TYPICAL CHARACTERISTICS ON PVA-7D8G18G-2-SFF

QUANTIC PMI MODEL NO: PVA-7D8G18G-2-SFF IS A BROADBAND MICROWAVE INTEGRATED DETECTOR THAT IS A HIGH-PERFORMANCE RF SUB-ASSEMBLY DESIGNED FOR ACCURATE AND RELIABLE MONITORING OF MICROWAVE SIGNAL POWER IN DEMANDING APPLICATIONS. IT OPERATES OVER THE FREQUENCY RANGE OF 7.8 GHz TO 18 GHz AND HAS TWO VIDEO OUTPUTS WITH A DYNAMIC RANGE OF 70 dBm AND A TANGENTIAL SIGNAL SENSITIVITY OF AT LEAST 65 dBm, DELIVERING A STABLE AND RREPEATABLE DETECTION ACROSS A BROAD DYNAMIC RANGE.

June 3, 2026

Designed By:

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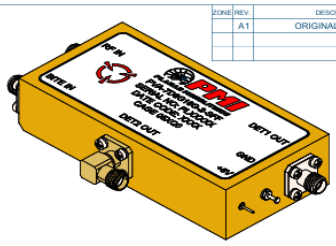
TYPICAL CHARACTERISTICS ON PVA-7D8G18G-2-SFF

Outline Drawing

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	12/24/2025	

DESCRIPTION:

QUANTIC PMI MODEL NO: PVA-7D8G18G-2-SFF IS A BROADBAND MICROWAVE INTEGRATED DETECTOR THAT IS A HIGH-PERFORMANCE RF SUB-ASSEMBLY DESIGNED FOR ACCURATE AND RELIABLE MONITORING OF MICROWAVE SIGNAL POWER IN DEMANDING APPLICATIONS. IT OPERATES OVER THE FREQUENCY RANGE OF 7.8 GHz TO 18 GHz AND HAS TWO VIDEO OUTPUTS WITH A DYNAMIC RANGE OF 70 dBm AND A TANGENTIAL SIGNAL SENSITIVITY OF AT LEAST 65 dBm, DELIVERING A STABLE AND RREPEATABLE DETECTION ACROSS A BROAD DYNAMIC RANGE.



SPECIFICATIONS:

- FREQUENCY RANGE:..... 7.8 GHz TO 18 GHz
- RF BANDWIDTH (DET1 OUT ONLY):..... 11 GHz MAX.
- BITE IN (OUTPUT RATIO TO RF IN @ 8.8 GHz):..... -13±0.5 dB
- DET1 OUT:..... SEE FIGURE 1
- DET2 OUT:..... SEE FIGURE 2
- TSS LEVEL:..... -65 dBm MAX.
- INPUT PEAK POWER:..... 1000 W MAX. (1 µs PW, 1% DC)
- INPUT AVERAGE POWER:..... 3 W MAX.
- RECOVERY TIME:..... 400 ns MAX.
- VSWR (RF IN/BITE IN):..... 2.5:1 MAX.
- DET1/DET2 OUT PULSE WAVEFORM:..... SEE FIGURE 3
- RISE TIME:..... 20 ns MAX.
- FALL TIME:..... 20 ns MAX.
- DET1 OUT FLATNESS:..... ±2.0 dB MAX.
- DET2 OUT FLATNESS:..... ±1.5 dB MAX.
- OUTPUT CONDITION:..... 100 Ω LOAD
- VOLTAGE:..... +6V±0.5V
- CURRENT:..... 700 mA MAX.
- WEIGHT:..... 250 g MAX
- CONNECTORS:..... SMA FEMALE

FIGURE 1

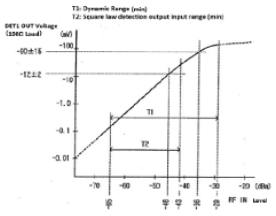


FIGURE 2

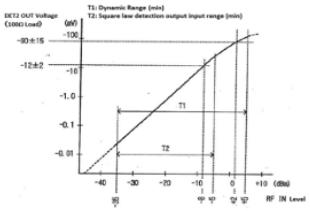
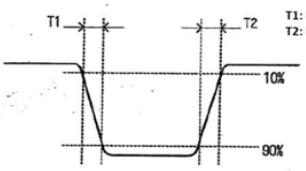


FIGURE 3



T1: Less than 20ns
T2: Less than 20ns

Input condition: 100ns pulse modulation
Output Condition: 100Ω Load

ENVIRONMENTAL RATINGS:

- TEMPERATURE:..... -20°C TO +85°C (OPERATING)
  -30°C TO +95°C (STORAGE)
- HUMIDITY:..... 95% RELATIVE HUMIDITY @ +45°C
- SHOCK:..... 20G @ 11ms
- VIBRATION:..... 5mm p-p @ 2 TO 5 Hz
  1.5mm p-p @ 5 TO 10 Hz
  0.3mm p-p @ 10 TO 25 Hz
  IN ALL XYZ AXES, 2 HOURS PER AXIS

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

PMI CONFIDENTIAL AND PROPRIETARY

APPROVALS	DATE
DRAWN: J ESCANO	12/24/2025
REDRAWN	
ISSUED	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
FRACTIONS ± | DECIMALS .XX ± .02 .XXX ± .01 | ANGLES ±

TITLE: OUTLINE
PVA-7D8G18G-2-SFF
SIZE: B | FSCM NO.: 05XQ0 | DWG NO.: 27050900 | REV: A1
SCALE 1.5:1 | SHEET 1 OF 2

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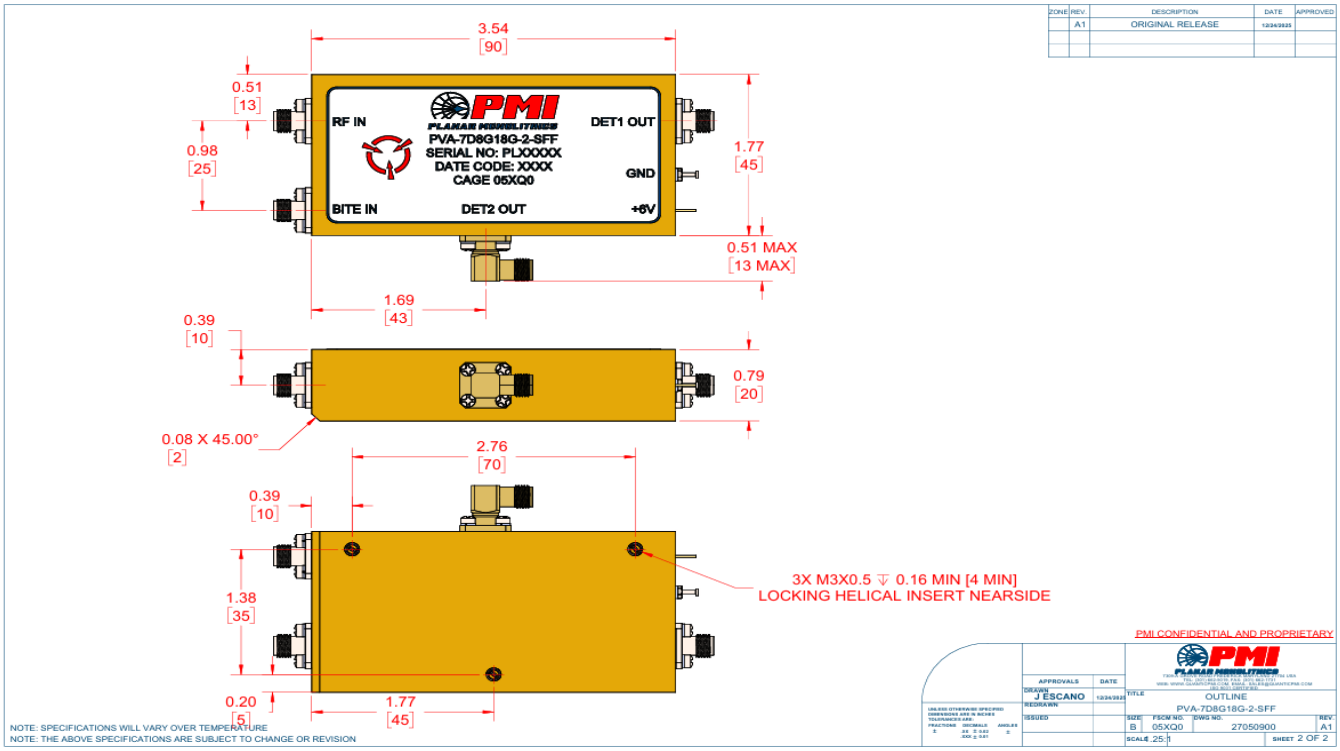
TYPICAL CHARACTERISTICS ON PVA-7D8G18G-2-SFF

Outline Dimension



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TYPICAL CHARACTERISTICS ON PVA-7D8G18G-2-SFF

Technical specifications

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS			QA QC
			+25°C	-20°C	+85°C	
1	Frequency Range:	7.8 to 18.0 GHz	**7.8 to 18.0 GHz**	**7.8 to 18.0 GHz**	**7.8 to 18.0 GHz**	
2	Bite In (Output ratio to RF) @ 8.8 GHz	-13 dB ± 0.5 dB	**13 dB See Graph**	**-12.8 dB See Graphs**	**-12.7 dB See Graphs**	
3	DET 1 Out Voltage: T1 (-65 to -29 dBm) T2 (-65 to -43 dBm)	-46 dBm (12± 2 mV. Max.) -36 dBm (90 ± 15 mV. Max.)	**-11.63 mV Max.** **-11.85 mV Min.** **-101.8 mV Max.** **-105.02 mV Min.** **See Graphs**	**-10.52 mV Max.** **-12.17mV Min.** **-93.39mV Max.** **-104.43mV Min.** **See Graphs**	**-11.15 mV Max.** **-12.11 mV Min.** **-91.29 mV Max.** **-98.62 mV Min.** **See Graphs**	
4	DET 2 Out Voltage: T1 (-35 to +5 dBm) T2 (-35 to -5 dBm)	-8 dBm (12± 2 mV. Max.) +2 dBm (90 ± 15 mV. Max.)	**-11.13 mV Max.** **-11.43 mV Min.** **-93.99 mV Max.** **-98.3 mV Min.** **See Graphs**	**-10.04 mV Max.** **-10.36 mV Min.** **-88.77 mV Max.** **-95.72 mV Min.** **See Graphs**	**-11.93 mV Max.** **-12.44 mV Min.** **-88.13 mV Max.** **-91.19 mV Min.** **See Graphs**	
5	TSS Level @ (8.8 GHz):	-65 dBm Max.	**Pass See Plots**	**Pass See Plots**	**Pass See Plots**	
6	Input Power:	3 Watts CW Max. 1 kW Peak Max (1 µs PW, 0.3% Duty Cycle)	**Pass See Graphs**	**Pass See Graphs**	**Pass See Graphs**	
7	Recovery Time:	400 ns Max.	**137.6 ns See Plots**			
8	Rise Time:	20 ns Max.	**13.61 ns See Plots**			
9	Fall Time:	20 ns Max.	**13.22 ns See Plots**			
10	VSWR RF In & Bite In:	2.5:1 Max.	**2.26:1 (RF in)** **2.35:1 (BITE in)** **See Graphs**	**2.29:1 (RF in)** **2.45:1 (BITE in)** **See Graphs**	**2.27 :1 (RF In)** **2.27:1 (BITE in)** **See Graphs**	
11	DET 1 Out Flatness:	± 2.0 dB	**±0.1 dB See Graph**	**±0.7 dB See Graph**	**±0.41 dB See Graph**	
12	DET 2 Out Flatness:	± 1.5 dB	**±0.14 dB See Graph**	**±0.45 dB See Graph**	**±0.23 dB See Graph**	
13	Power Supply	+6 VDC ±0.5V 700 mA Max.	**+6 VDC ±0.5V 190 mA**	**+6 VDC ±0.5V 185 mA**	**+6 VDC ±0.5V 200 mA**	

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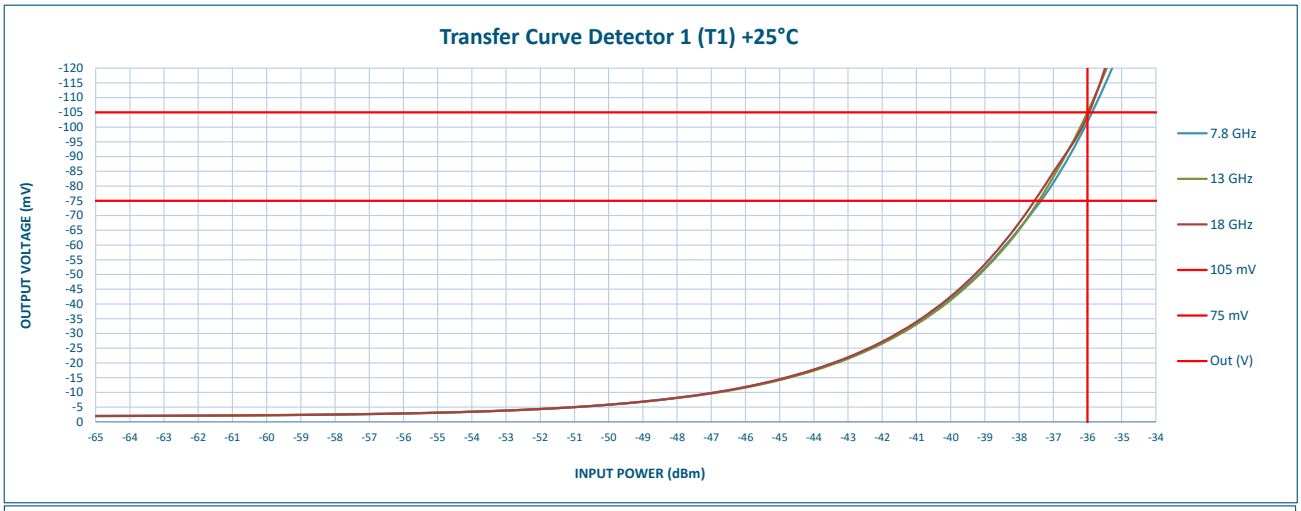

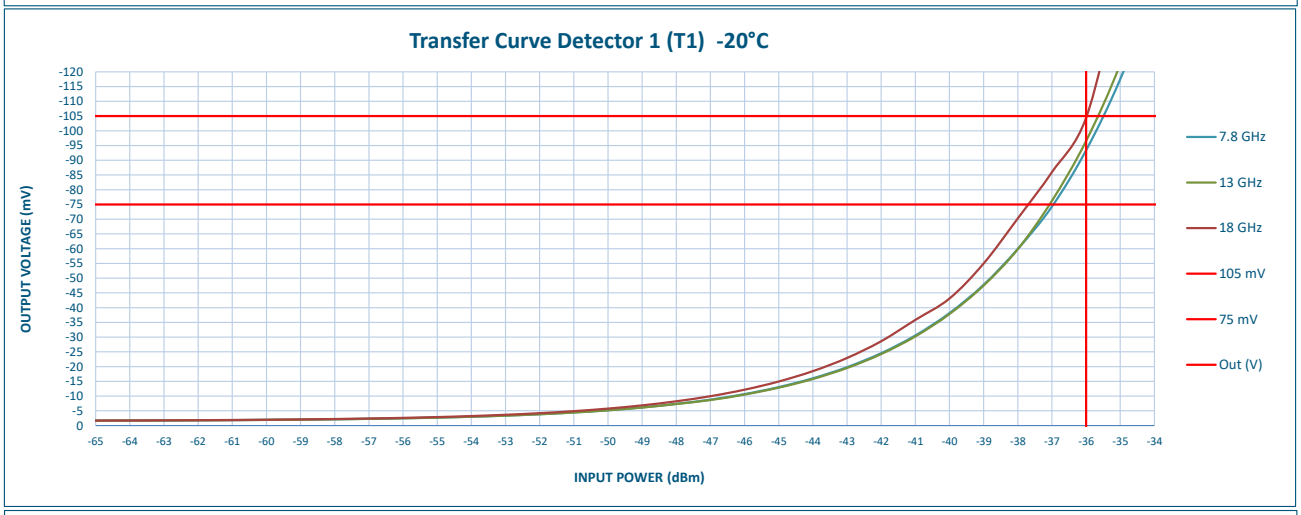

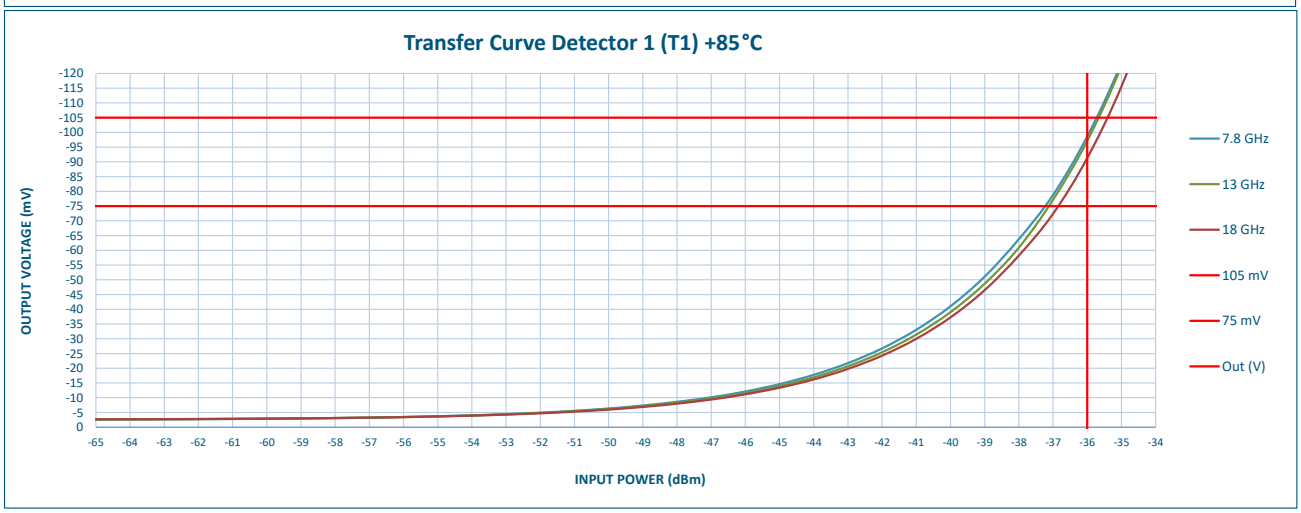

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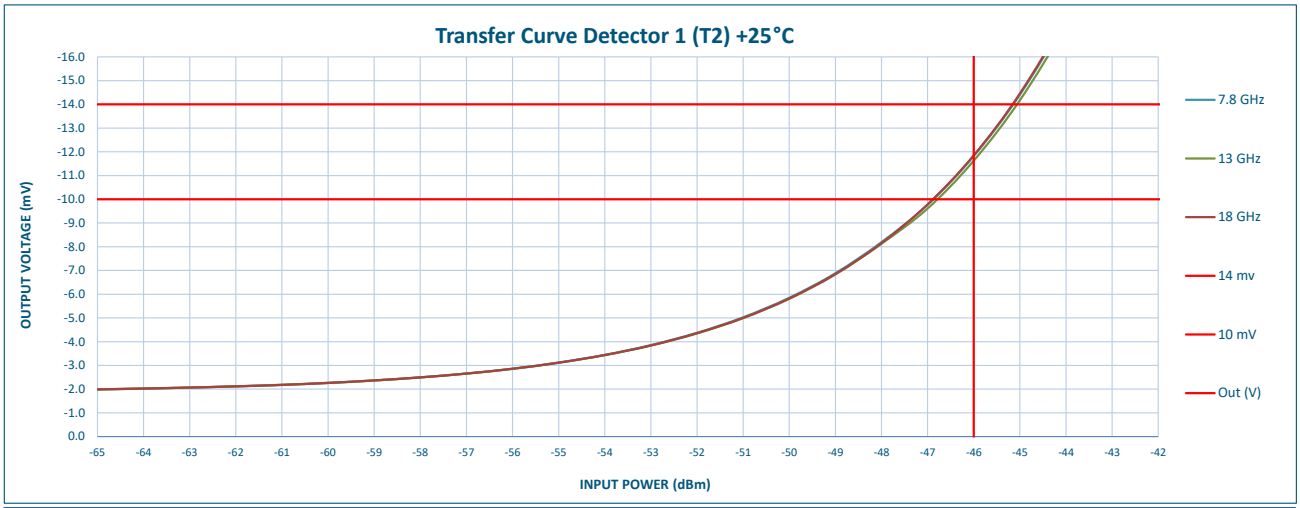

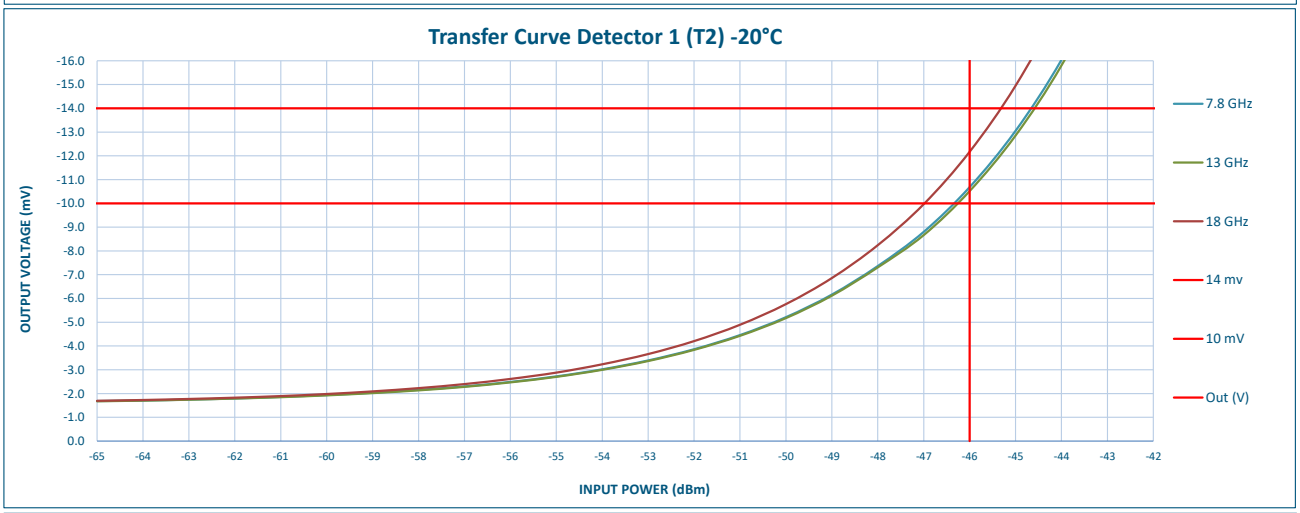

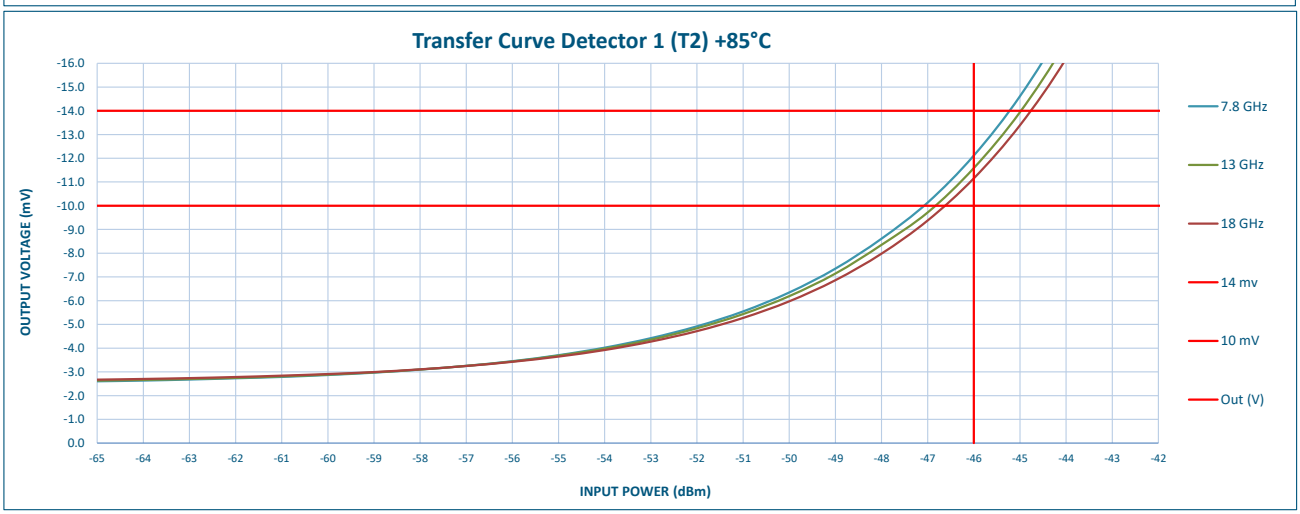

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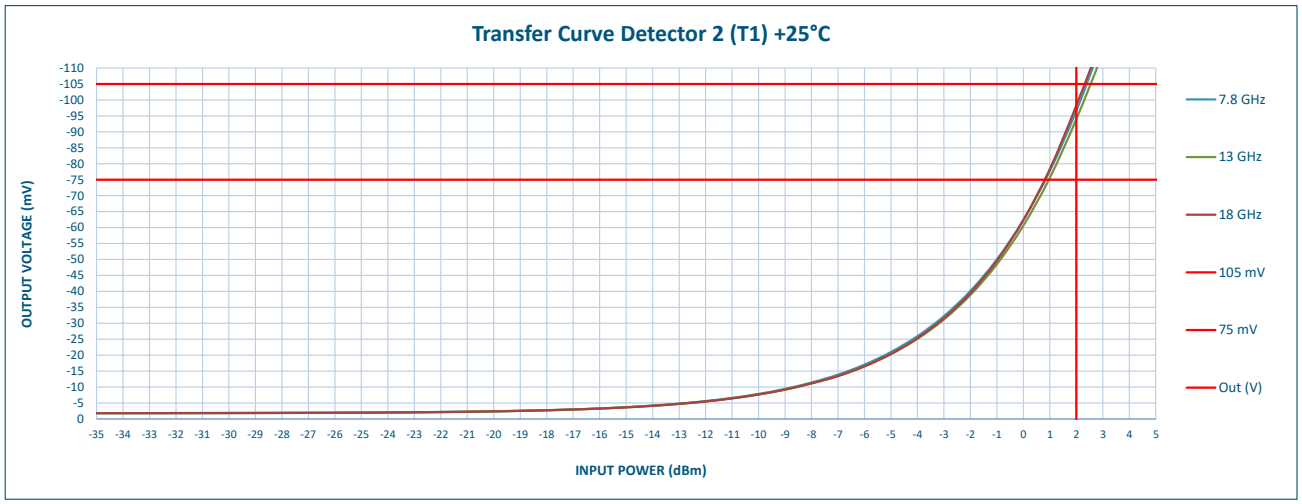

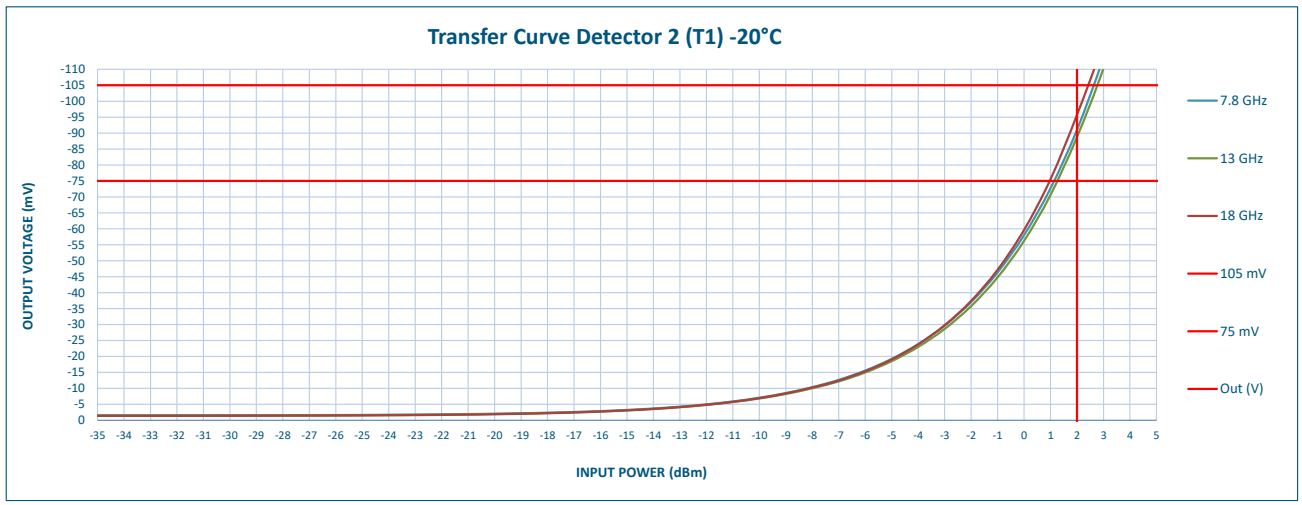

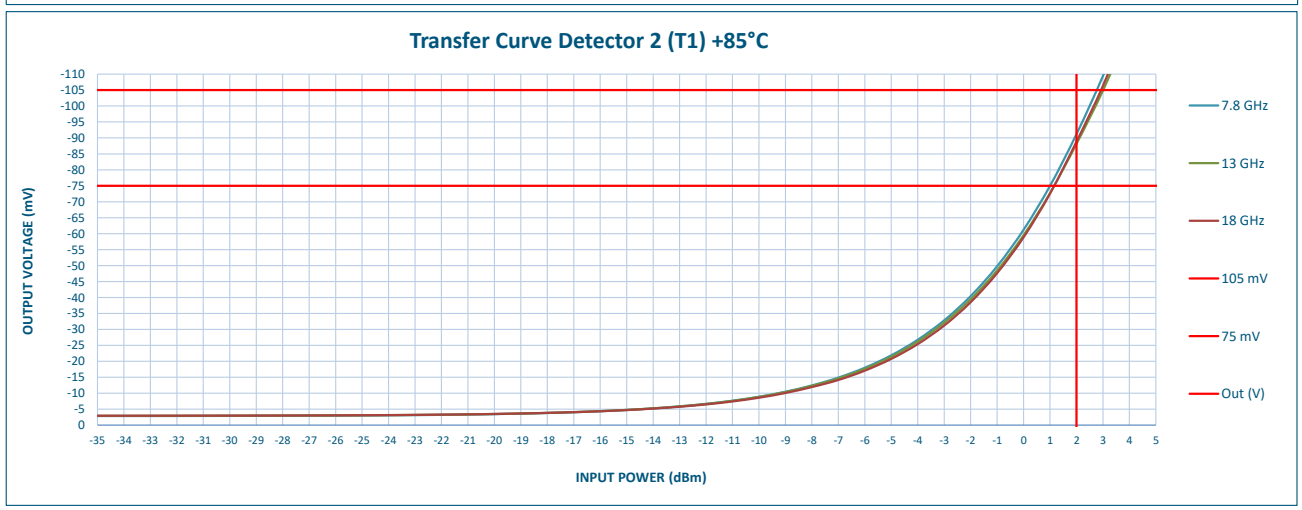

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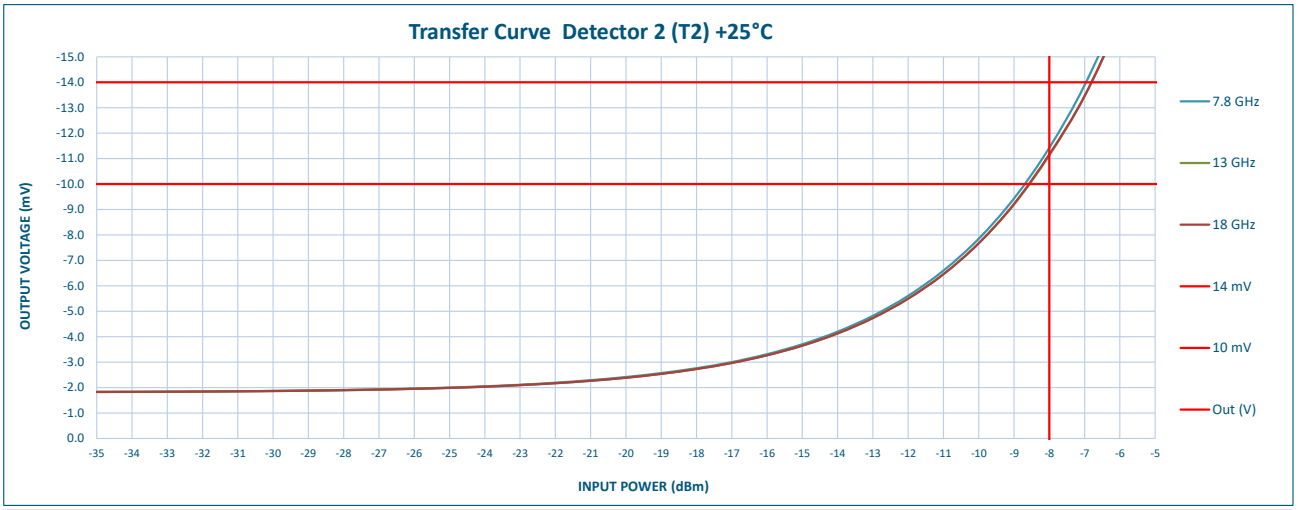

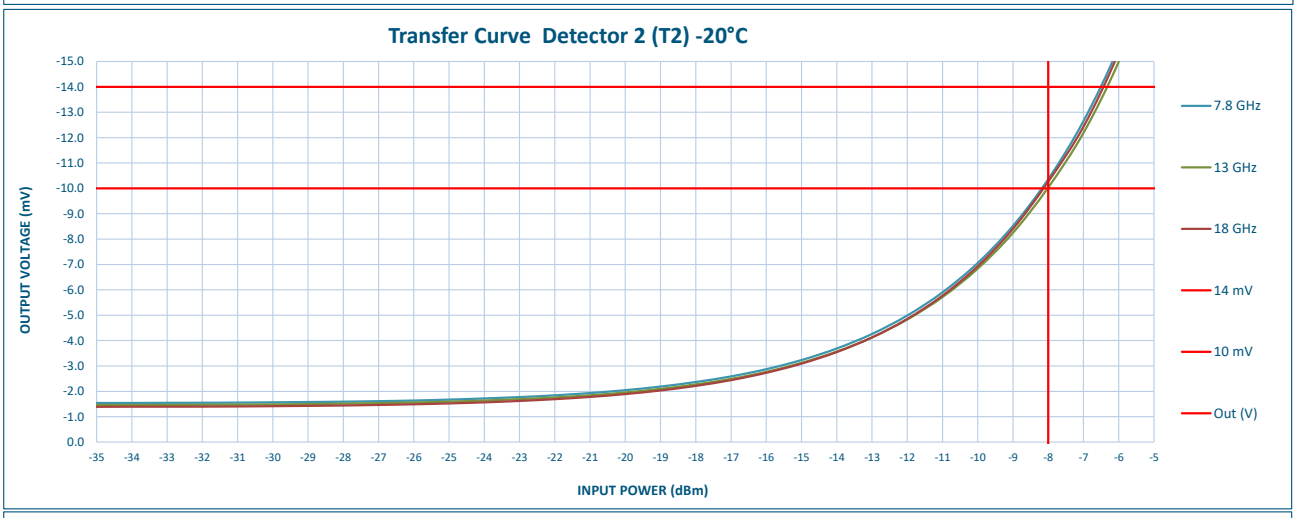

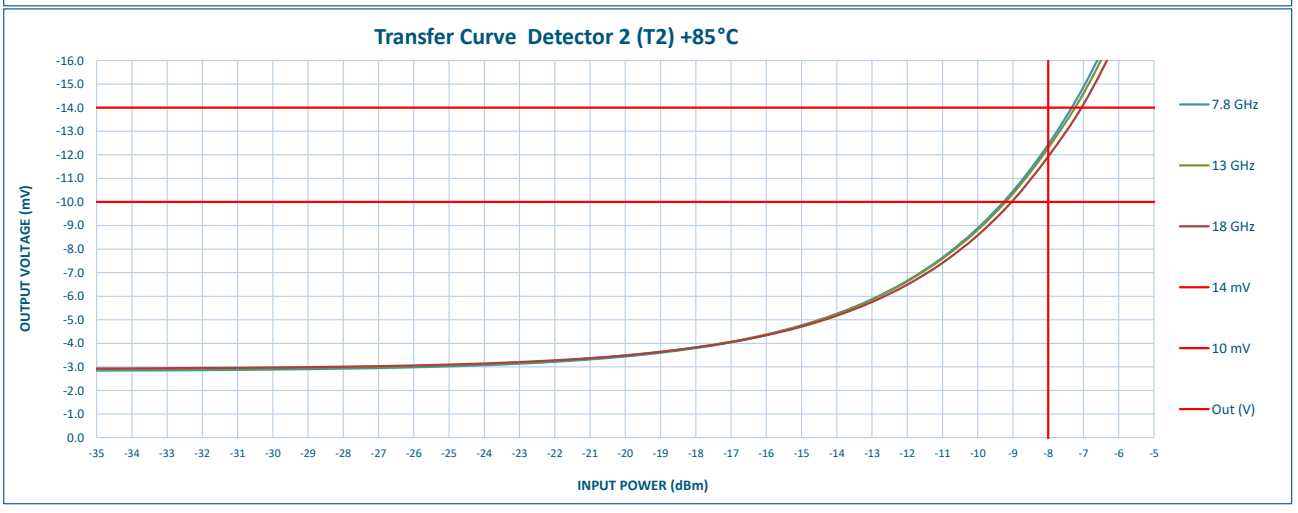

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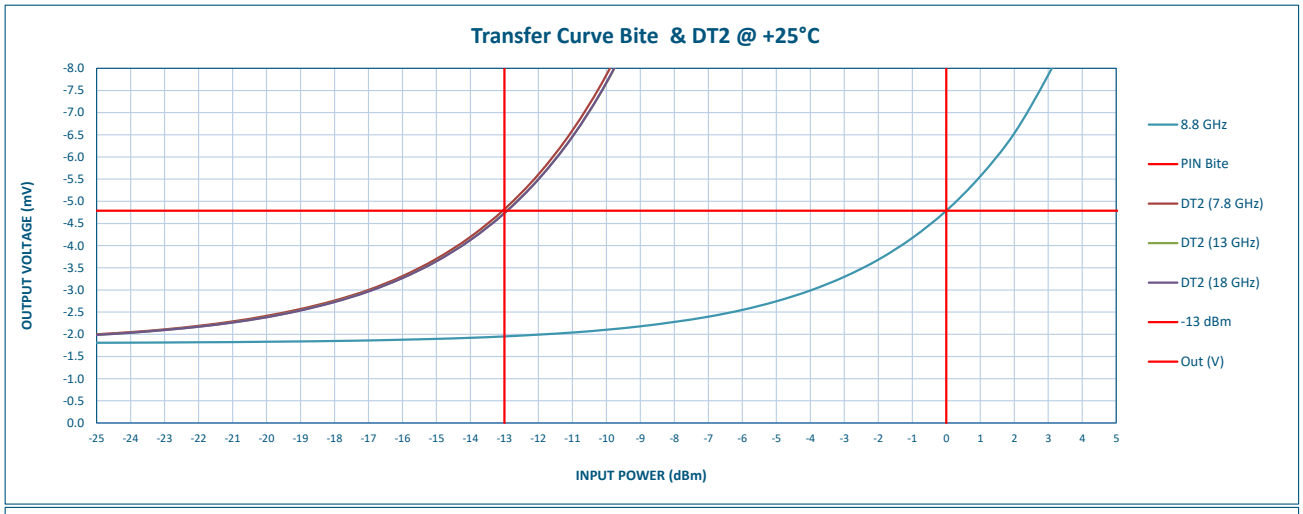

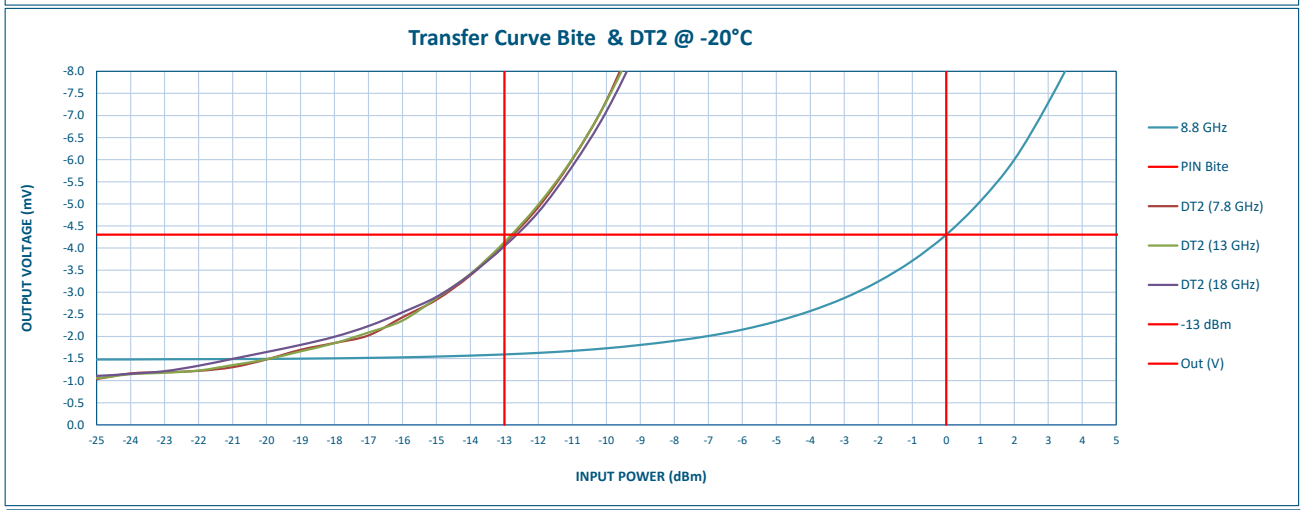

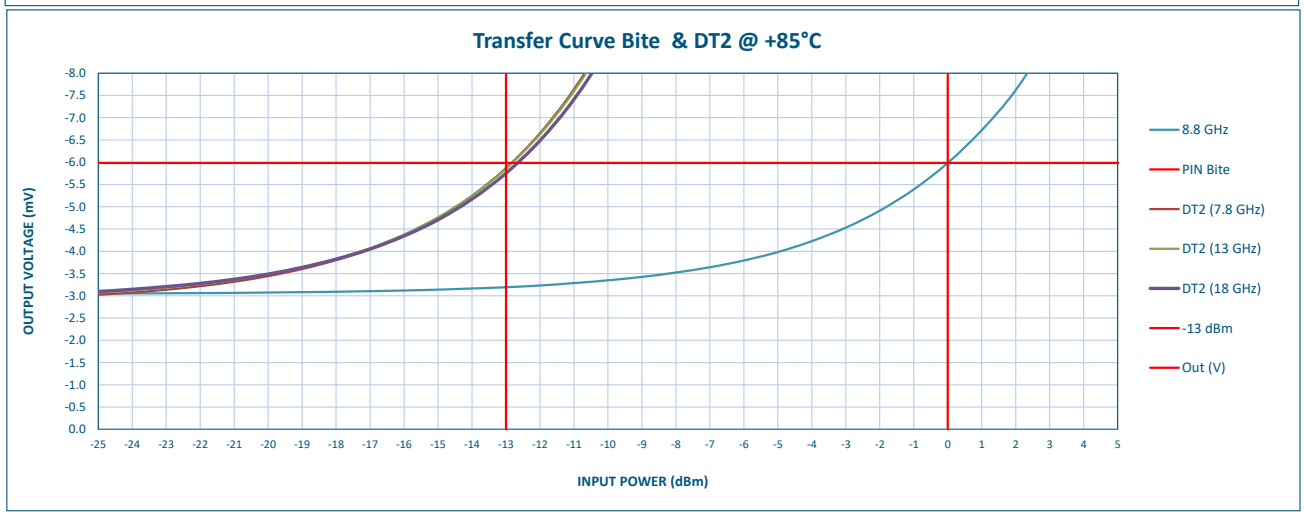

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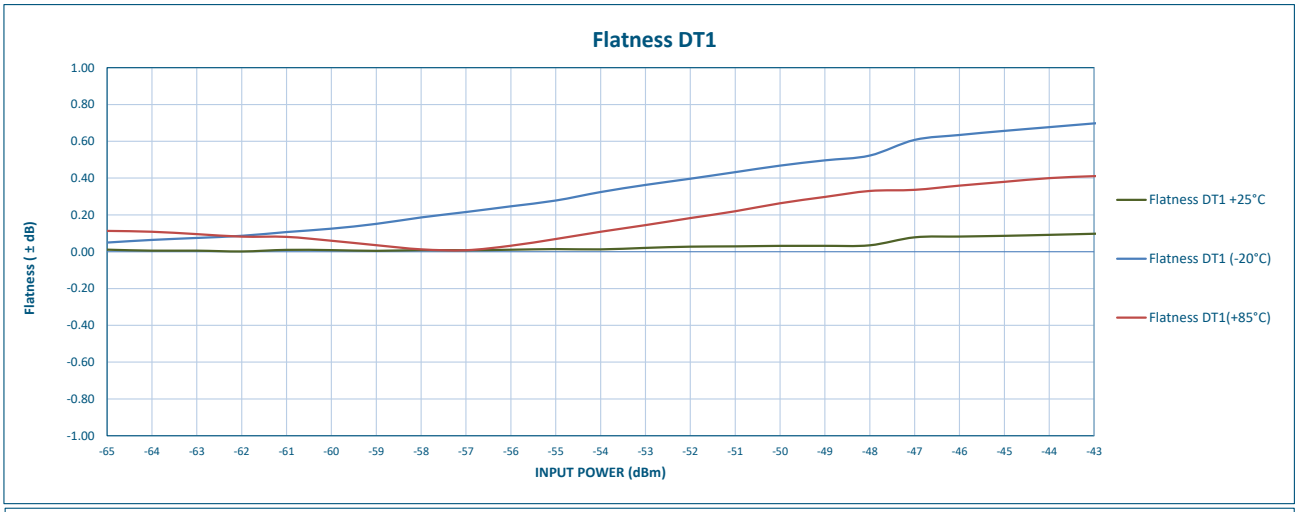

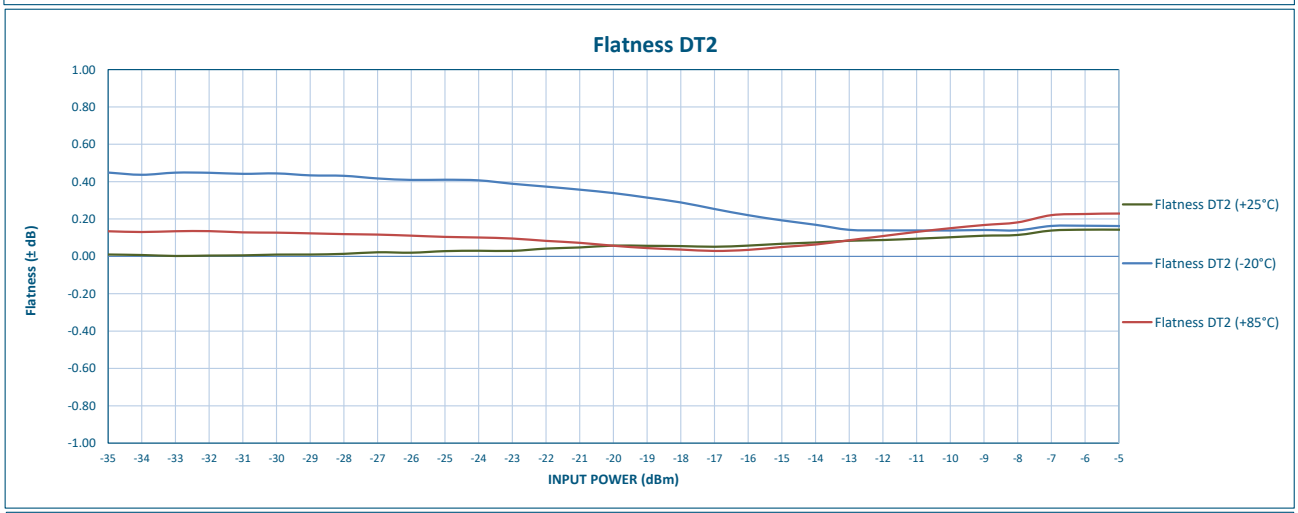

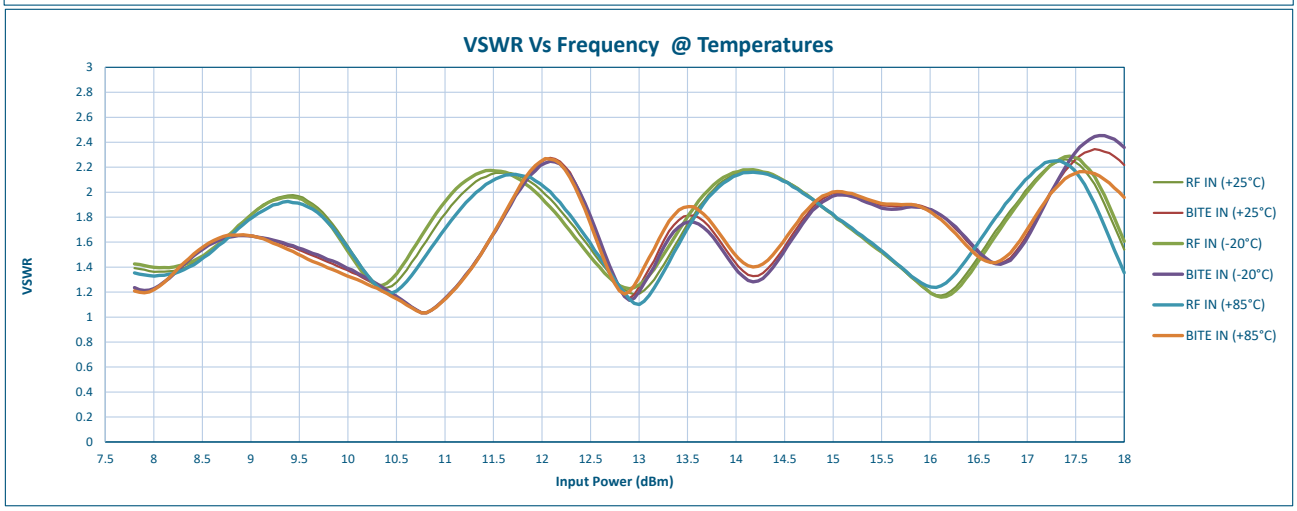

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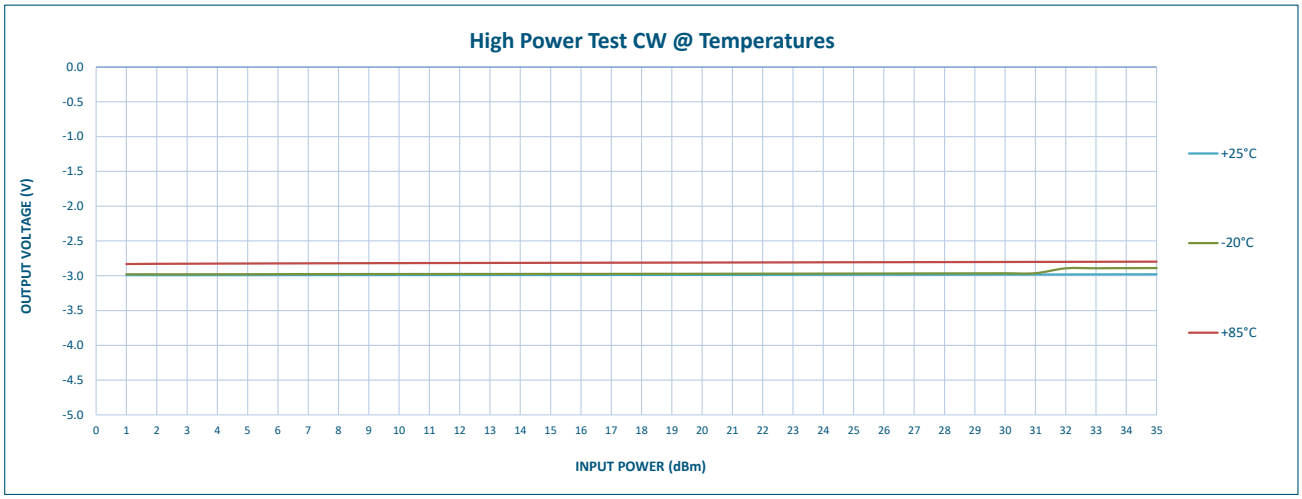

Peak Power Test
1 µs PW, 333.3 µs, 0.3 % Duty Cycle
Input Power 1 kW
2.4 GHz

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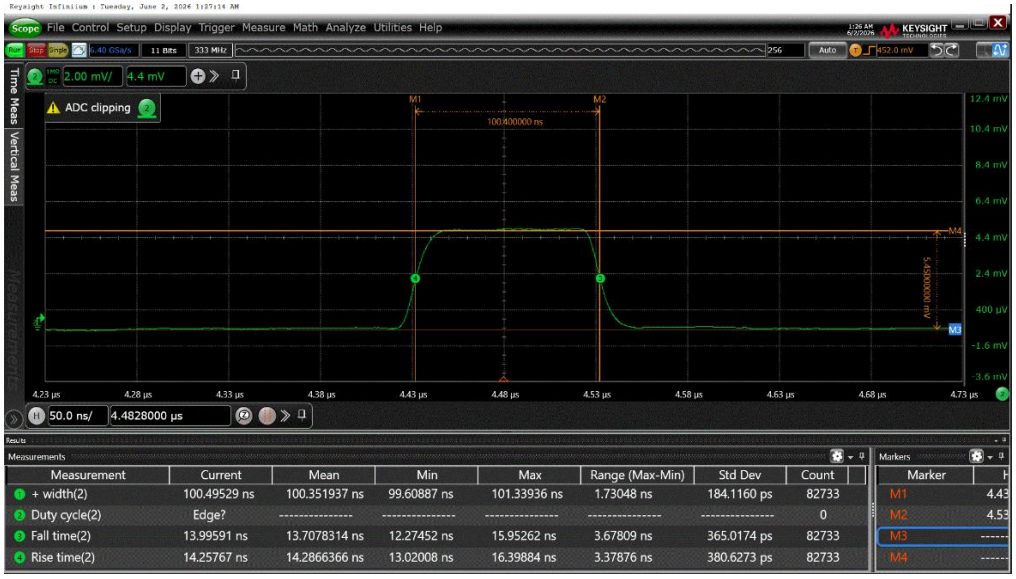
TYPICAL CHARACTERISTICS
ON
PVA-7D8G18G-2-SFF

DT1
-46 dBm Input Power

100 ns PW, 25% Duty Cycle

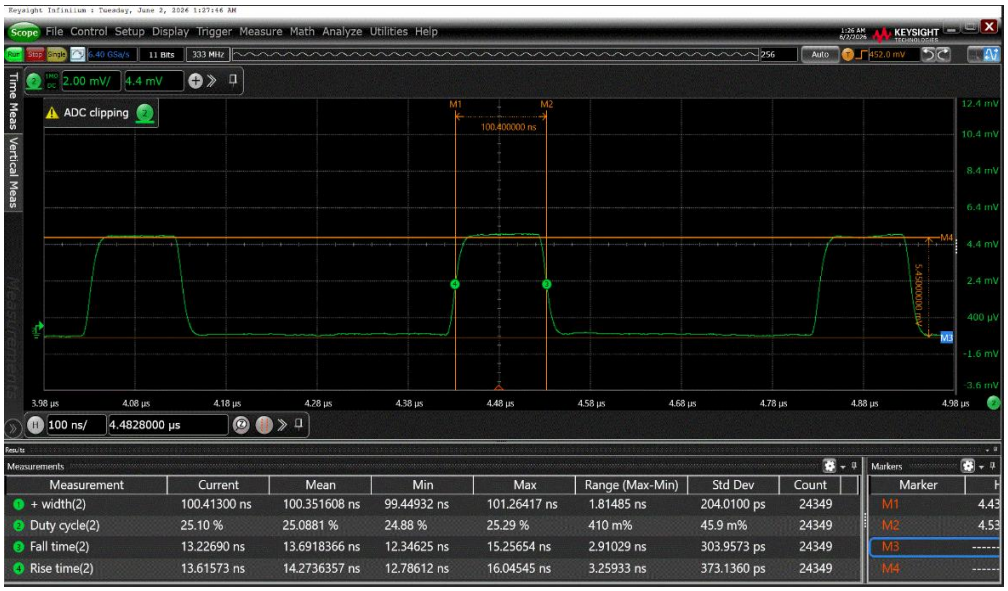
Rise time (13.61 ns)
Fall Time (13.22 ns)



Measurement	Current	Mean	Min	Max	Range (Max-Min)	Std Dev	Count
+ width(2)	100.49529 ns	100.351937 ns	99.60887 ns	101.33936 ns	1.73048 ns	184.1160 ps	82733
Duty cycle(2)	Edge?	----------	----------	----------	----------	----------	0
Fall time(2)	13.99591 ns	13.7078314 ns	12.27452 ns	15.95262 ns	3.67809 ns	365.0174 ps	82733
Rise time(2)	14.25767 ns	14.2866366 ns	13.02008 ns	16.39884 ns	3.37876 ns	380.6273 ps	82733

DT1

-46 dBm Input Power
Full Pulse
100 ns PW, 25% Duty Cycle



Measurement	Current	Mean	Min	Max	Range (Max-Min)	Std Dev	Count
+ width(2)	100.41300 ns	100.351608 ns	99.44932 ns	101.26417 ns	1.81485 ns	204.0100 ps	24349
Duty cycle(2)	25.10 %	25.0881 %	24.88 %	25.29 %	410 m%	45.9 m%	24349
Fall time(2)	13.22690 ns	13.6918366 ns	12.34625 ns	15.25654 ns	2.91029 ns	303.9573 ps	24349
Rise time(2)	13.61573 ns	14.2736357 ns	12.78612 ns	16.04545 ns	3.25933 ns	373.1360 ps	24349

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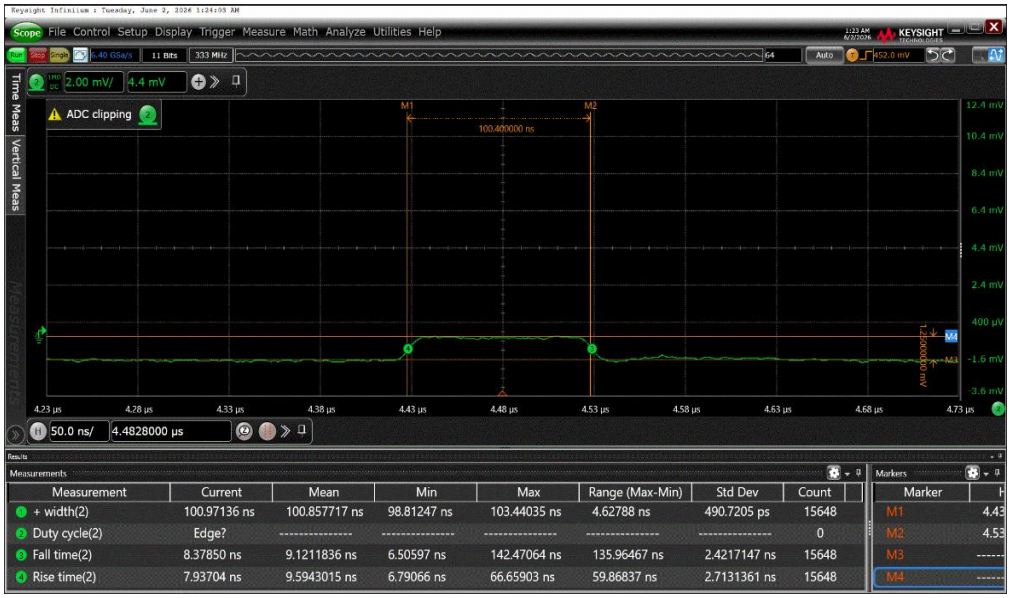
TYPICAL CHARACTERISTICS ON PVA-7D8G18G-2-SFF

DT2
-15 dBm Input Power

100 ns PW, 25% Duty Cycle

Rise time (7.93 ns)
Fall Time (8.37 ns)



Measurement	Current	Mean	Min	Max	Range (Max-Min)	Std Dev	Count
+ width(2)	100.97136 ns	100.857717 ns	98.81247 ns	103.44035 ns	4.62788 ns	490.7205 ps	15648
Duty cycle(2)	Edge?						0
Fall time(2)	8.37850 ns	9.1211836 ns	6.50597 ns	142.47064 ns	135.96467 ns	2.4217147 ns	15648
Rise time(2)	7.93704 ns	9.5943015 ns	6.79066 ns	66.65903 ns	59.86837 ns	2.7131361 ns	15648

DT12

-15 dBm Input Power
Full Pulse
100 ns PW, 25% Duty Cycle

Measurement	Current	Mean	Min	Max	Range (Max-Min)	Std Dev	Count
+ width(2)	101.51372 ns	100.921669 ns	98.82939 ns	103.45992 ns	4.63053 ns	539.6088 ps	60952
Duty cycle(2)	25.36 %	25.2304 %	24.68 %	25.85 %	1.17 %	127.8 m%	60952
Fall time(2)	8.43564 ns	9.4005889 ns	6.47125 ns	166.57980 ns	160.10855 ns	4.2701534 ns	60952
Rise time(2)	9.07784 ns	10.2671109 ns	6.62273 ns	96.78423 ns	90.16150 ns	4.3024241 ns	60952

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TSS

8.8 GHz
-62 dBm
1 µs PW, 10 µs PRI

Bandwidth 20 MHz

8.8 GHz
-64 dBm
1 µs PW, 10 µs PRI

Bandwidth 20 MHz

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TYPICAL CHARACTERISTICS ON PVA-7D8G18G-2-SFF

TSS

8.8 GHz
-65 dBm
1 µs PW, 10 µs PRI

Bandwidth 20 MHz

8.8 GHz
-66 dBm
1 µs PW, 10 µs PRI

Bandwidth 20 MHz

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TYPICAL CHARACTERISTICS ON PVA-7D8G18G-2-SFF

Recovery Time
-36 dBm Input Power
100 ns PW, 25 % Duty Cycle DT1
Measured value (42.8 ns)

Recovery Time
-8 dBm Input Power
100 ns PW, 25 % Duty Cycle DT2
Measured value (137.6 ns)

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