHOD 204D COND. B
- ALTITUDE: ---------- MIL-STD-202, METHOD 105C COND. B
- 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

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

PMI CONFIDENTIAL AND PROPRIETARY

PLANAR MONOLITHICS INDUSTRIES, INC.
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WEB: www.pmi-rf.com, EMAIL: sales@pmi-rf.com
ISO 9001 CERTIFIED

APPROVALS	DATE
DRAWN M. Berry	07/14/16
CHECKED	
ISSUED	

TITLE: PRODUCT FEATURE
P2T-500M18G-80-T-515-SFF-4W-ST
0.5 to 18.0 GHz Single Pole, Two Throw Pin Diode Switch

SIZE	FSCM NO.	DWG NO.	REV.
A	05XQ0	27030241	A2

SCALE N:S SHEET 1 OF 1

Typical Characteristics
ON
P2T-500M18G-80-T-515-SFF-4W-ST

Technical Specifications

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS			QA QC
			+25°C	-40°C	+85°C	
1	Frequency Range:	0.5 to 18.0 GHz	**0.5 to 18.0 GHz**	**0.5 to 18.0 GHz**	**0.5 to 18.0 GHz**	
2	Insertion Loss:	3.5 dB Typ.	**3.28 dB See Graph**	**3.09 dB See Graph**	**3.52 dB See Graph**	
3	Isolation:	70 dB Min.	**72.86 dB See Graph**	**72.65 dB See Graph**	**72.38 dB See Graph**	
4	VSWR:	2.0:1 Max.	**1.86:1 See Graph**	**1.92:1 See Graph**	**1.79:1 See Graph**	
5	Video Transients:	Not Specified	**591.20mV P-P See Plots**	**591.20mV P-P See Plots**	**591.20mV P-P See Plots**	
6	Operating Input Power:	4 Watts CW Max.	**Pass See Graph**	**Pass See Graph**	**Pass See Graph**	
7	Hot Switching:	Not Specified	**Pass 3 Watts @ 8 GHz - Tested from 1kHz to 1MHz TTL PRF & 50% DC**	**Pass 3 Watts @ 8 GHz - Tested from 1kHz to 1MHz TTL PRF & 50% DC**	**Pass 3 Watts @ 8 GHz - Tested from 1kHz to 1MHz TTL PRF & 50% DC**	
8	Switching Speed:	60 ns Max.	**Rise Time - 18.8ns Fall Time = 17ns Speed ON = 52.40ns Speed OFF = 51.60ns See Plots**	**Rise Time - 18.8ns Fall Time = 17ns Speed ON = 52.40ns Speed OFF = 51.60ns See Plots**	**Rise Time - 18.8ns Fall Time = 17ns Speed ON = 52.40ns Speed OFF = 51.60ns See Plots**	
9	Power Supply:	+5 VDC @ 150 mA -15 VDC @ 150 mA	**+5 VDC @ 61 mA -15 VDC @ 77 mA**	**+5 VDC @ 60 mA -15 VDC @ 75 mA**	**+5 VDC @ 63 mA -15 VDC @ 78 mA**	
10	Control:	Logic Table CTL1 / Function 1 / J1-J2 0 / J1-J3	**Pass**	**Pass**	**Pass**	

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SUMMARY TEST DATA
ON
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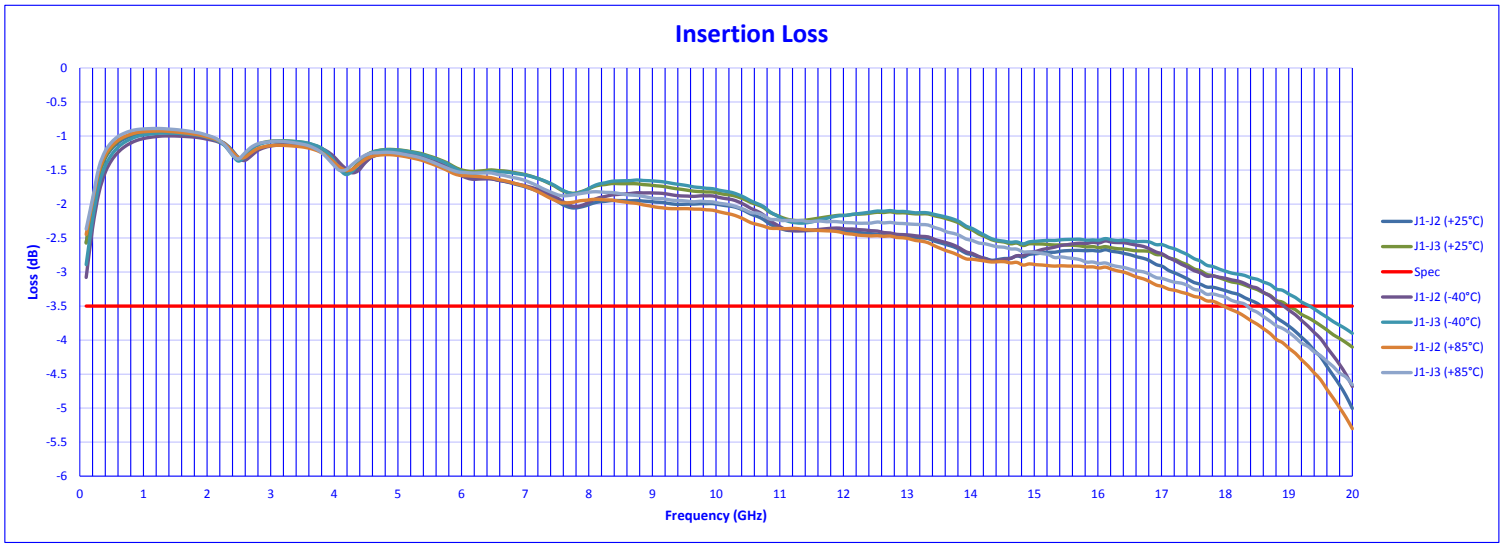

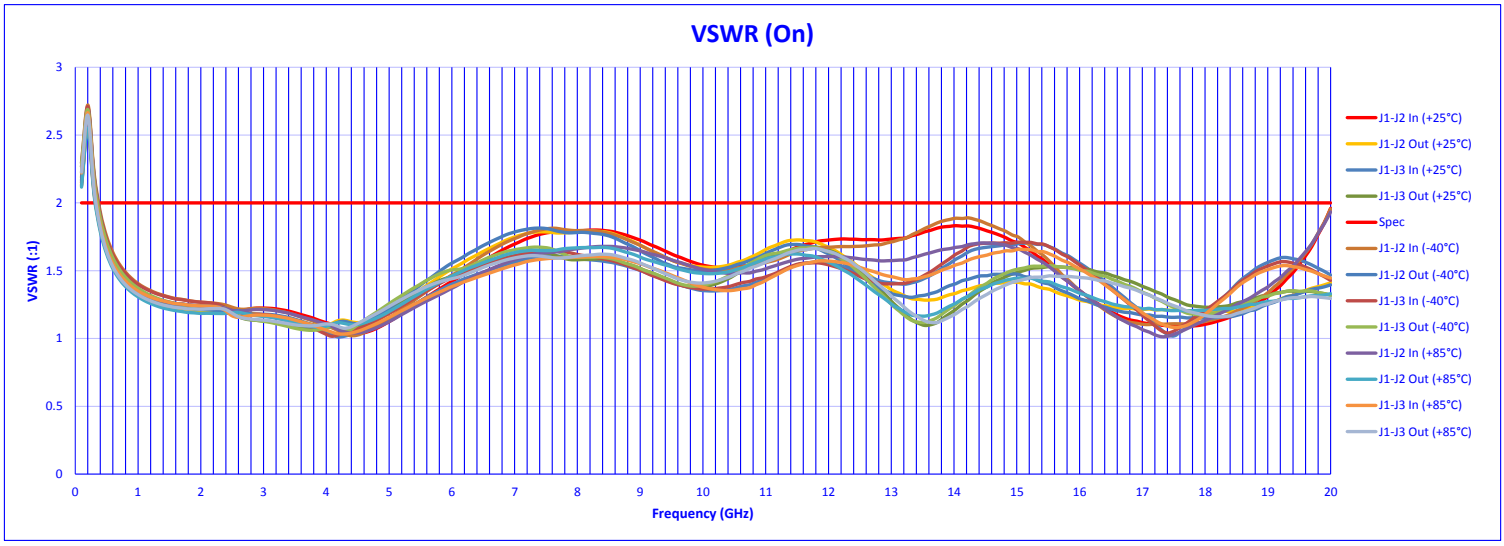

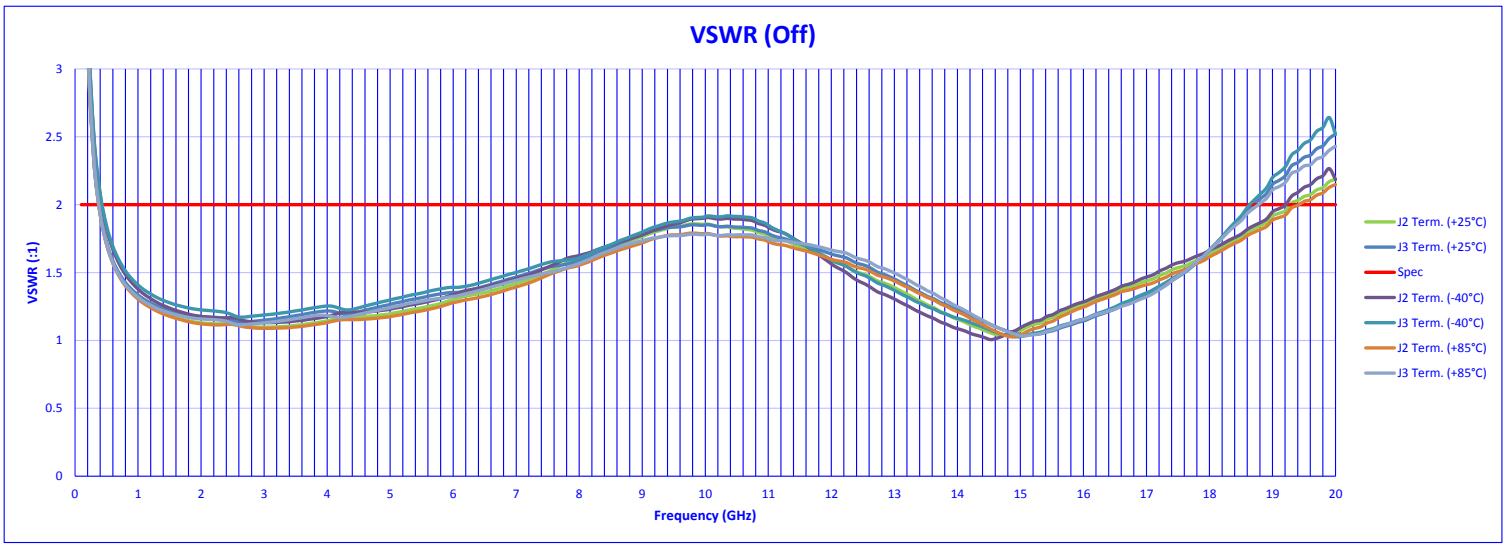

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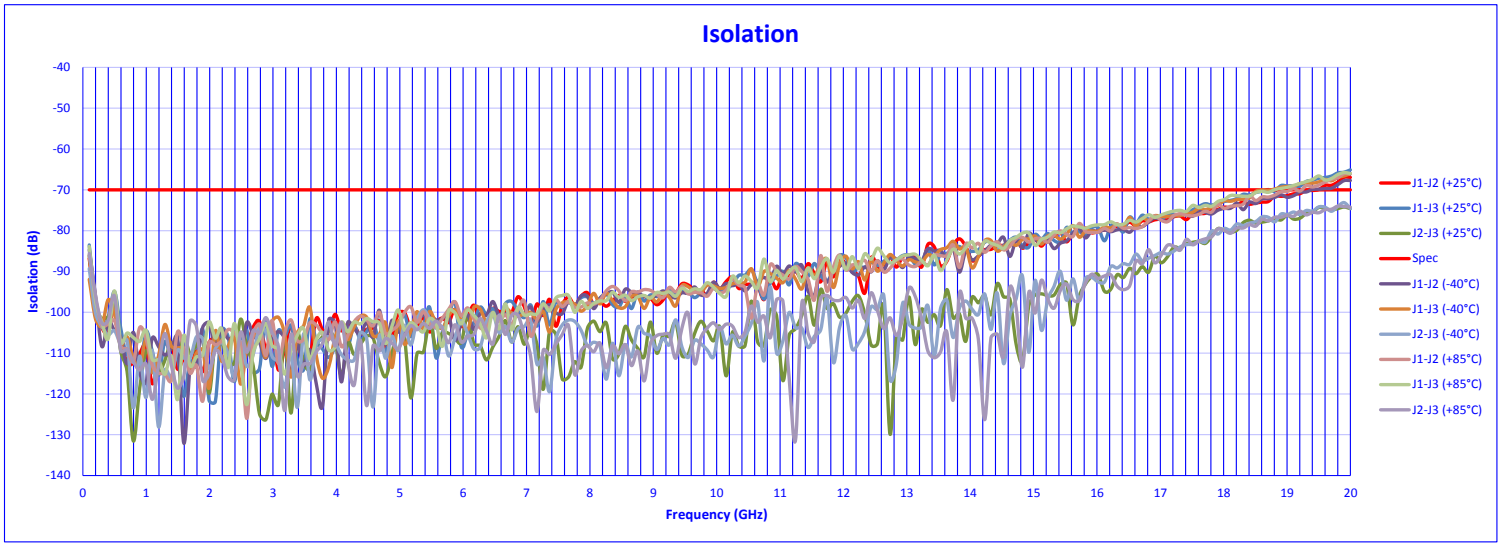

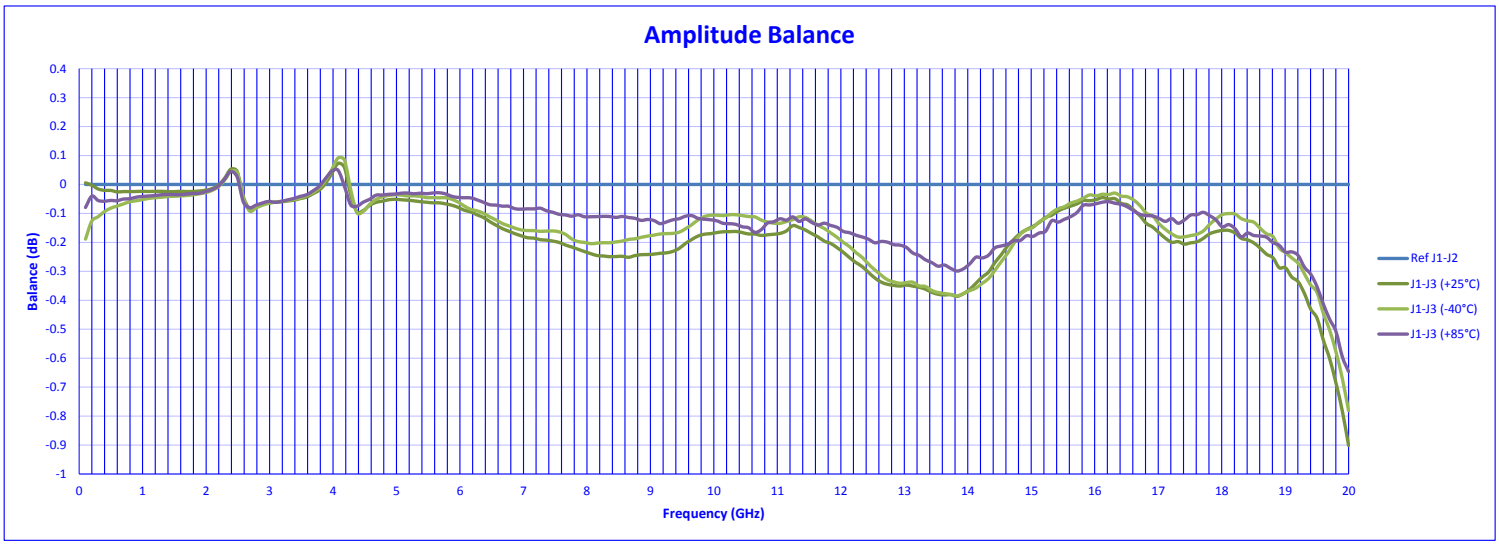

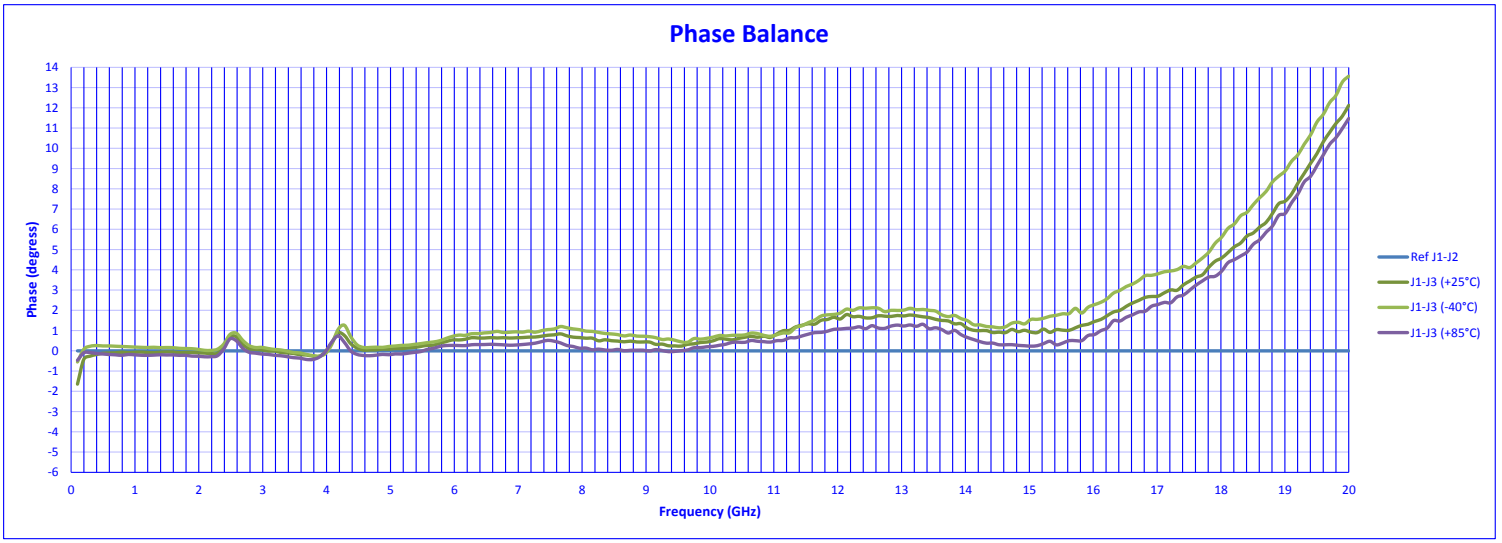

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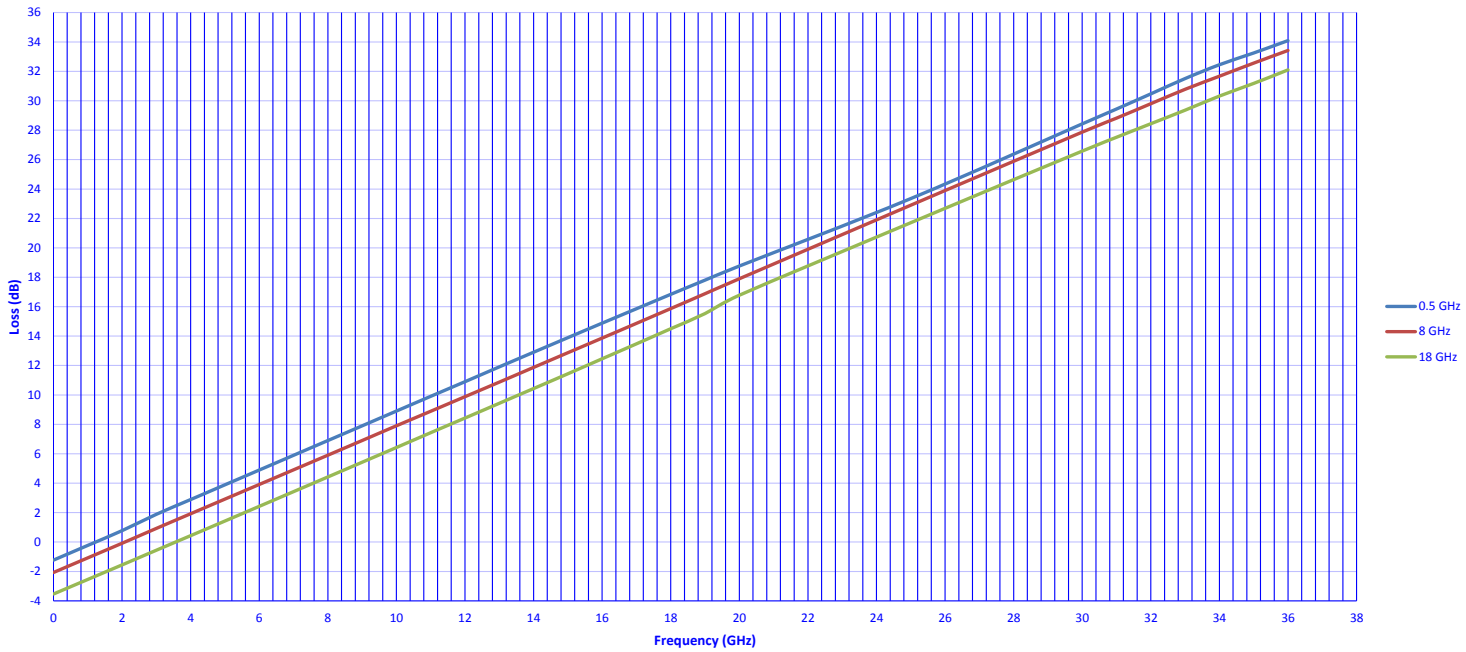

High Power Test Data (CW)												
0.5 GHz				8 GHz				18 GHz				
Power In (dBm)	Power Out (dBm)	Loss	Compression (dBm)	Power In (dBm)	Power Out (dBm)	Loss	Compression (dBm)	Power In (dBm)	Power Out (dBm)	Loss	Compression (dBm)	
0	-1.228	1.228	0.000	0	-2.069	2.069	0.000	0	-3.532	3.532	0.000	
1	-0.228	1.228	0.000	1	-1.075	2.075	0.006	1	-2.543	3.543	0.011	
2	0.775	1.225	-0.003	2	-0.082	2.082	0.013	2	-1.554	3.554	0.022	
3	1.887	1.113	-0.114	3	0.928	2.072	0.003	3	-0.555	3.555	0.023	
4	2.888	1.112	-0.116	4	1.924	2.076	0.007	4	0.435	3.565	0.033	
5	3.891	1.109	-0.118	5	2.920	2.080	0.011	5	1.429	3.571	0.039	
6	4.893	1.107	-0.121	6	3.914	2.087	0.018	6	2.427	3.573	0.041	
7	5.897	1.103	-0.125	7	4.909	2.091	0.022	7	3.425	3.575	0.043	
8	6.899	1.101	-0.127	8	5.905	2.095	0.026	8	4.424	3.576	0.044	
9	7.900	1.100	-0.128	9	6.901	2.099	0.030	9	5.425	3.575	0.043	
10	8.905	1.095	-0.133	10	7.904	2.096	0.027	10	6.426	3.574	0.042	
11	9.908	1.092	-0.136	11	8.891	2.109	0.040	11	7.434	3.566	0.034	
12	10.901	1.099	-0.129	12	9.882	2.118	0.049	12	8.430	3.570	0.038	
13	11.908	1.092	-0.136	13	10.872	2.128	0.059	13	9.432	3.568	0.036	
14	12.903	1.097	-0.131	14	11.872	2.128	0.059	14	10.435	3.565	0.033	
15	13.895	1.105	-0.123	15	12.871	2.129	0.060	15	11.439	3.561	0.029	
16	14.882	1.118	-0.110	16	13.866	2.134	0.065	16	12.460	3.540	0.008	
17	15.861	1.139	-0.089	17	14.868	2.132	0.063	17	13.475	3.525	-0.007	
18	16.840	1.160	-0.068	18	15.872	2.128	0.059	18	14.502	3.498	-0.034	
19	17.807	1.193	-0.035	19	16.883	2.117	0.048	19	15.533	3.467	-0.065	
20	18.765	1.235	0.007	20	17.901	2.099	0.030	20	16.780	3.220	-0.312	
25	23.350	1.650	0.422	25	22.900	2.100	0.031	25	21.710	3.290	-0.242	
30	28.430	1.570	0.342	30	27.870	2.130	0.061	30	26.580	3.420	-0.112	
31	29.440	1.560	0.332	31	28.820	2.180	0.111	31	27.520	3.480	-0.052	
32	30.470	1.530	0.302	32	29.800	2.200	0.131	32	28.440	3.560	0.028	
33	31.510	1.490	0.262	33	30.780	2.220	0.151	33	29.360	3.640	0.108	2W
34	32.450	1.550	0.322	34	31.670	2.330	0.261	34	30.320	3.680	0.148	2.5W
35	33.250	1.750	0.522	35	32.560	2.440	0.371	35	31.180	3.820	0.288	3W
36	**34.090**	**1.910**	**0.682**	**36**	**33.420**	**2.580**	**0.511**	**36**	**32.100**	**3.900**	**0.368**	**4W**
DO NOT EXCEED												

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Typical Characteristics
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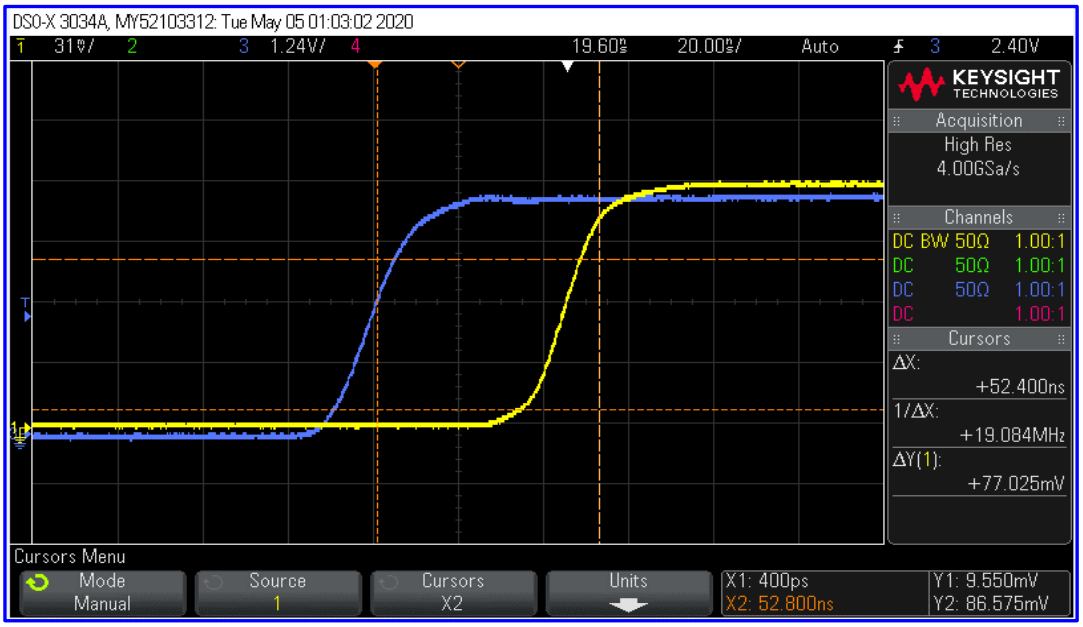
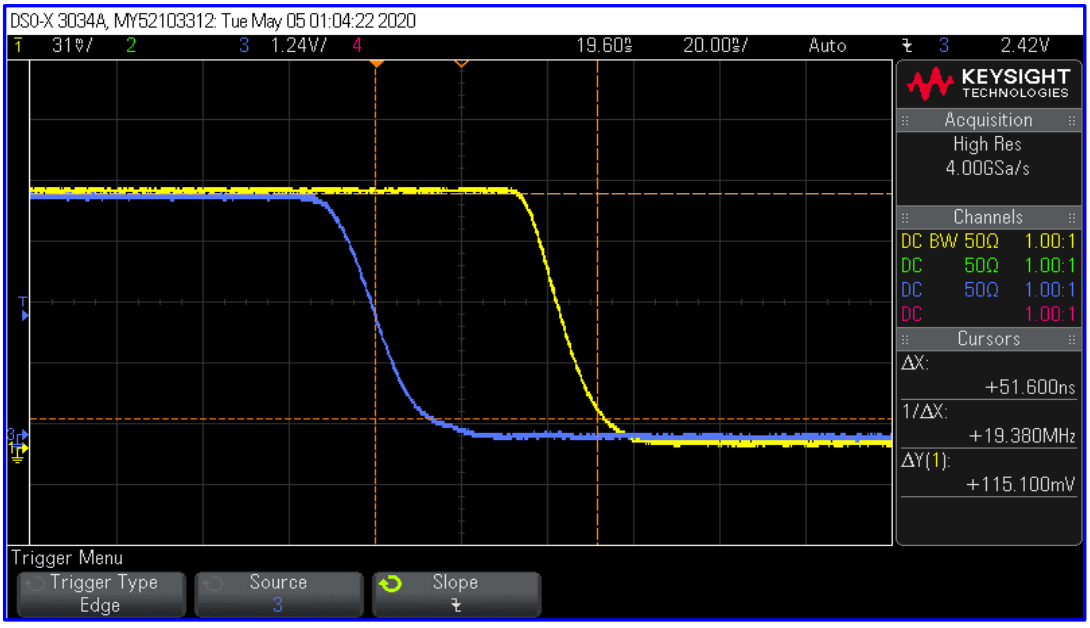
Switching Speed ON = (52.40ns)
20 ns Per Div.



Switching Speed OFF = (51.60ns)
20 ns Per Div.



Green Trace = TTL Signal
Yellow Trace = RF Signal

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Typical Characteristics
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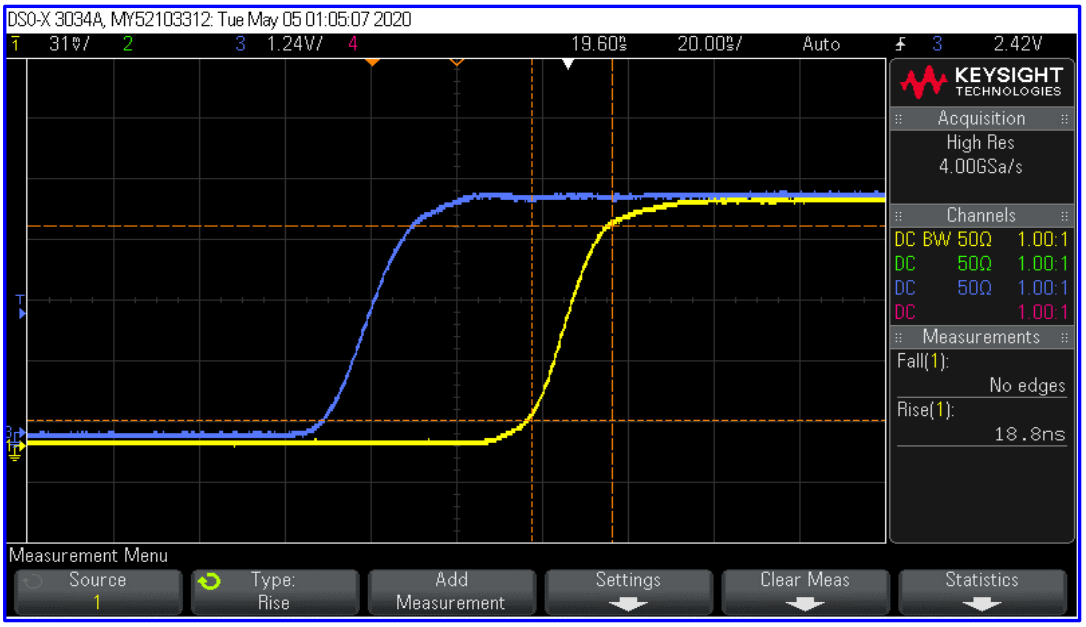
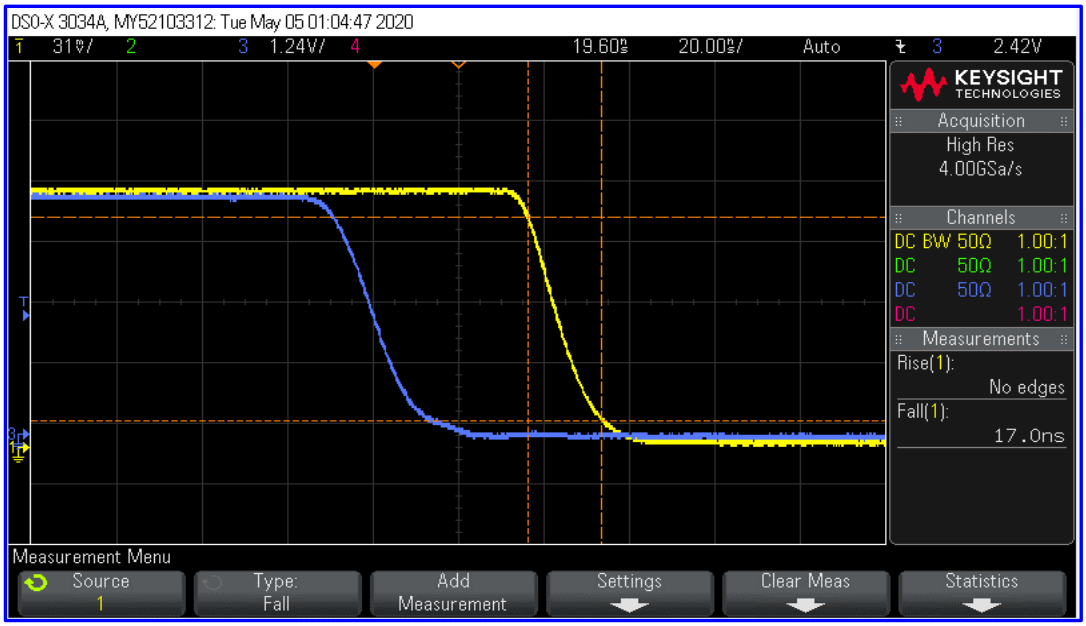
Rise Time = (18.80ns)
20 ns Per Div.



Fall Time = (17.00ns)
20 ns Per Div.



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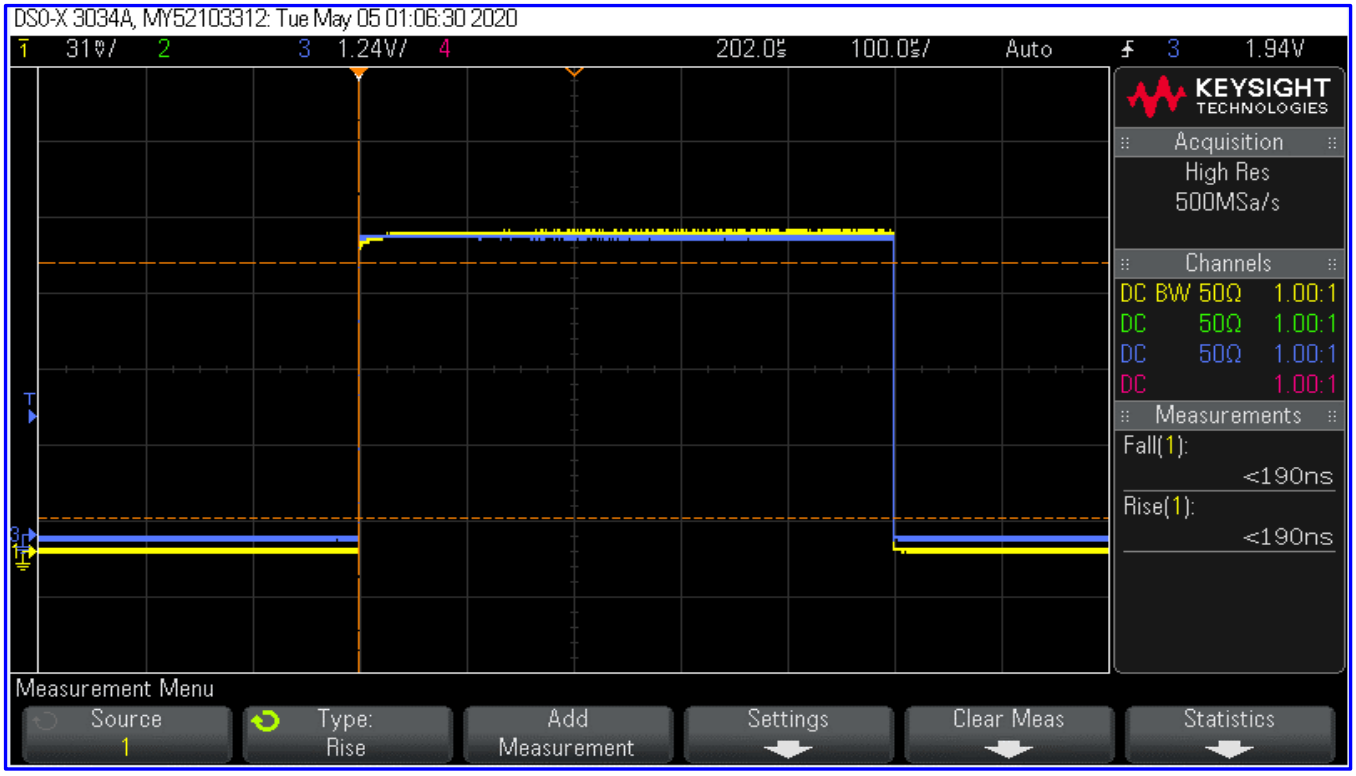
Full Pulse
100 ns Per Div.



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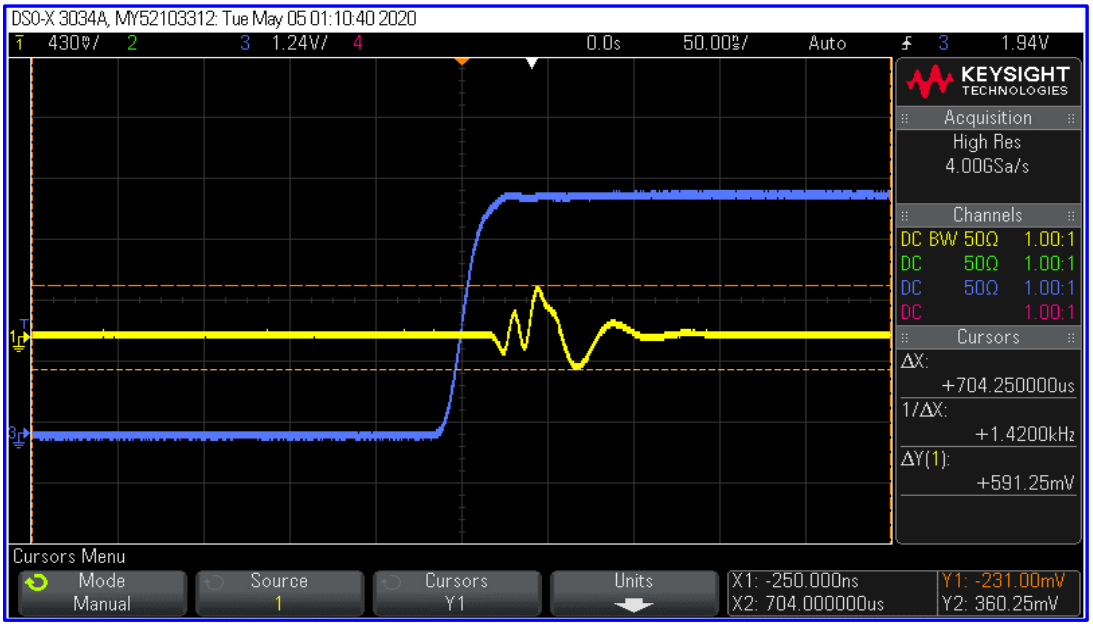
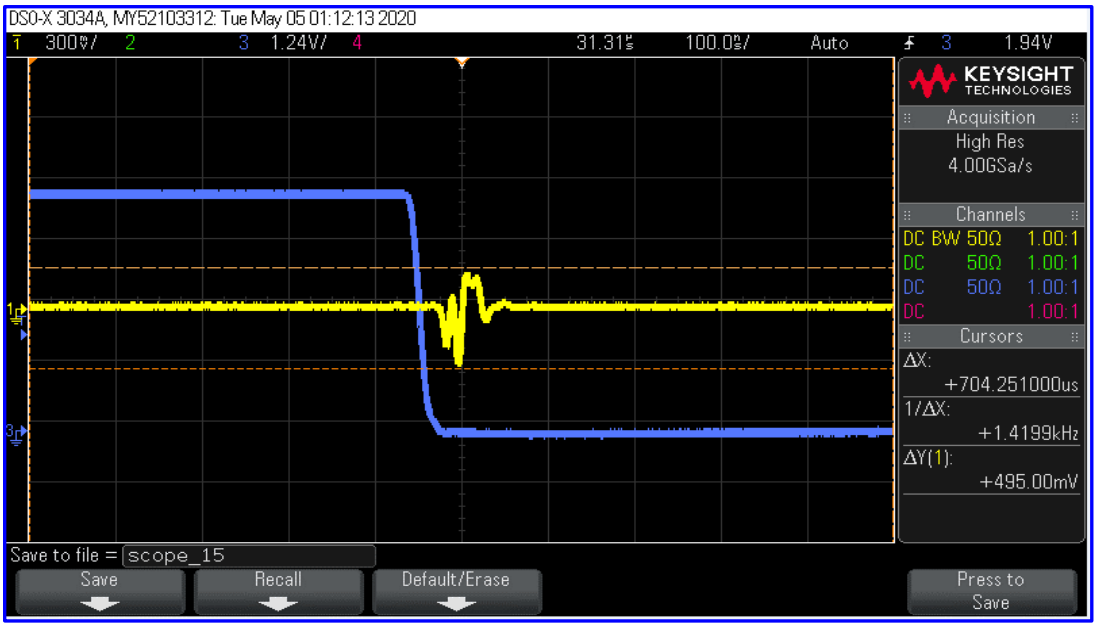
Typical Characteristics
ON
P2T-500M18G-80-T-515-SFF-4W-ST

Output Video Transients
BW = 350MHz, 50Ω
Measured Value (591.25mV P-P)



Output Video Transients
BW = 350MHz, 50Ω
Measured Valie (495mV P-P)



TTL Signal (Trigger) = Blue
Video Signal = Yellow

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