TYPICAL CHARACTERISTICS
ON
DD-0R5G18G-NEG-MF-ROHS

PMI MODEL NUMBER DD-0R5G18G-NEG-MF-ROHS IS A 0.5 GHz TO 18.0 GHz, HIGH SPEED, HIGH SENSITIVITY DIODE DETECTOR REQUIRING NO BIAS AND OFFERING A RESPONSE TIME OF LESS THAN 20 ns.



September 22, 2026

Tested and Reported by:
V. Pratap & V. Vasquez

7309-A Grove Road Frederick, MD 21704 USA Phone: (301) 662-5019 Fax: (301) 662-1731
Email: sales@pmi-rf.com

TYPICAL CHARACTERISTICS ON DD-0R5G18G-NEG-MF-ROHS

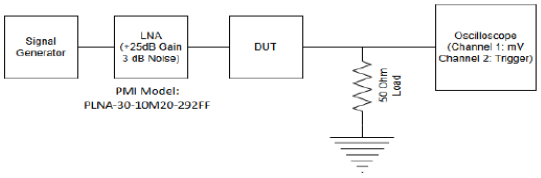
PRODUCT FEATURE

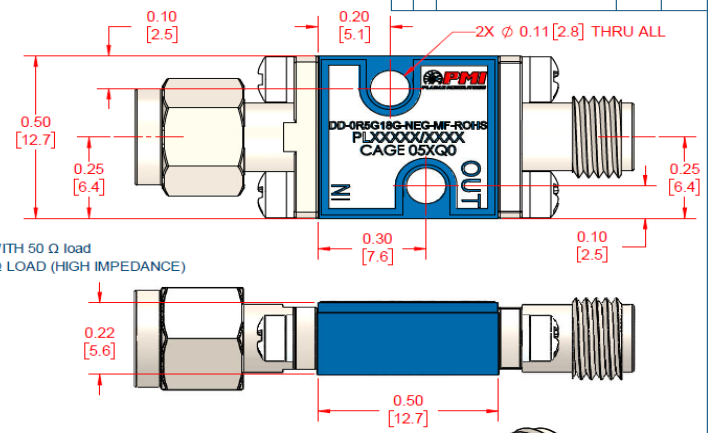
DESCRIPTION:
PMI MODEL NUMBER DD-0R5G18G-NEG-MF-ROHS IS A 0.5 GHz TO 18.0 GHz, HIGH SPEED, HIGH SENSITIVITY DIODE DETECTOR REQUIRING NO BIAS AND OFFERING A RESPONSE TIME OF LESS THAN 20 ns.

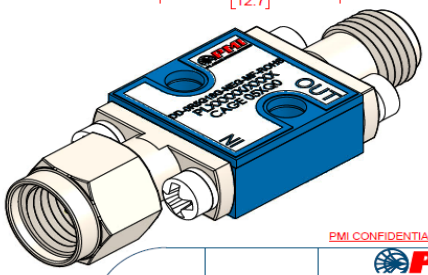
SPECIFICATIONS:

• FREQUENCY RANGE:	0.5 GHz TO 18.0 GHz
• VSWR (INPUT):	3.5 : 1 MAX. (MEASURED @ -10dBm)
• FREQUENCY FLATNESS:	±1.5 dB MAX. WITH 10 MΩ LOAD
	±1.5 dB MAX. WITH 1 MΩ LOAD
• VOLTAGE SENSITIVITY:	700 mV/mW TYP. WITH 10 MΩ LOAD
(SQUARE-LAW REGION)	300 mV/mW TYP. WITH 1 MΩ LOAD
• TANGENTIAL SENSITIVITY[1]:	-37 dBm @ 500 MHz VIDEO BANDWIDTH
• OUTPUT VOLTAGE:	NEGATIVE
• MAX INPUT POWER:	+20 dBm MAX.
• RISE/FALL TIME:	5 ns TYP. 10 ns MAX. @ 0 dBm INPUT POWER WITH 50 Ω load
	20 ns MAX. @ -5 dBm INPUT POWER WITH 100 Ω LOAD (HIGH IMPEDANCE)
• DYNAMIC RANGE:	-40 dBm TO +20 dBm
• CONNECTORS:	2.92mm MALE (IN)/ 2.92mm FEMALE (OUT)
• FINISH:	PAINTED BLUE

1. TSS MEASUREMENTS PERFORMED WITH LNA THAT HAS 20 dB GAIN AND 3 dB NOISE AT DIODE DETECTOR INPUT
2. PULSED MEASUREMENTS PERFORMED USING AN EXTERNAL 50 Ω TERMINATION (OR 100 Ω TERMINATION FOR HIGH IMPEDANCE) THROUGH A T-CONNECTOR FOR PROPER PULSE SHAPING. OUTPUT VOLTAGE MEASURED AT 50Ω OSCILLOSCOPE INPUT.







ENVIRONMENTAL RATINGS:

• TEMPERATURE:	-20°C TO +85°C (OPERATING)
	-65°C TO +125°C (STORAGE)
• HUMIDITY:	MIL-STD-202, METHOD 103 COND. B
• SHOCK:	MIL-STD-202, METHOD 213 COND. B
• VIBRATION:	MIL-STD-202, METHOD 204 COND. B
• ALTITUDE:	MIL-STD-202, METHOD 105 COND. B

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

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	3/13/2020	

PMI CONFIDENTIAL AND PROPRIETARY

APPROVALS	DATE	PLANAR MONOLITHICS	
DRAWN VP	3/13/2020	TITLE	OUTLINE
REDRAWN			DD-0R5G18G-NEG-MF-ROHS
18 SUED		SIZE B	FSCM NO. 05XQ0
		DWG NO.	27054200
		REV.	A1
		SCALE 4:1	SHEET 1 OF 1

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TYPICAL CHARACTERISTICS ON DD-0R5G18G-NEG-MF-ROHS

TECHNICAL SPECIFICATIONS

TEST ITEM NO.	PARAMETERS	SPECIFIED VALUE	TEST RESULTS		
			+25°C	-20°C	+85°C
1	Frequency Range:	0.5 GHz to 18 GHz	**0.5 GHz to 18 GHz**		
2	VSWR (Input):	3.5:1 Max. (MEASURED @ -10dBm)	**2.9 :1 See Graph**	**2.94 :1 See Graph**	**2.85 :1 See Graph**
3	Polarity/Output Voltage	NEGATIVE	**NEGATIVE**		
4	Frequency Flatness:	±1.5 dB Max. WITH 10 MΩ LOAD	**±0.19 dB @ 10MΩ. Load See Graph**	**±0.37 dB @ 10MΩ. Load See Graph**	**±0.14 dB @ 10MΩ. Load See Graph**
		±1.5 dB Max. WITH 1 MΩ LOAD	**±0.18 dB @ 1MΩ. Load See Graph**	**±0.26 dB @ 1MΩ. Load See Graph**	**±0.15 dB @ 1MΩ. Load See Graph**
		Not Specified	**±0.37 dB @ 10kΩ. Load See Graph**	**±0.4 dB @ 10kΩ. Load See Graph**	**±0.15 dB @ 10kΩ. Load See Graph**
			±0.48 dB @ 100Ω. Load See Graph	**±0.69 dB @ 100Ω. Load See Graph**	**±0.4 dB @ 100Ω. Load See Graph**
5	Voltage Sensitivity: (SQUARE-LAW REGION)	700 mV/mW TYP. WITH 10 MΩ LOAD	**1371.17 mV/mW @ 10MΩ. Load See Graph.**	**915.74 mV/mW @ 10MΩ. Load See Graph.**	**1326.13 mV/mW @ 10MΩ. Load See Graph.**
		300 mV/mW TYP. WITH 1 MΩ LOAD	**742.45 mV/mW @ 1MΩ. Load See Graph.**	**302.7 mV/mW @ 1MΩ. Load See Graph.**	**1234.39 mV/mW @ 1MΩ. Load See Graph.**
		Not Specified	**96.32 mV/mW @ 10kΩ. Load See Graph.**	**84.62 mV/mW @ 10kΩ. Load See Graph.**	**210.77 mV/mW @ 10kΩ. Load See Graph.**
			24.9 mV/mW @ 100Ω. Load See Graph.	**26.89 mV/mW @ 100Ω. Load See Graph.**	**28.97 mV/mW @ 100Ω. Load See Graph.**

Note 1: TSS MEASUREMENTS PERFORMED WITH LNA THAT HAS 20 DB GAIN AND 3 DB NOISE AT DIODE DETECTOR INPUT.

Note 2: PULSED MEASUREMENTS PERFORMED USING AN EXTERNAL 50 Ω TERMINATION (OR 100 Ω TERMINATION FOR HIGH IMPEDANCE) THROUGH A T-CONNECTOR FOR PROPER PULSE SHAPING. OUTPUT VOLTAGE MEASURED AT 50Ω OSCILLOSCOPE INPUT.

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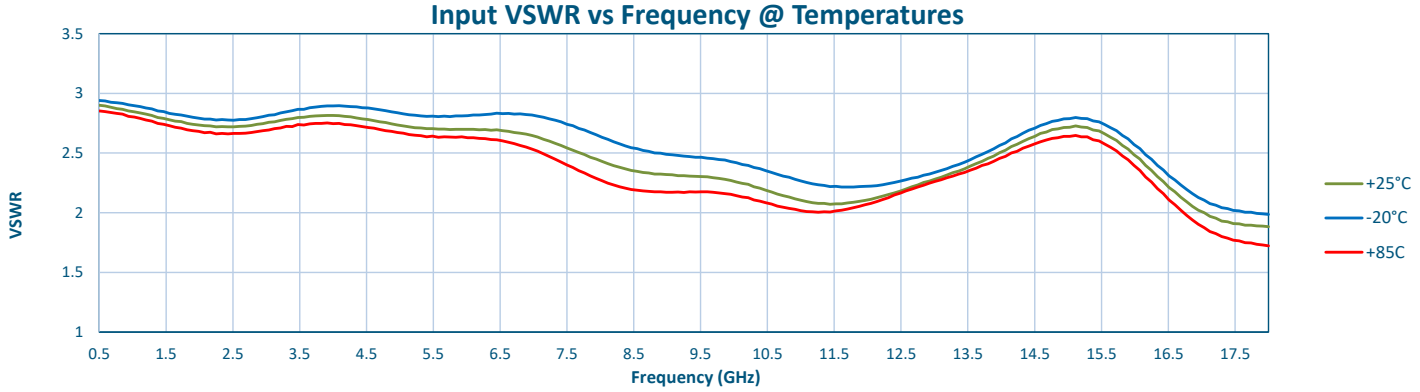
TYPICAL CHARACTERISTICS ON DD-0R5G18G-NEG-MF-ROHS

6	Maximum Input Power:	+20 dBm	**+20 dBm See Graphs**		
7	Tangential Sensitivity[1]:	-37 dBm @ 500 MHz Video Bandwidth	**-37 dBm See Graph**		
8	Rise/Fall Time:	10 ns Max. @ 50 Ω Impedence 20 ns Max. @ High Impedence (100 Ω)		**50 Ω**	**High Impedence**
			Rise	**4.4ns @ 0 dBm 4.2ns @ -5 dBm**	**4.4ns @ 0 dBm 9.6ns @ -5 dBm**
			Fall	**8.2ns @ 0 dBm 1.5ns @ -5 dBm**	**8.2ns @ 0 dBm 8.4ns @ -5 dBm**
9	Dynamic Range:	-40 dBm to +20 dBm.	**-40 dBm to +20 dBm See Graphs**		

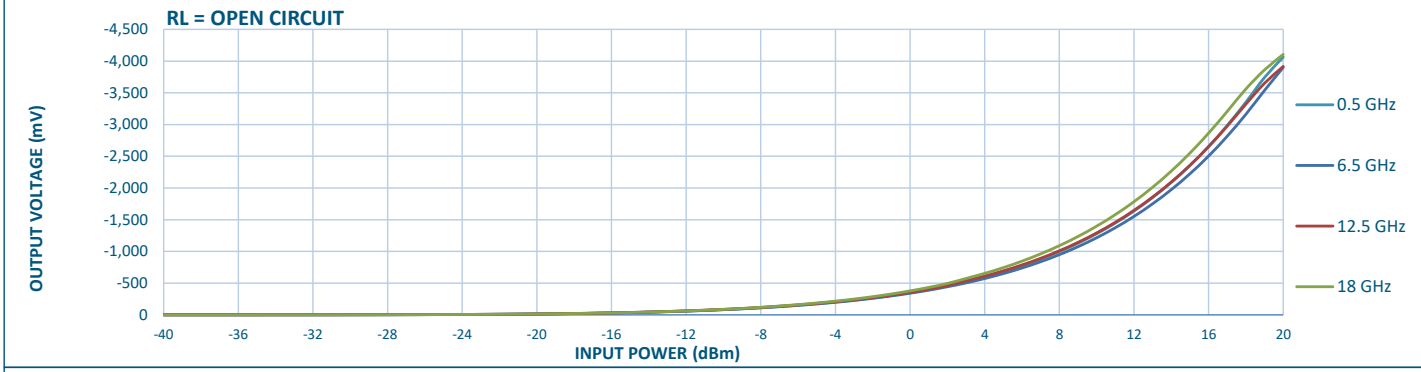
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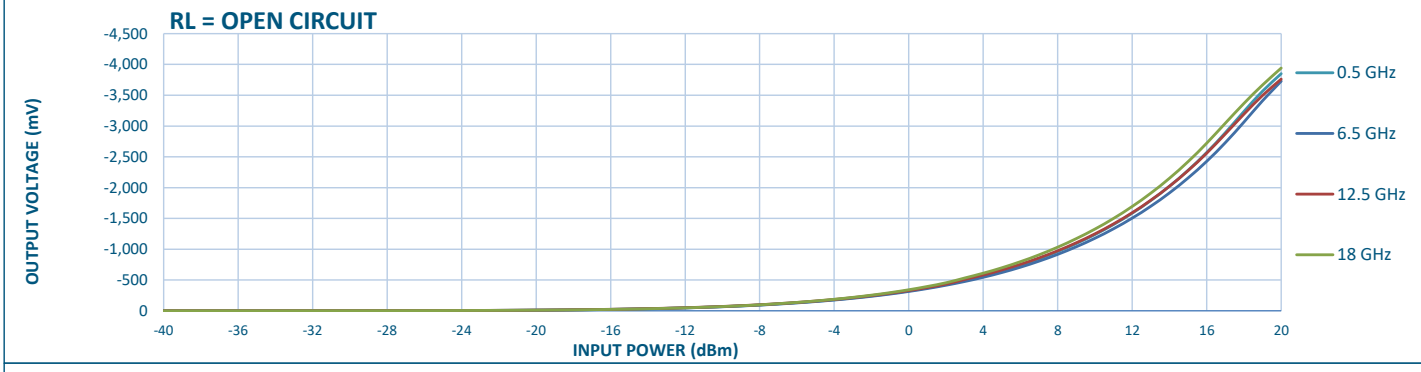
Input VSWR vs Frequency @ Temperatures



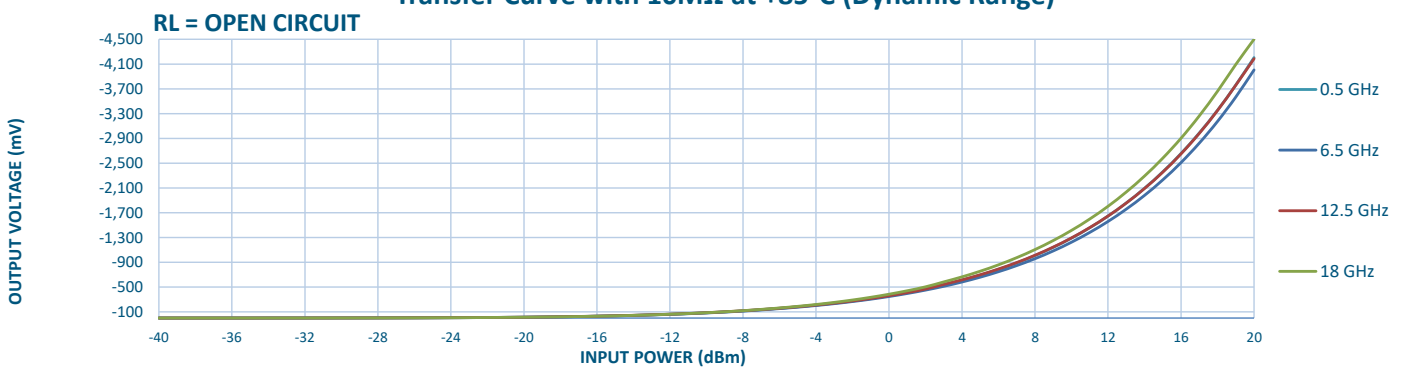
Transfer Curve with 10MΩ at 25°C (Dynamic Range)



Transfer Curve with 10MΩ at -20°C (Dynamic Range)

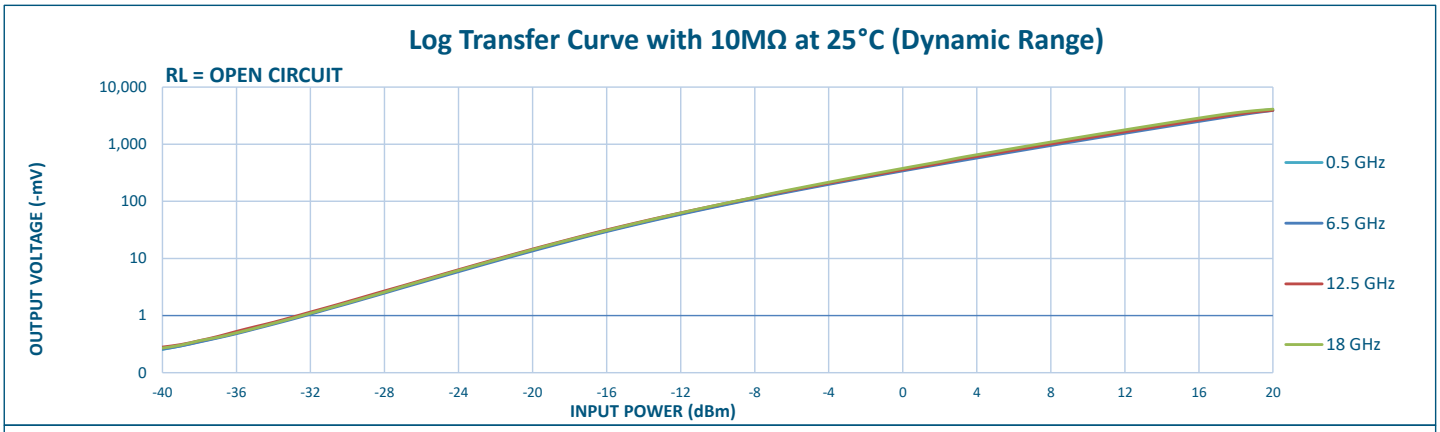


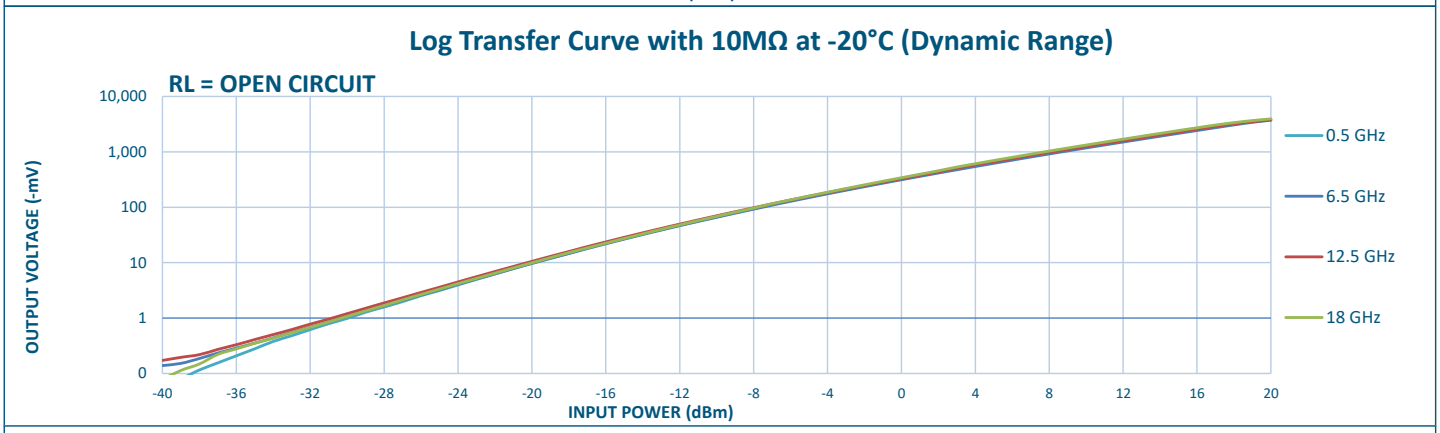
Transfer Curve with 10MΩ at +85°C (Dynamic Range)

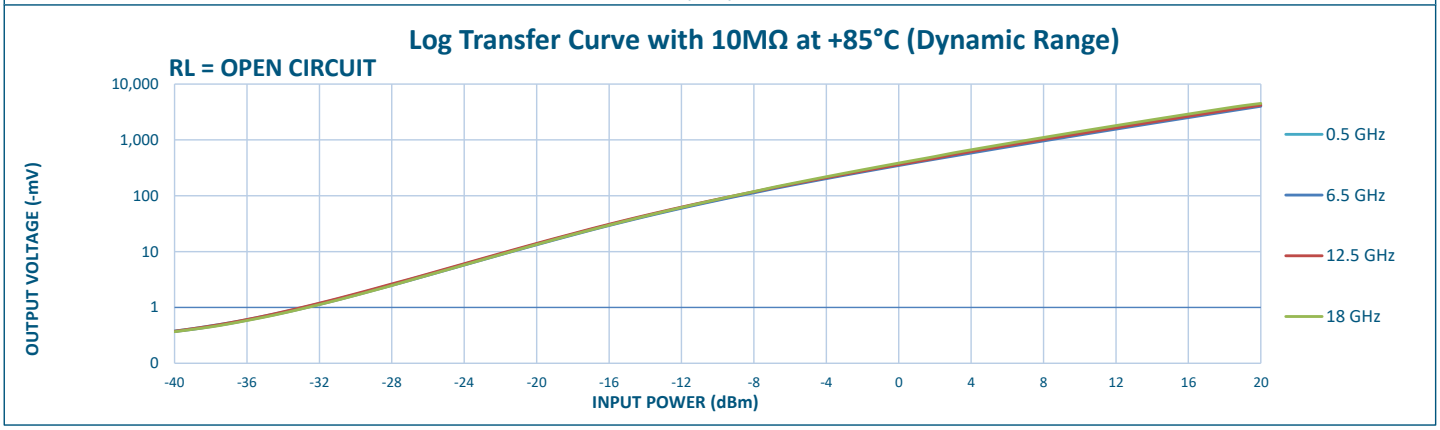


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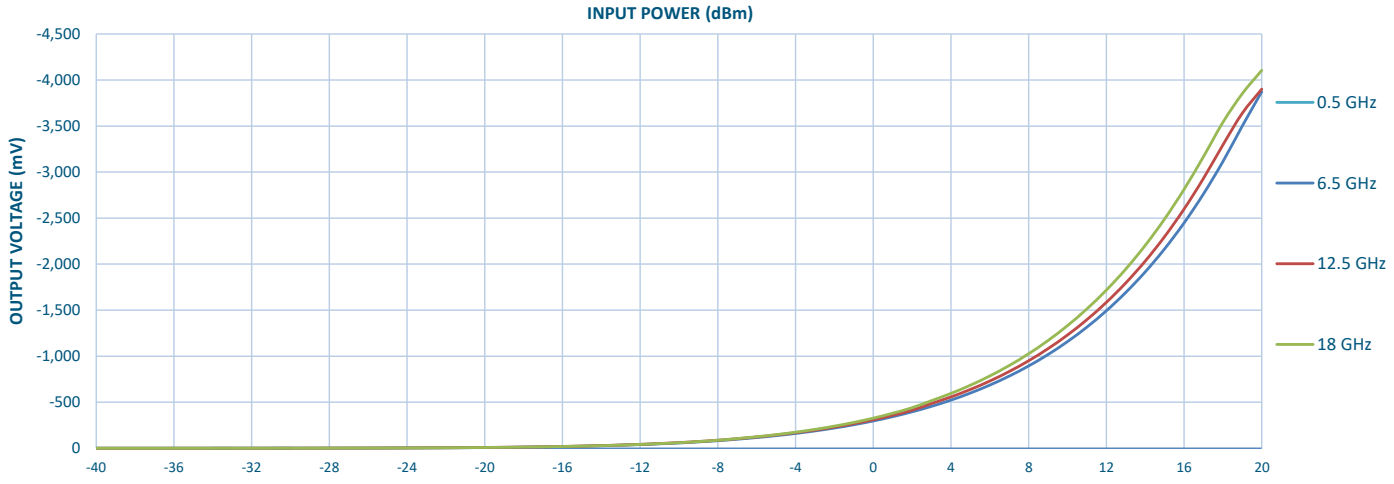




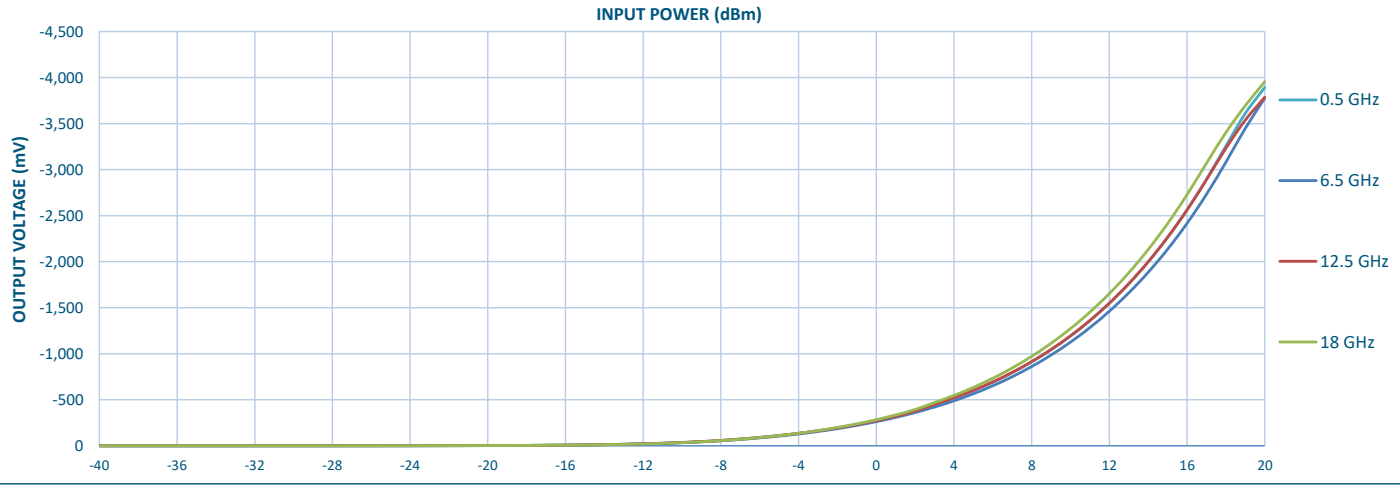
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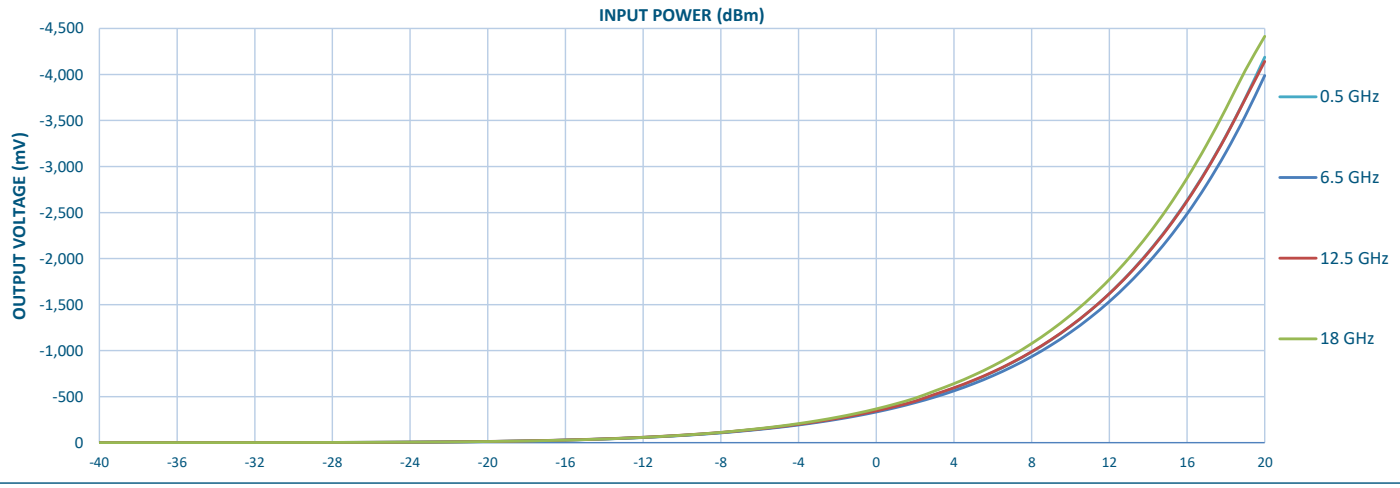
Transfer Curve with 1MΩ at 25°C (Dynamic Range)



Transfer Curve with 1MΩ at -20°C (Dynamic Range)



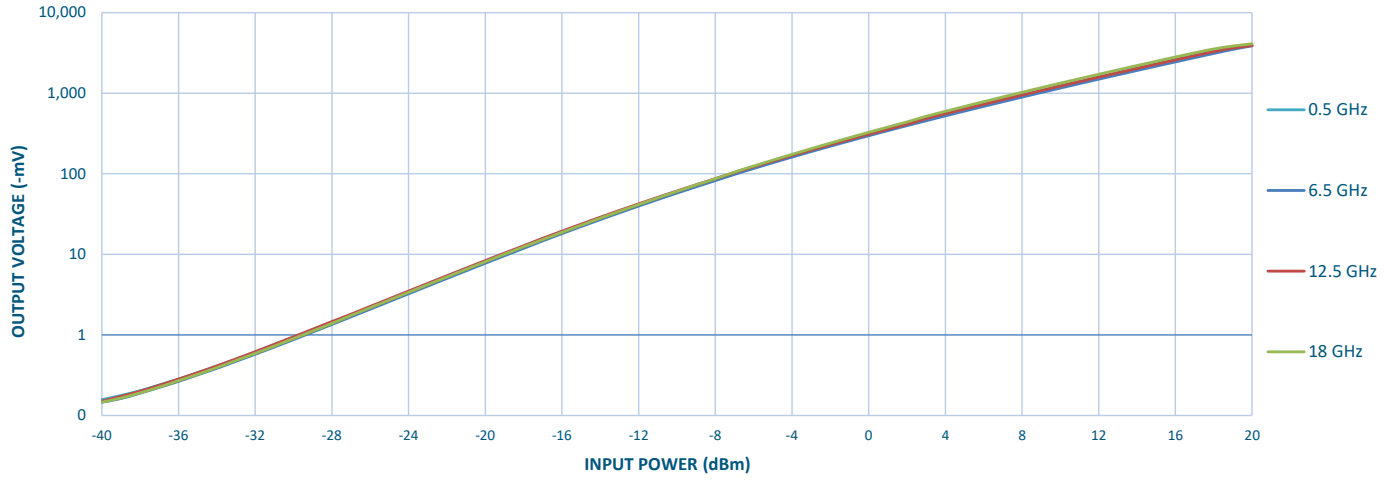
Transfer Curve with 1MΩ at +85°C (Dynamic Range)



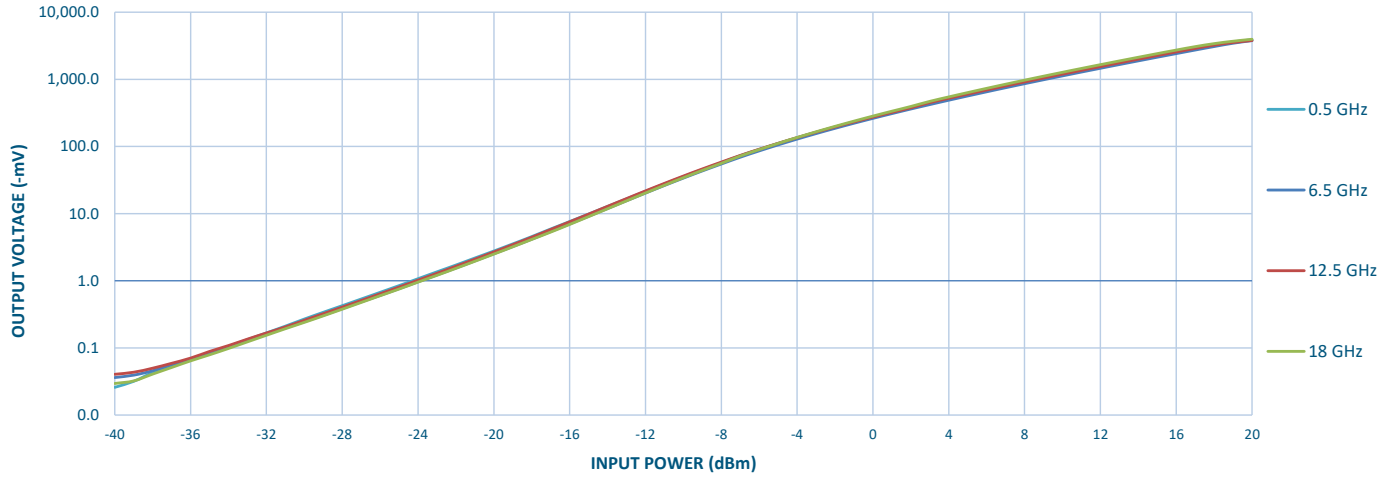
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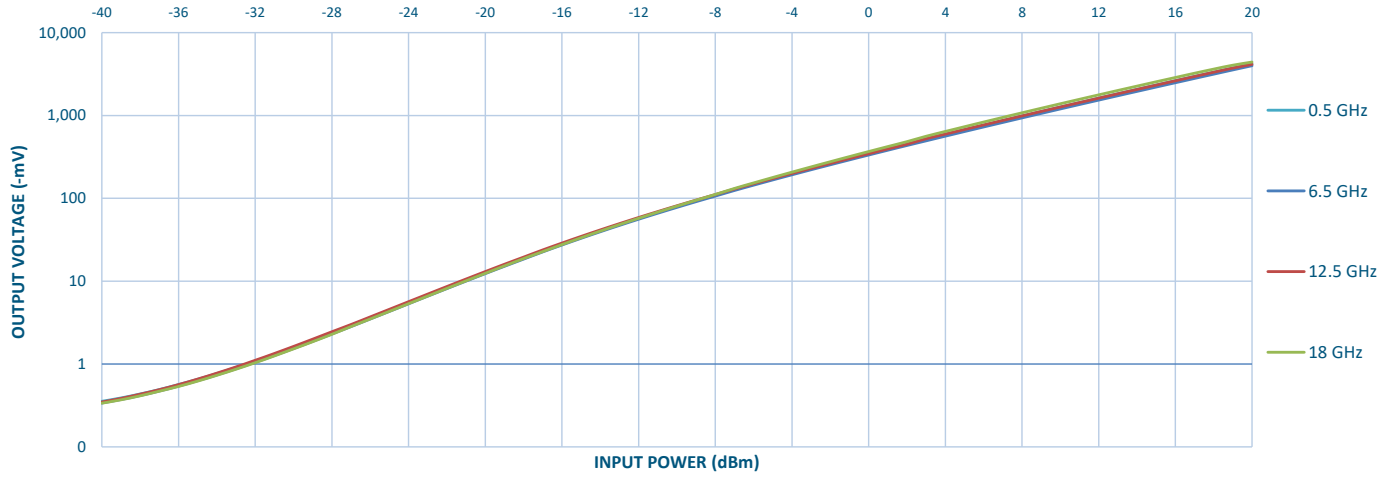
Log Transfer Curve with 1MΩ at 25°C (Dynamic Range)



Log Transfer Curve with 1MΩ at -20°C (Dynamic Range)



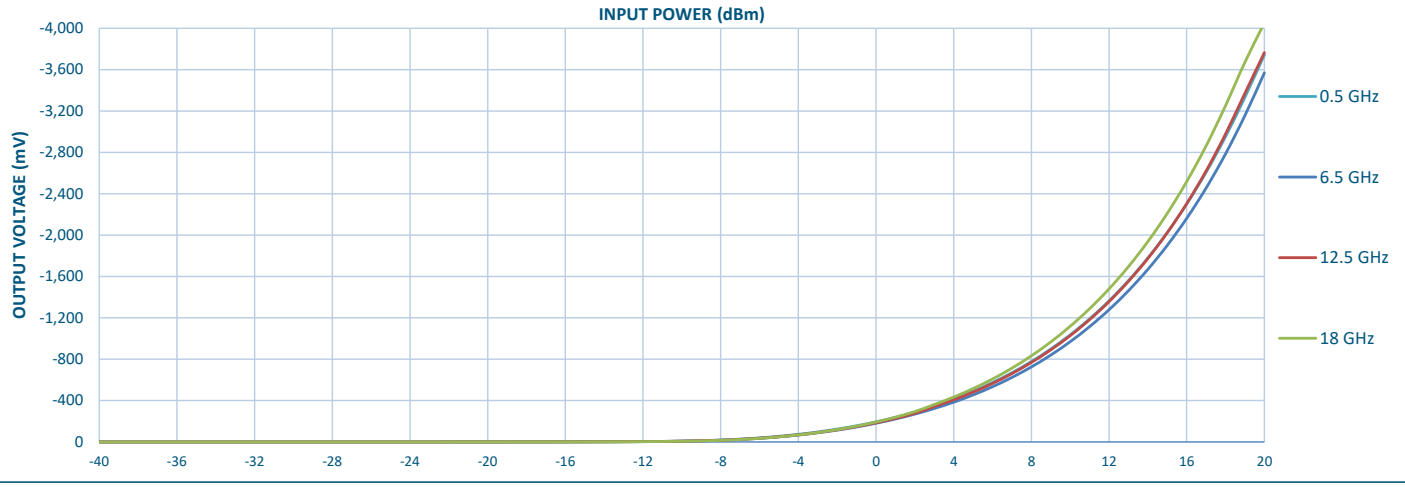
Log Transfer Curve with 1MΩ at +85°C (Dynamic Range)



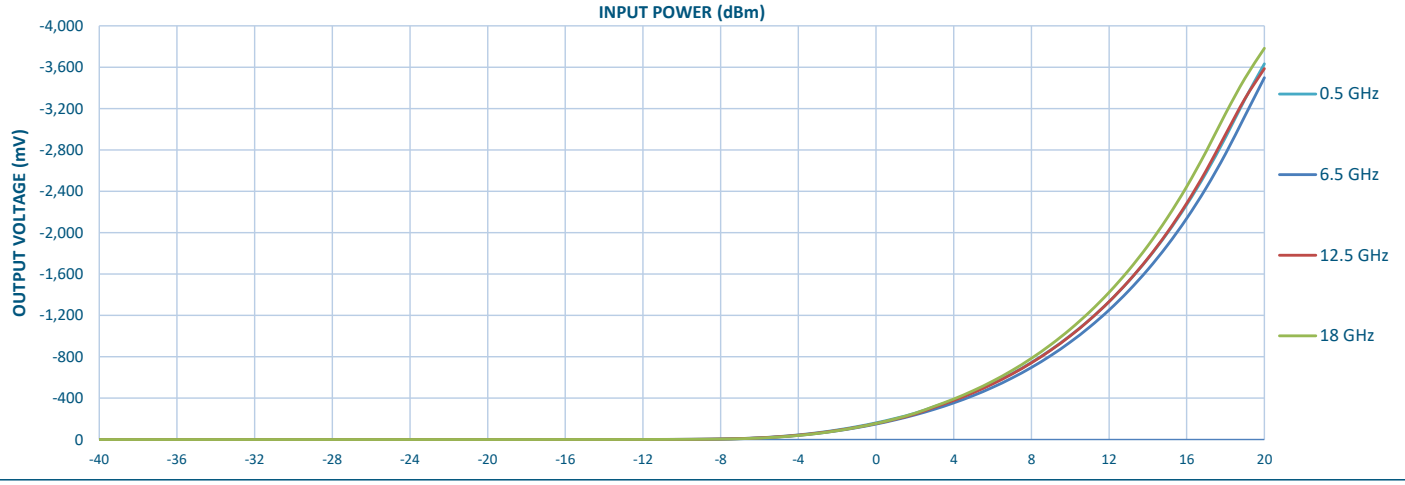
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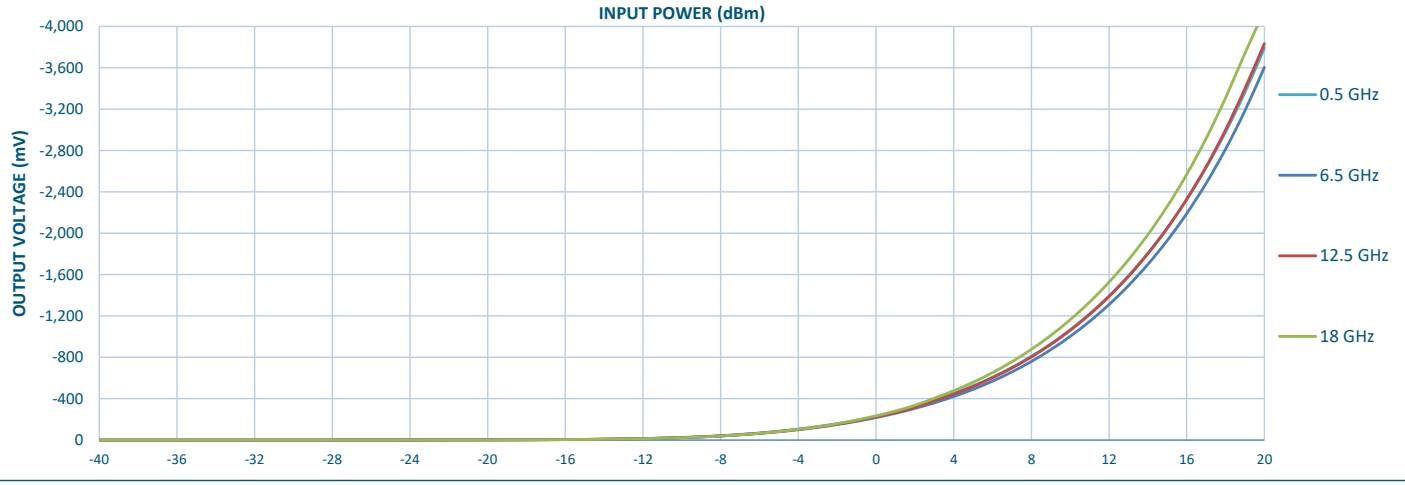
Transfer Curve with 10KΩ at 25°C (Dynamic Range)



Transfer Curve with 10KΩ at -20°C (Dynamic Range)



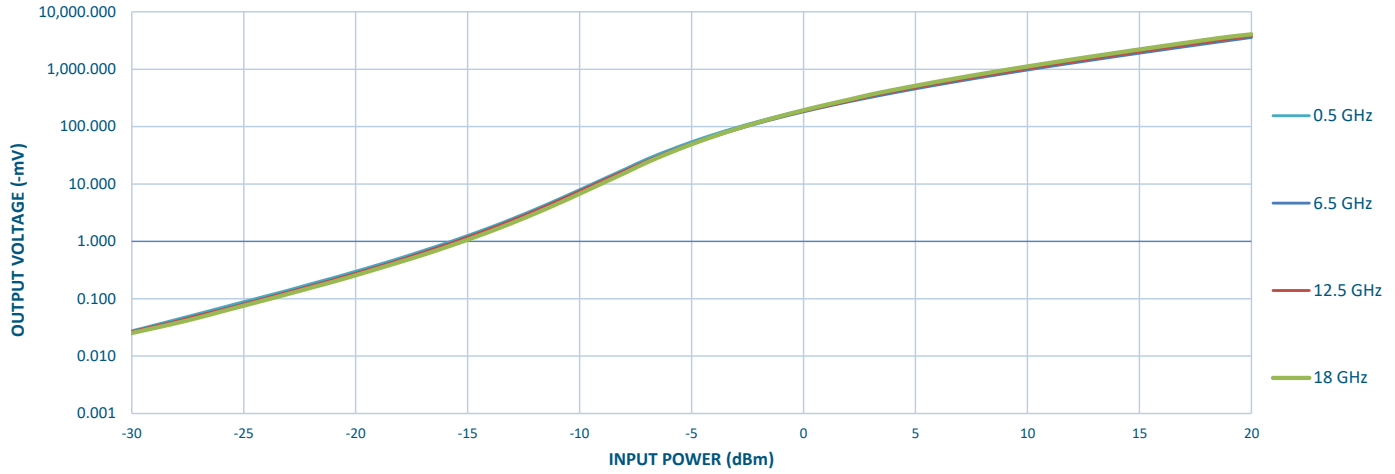
Transfer Curve with 10KΩ at 85°C (Dynamic Range)



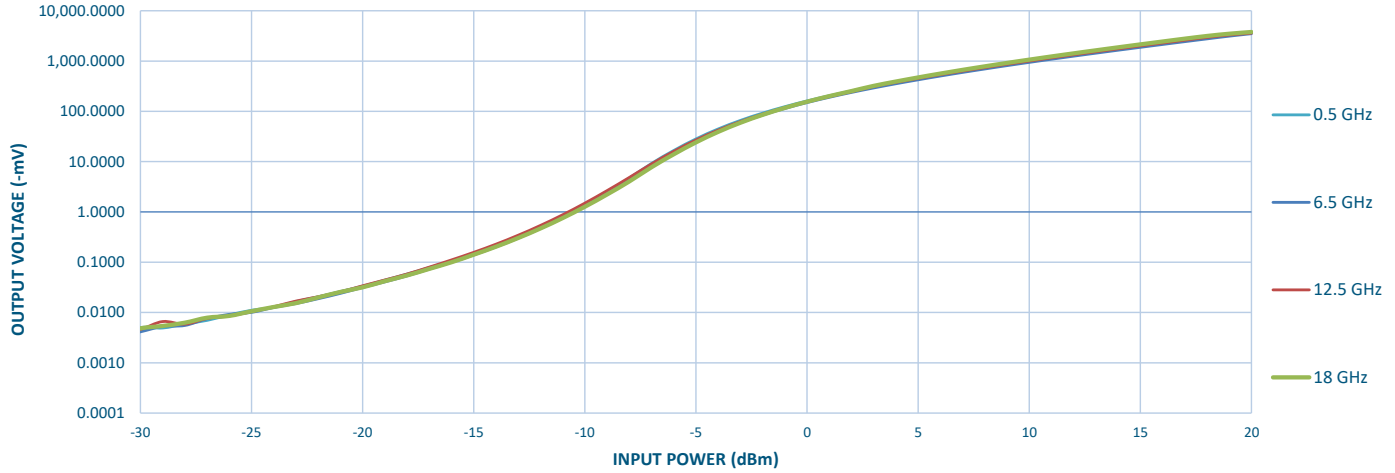
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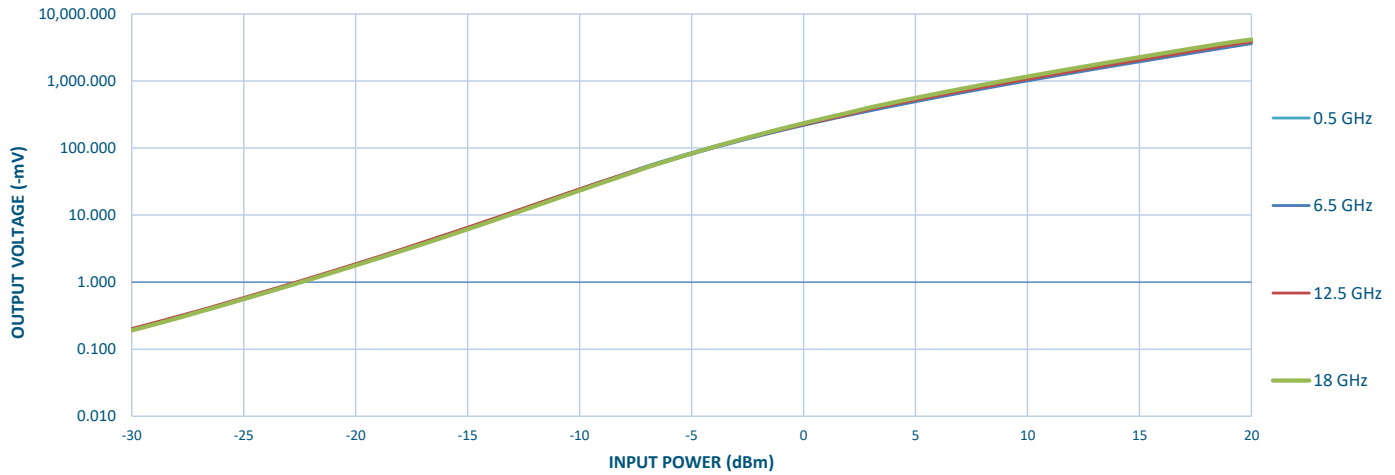
Log Transfer Curve with 10KΩ at 25°C (Dynamic Range)



Log Transfer Curve with 10KΩ at -20°C (Dynamic Range)



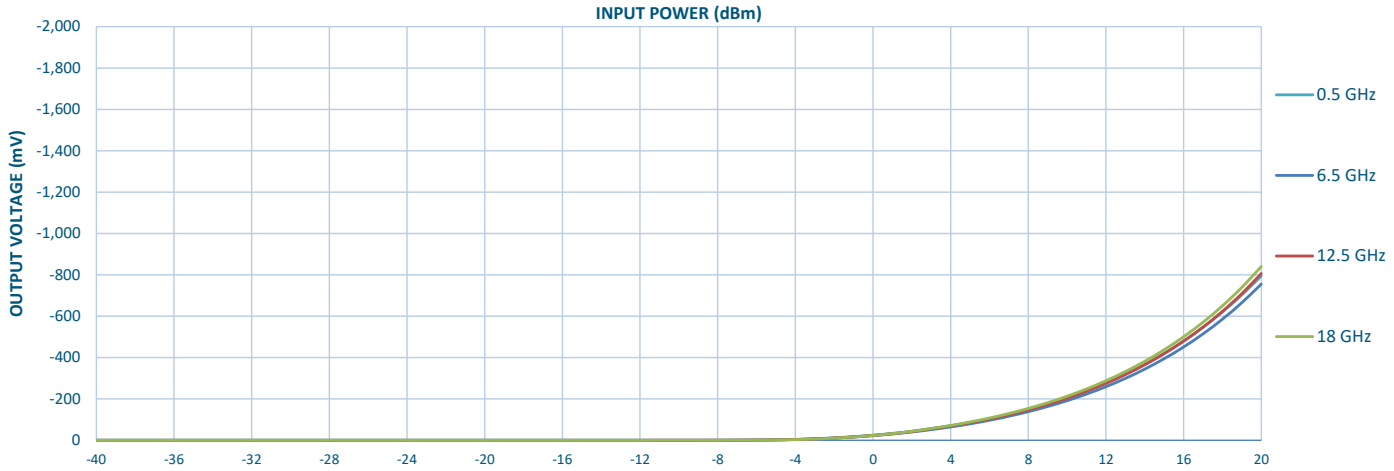
Log Transfer Curve with 10KΩ at 85°C (Dynamic Range)



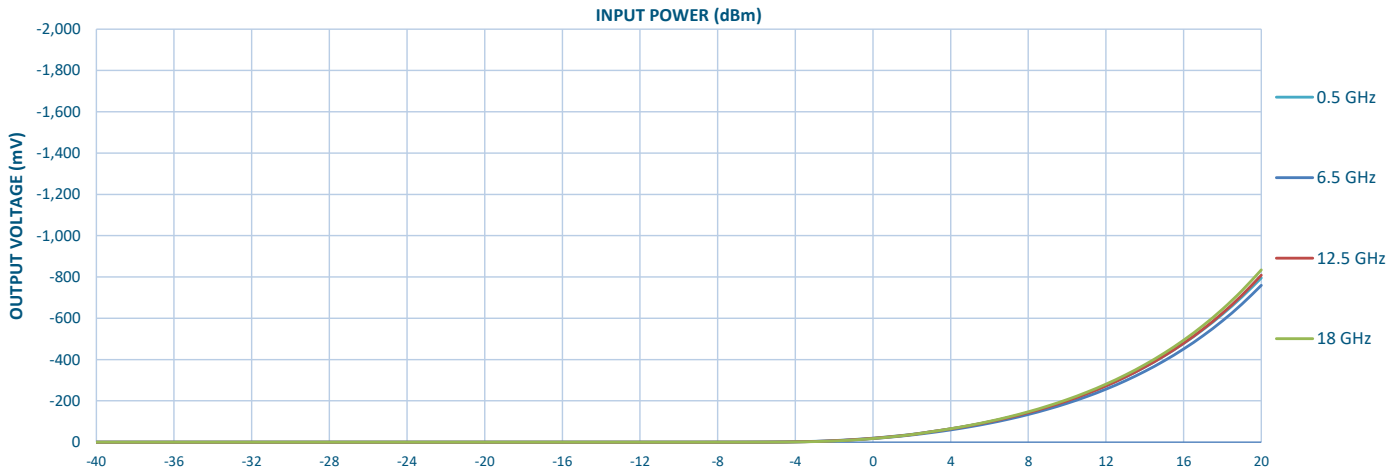
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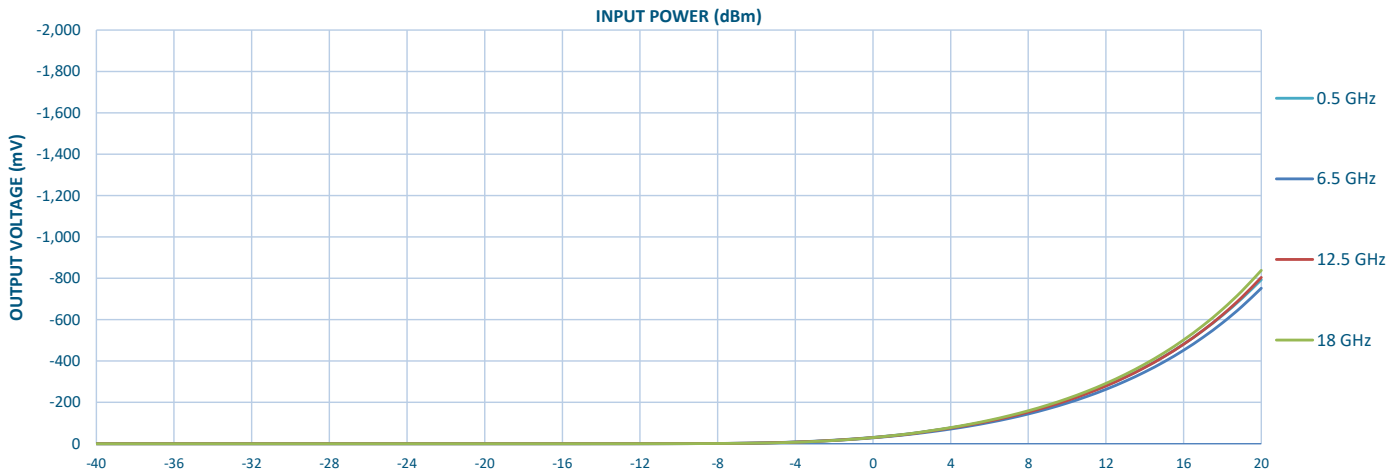
Transfer Curve with 100Ω at 25°C (Dynamic Range)



Transfer Curve with 100Ω at -20°C (Dynamic Range)



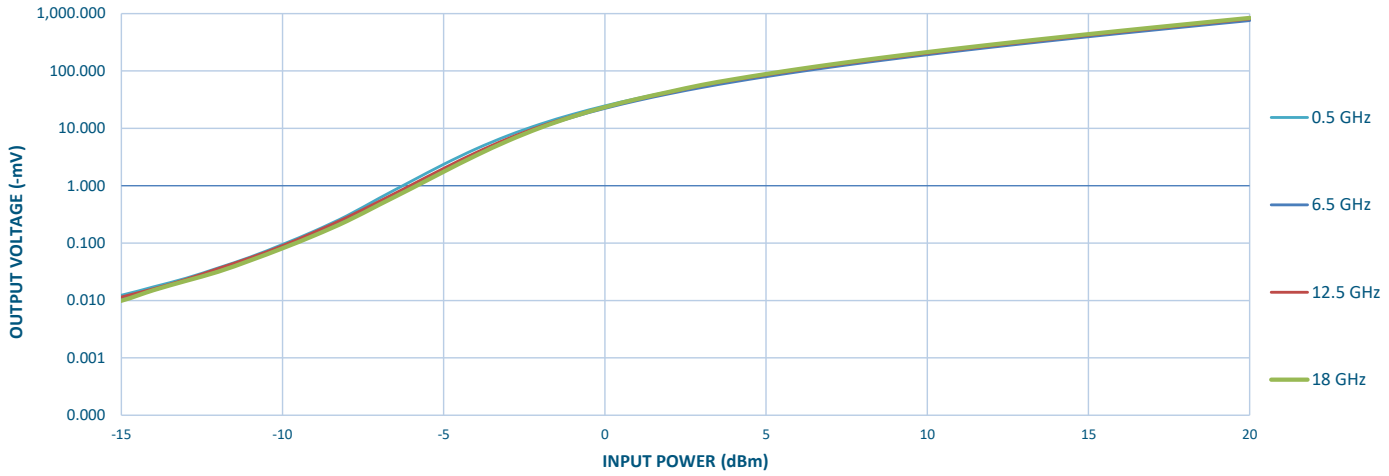
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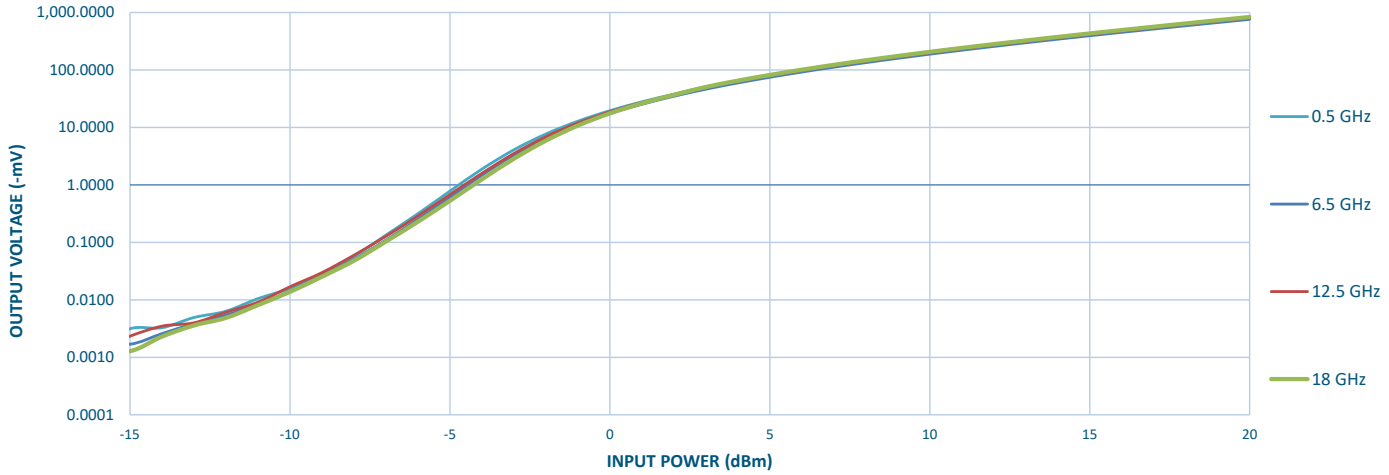
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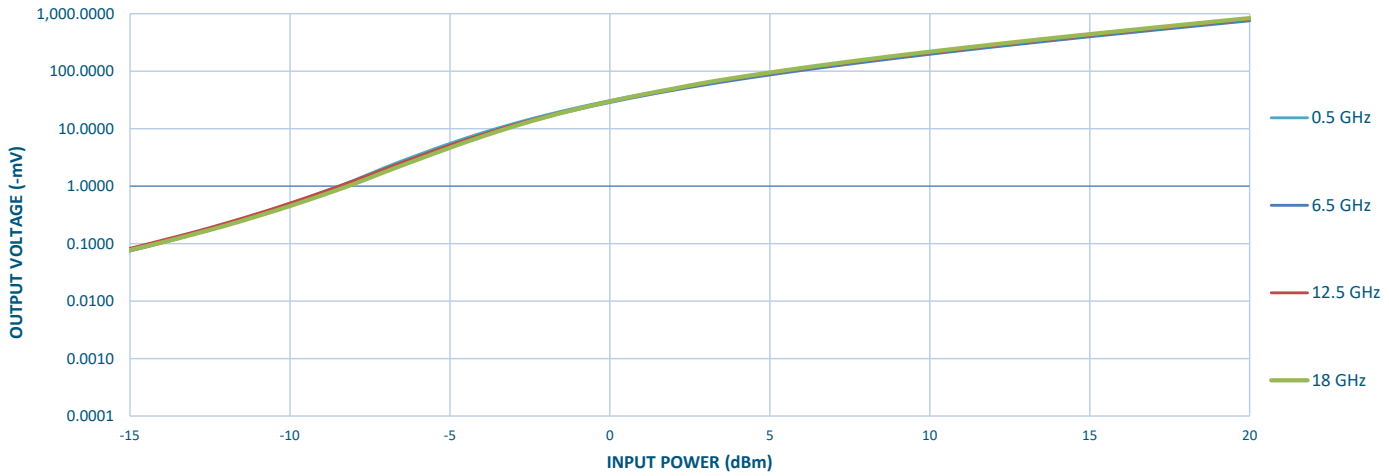
Log Transfer Curve with 100Ω at 25°C (Dynamic Range)



Log Transfer Curve with 100Ω at -20°C (Dynamic Range)



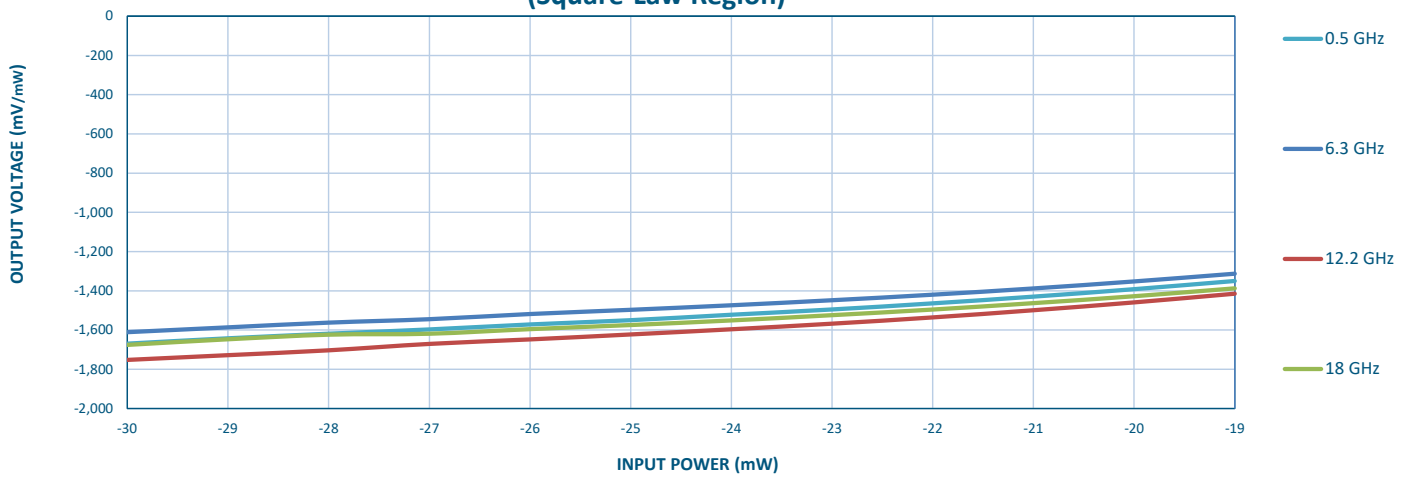
Log Transfer Curve with 100Ω at 85°C (Dynamic Range)



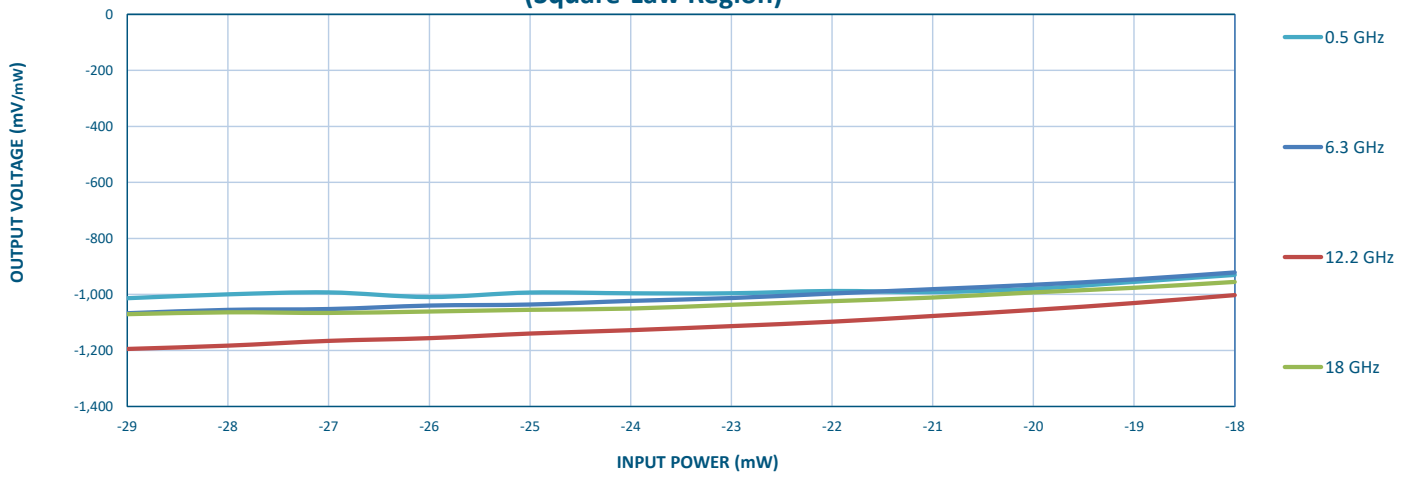
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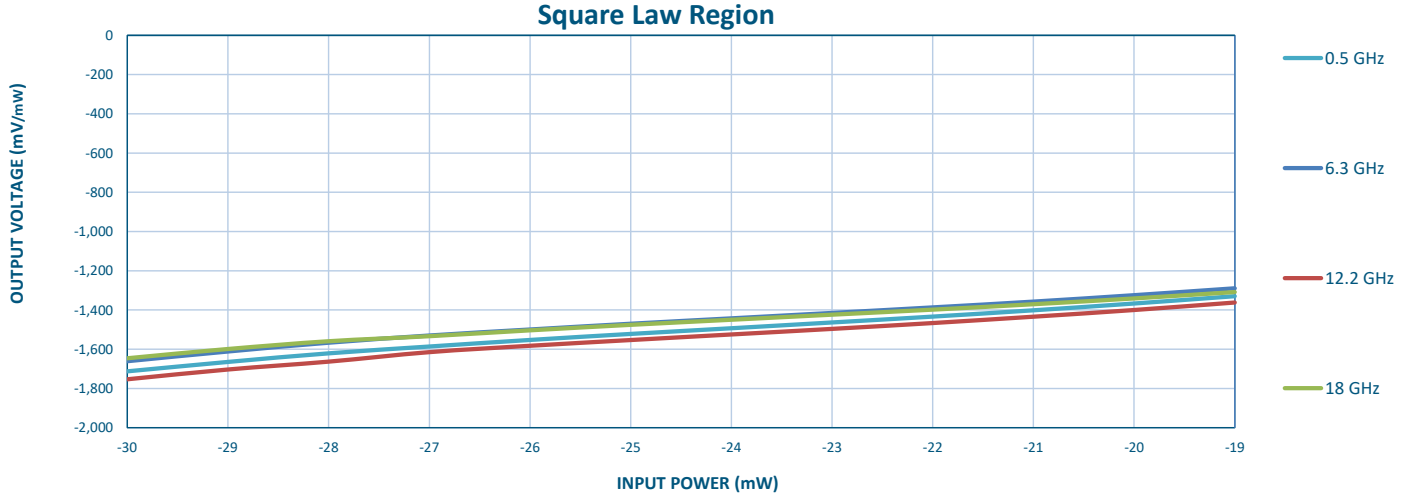
Sensitivity with 10MΩ at +25°C
(Square-Law Region)



Sensitivity with 10MΩ at -20°C
(Square-Law Region)

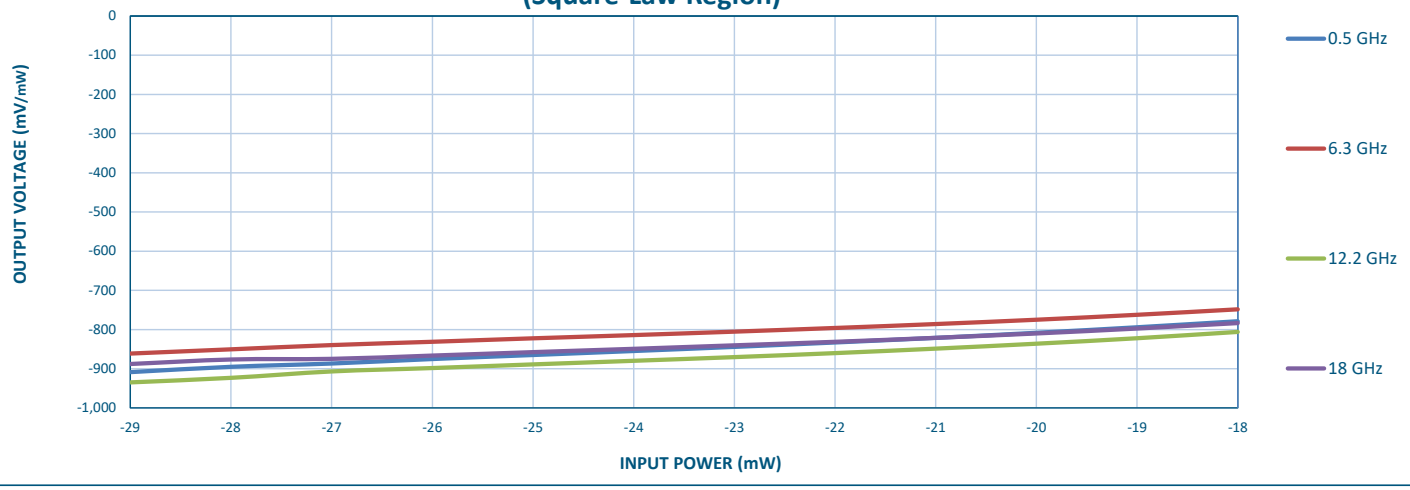


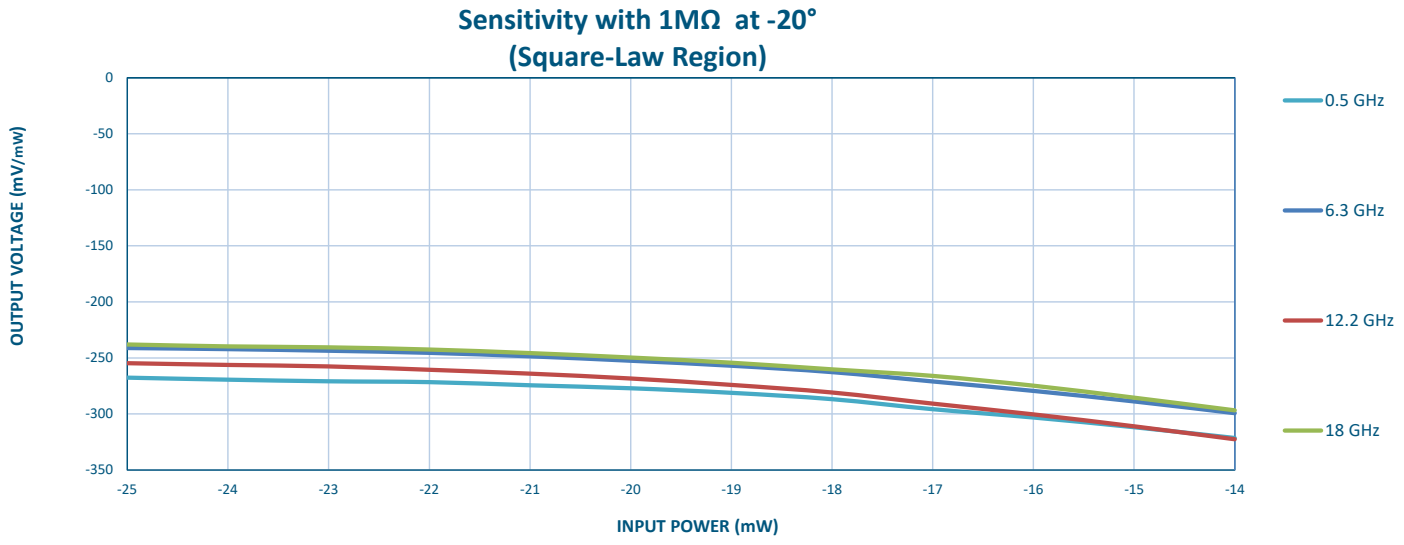
Sensitivity with 10MΩ at +85°C
Square Law Region

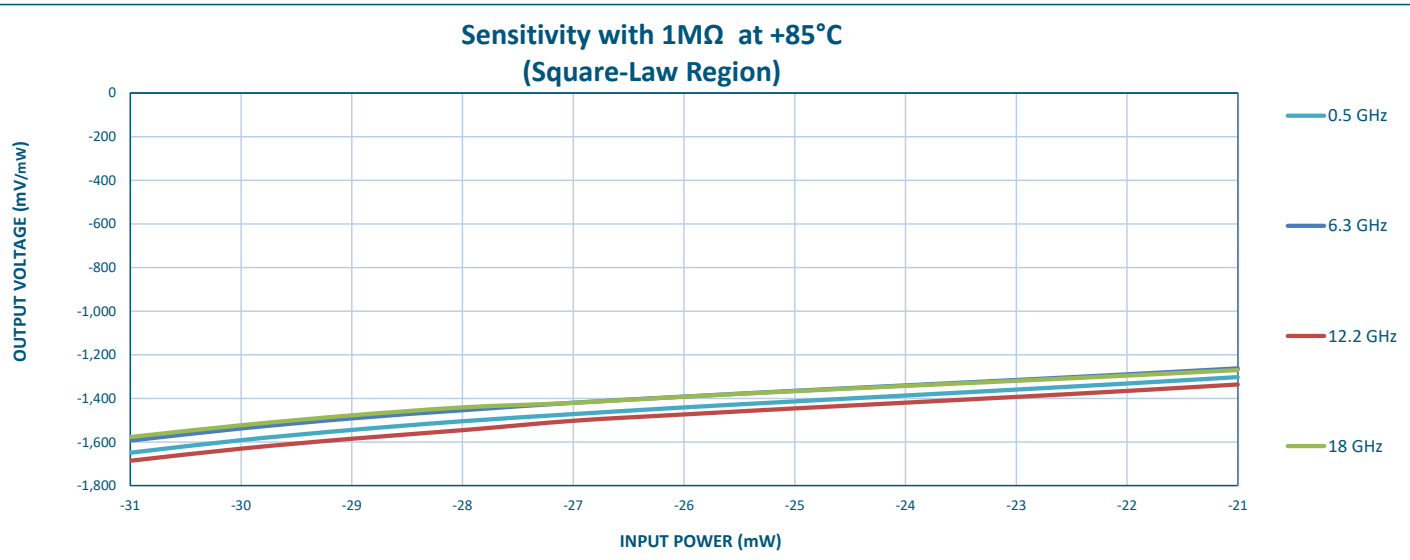


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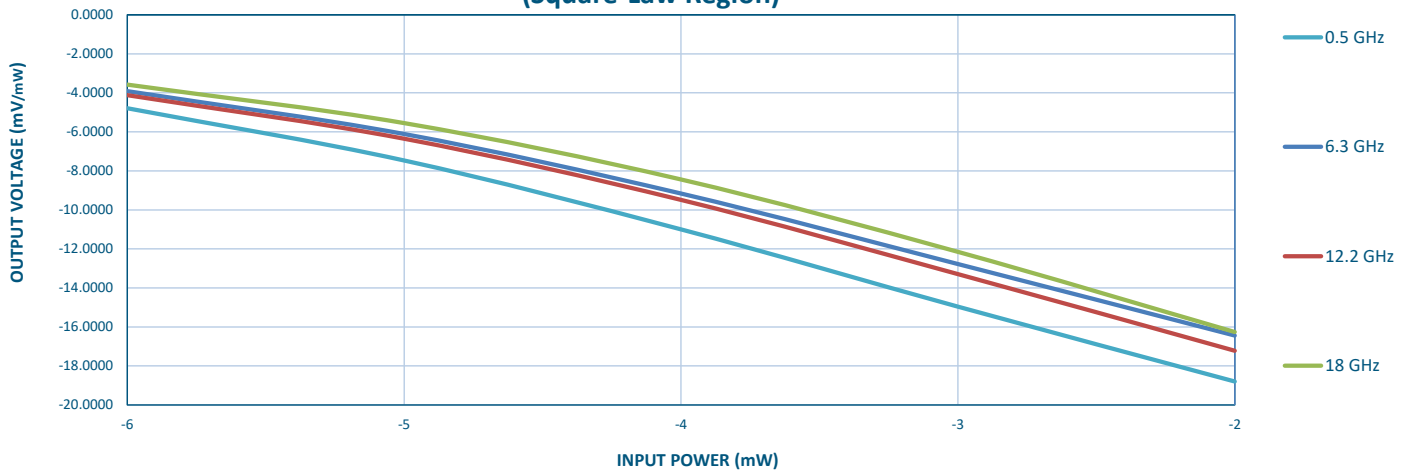




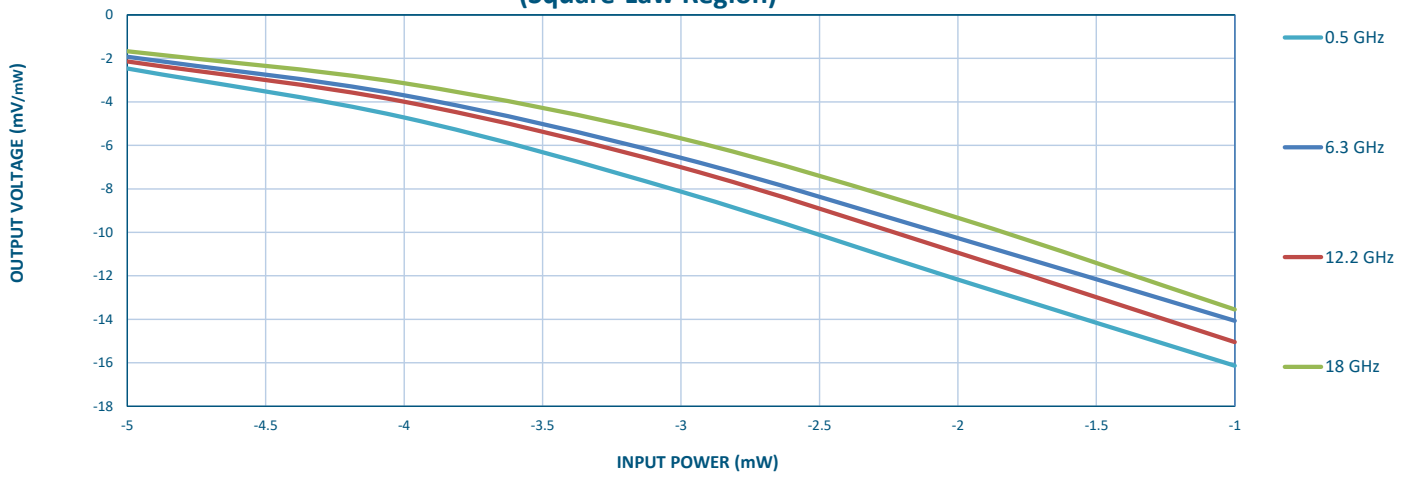
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TYPICAL CHARACTERISTICS ON DD-0R5G18G-NEG-MF-ROHS

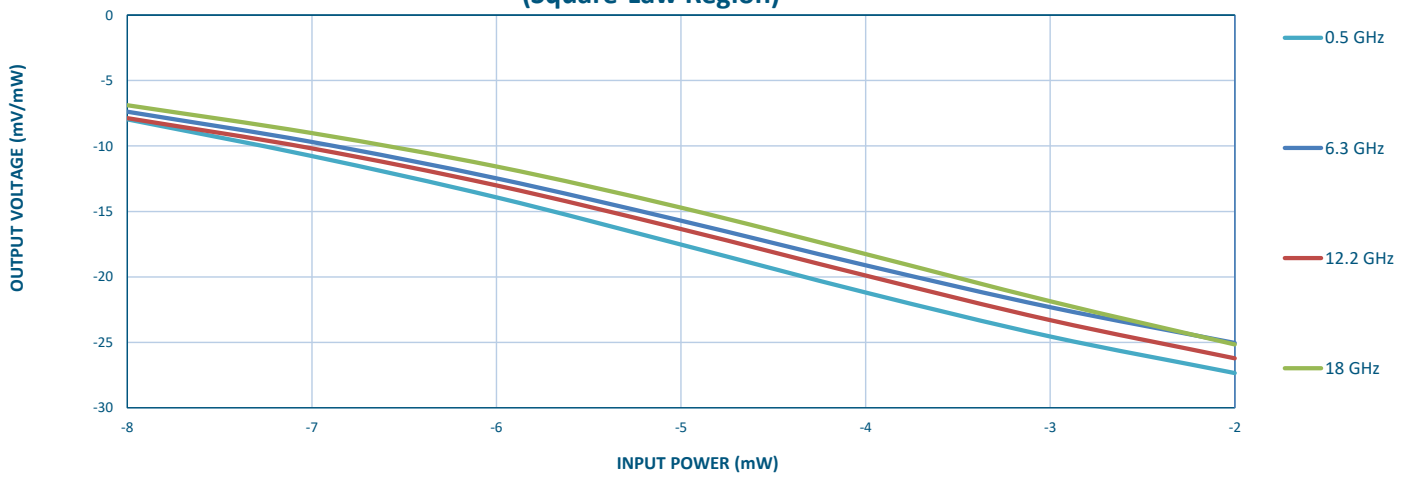
Sensitivity with 100Ω at +25°C (Square-Law Region)



Sensitivity with 100Ω at -20°C (Square-Law Region)



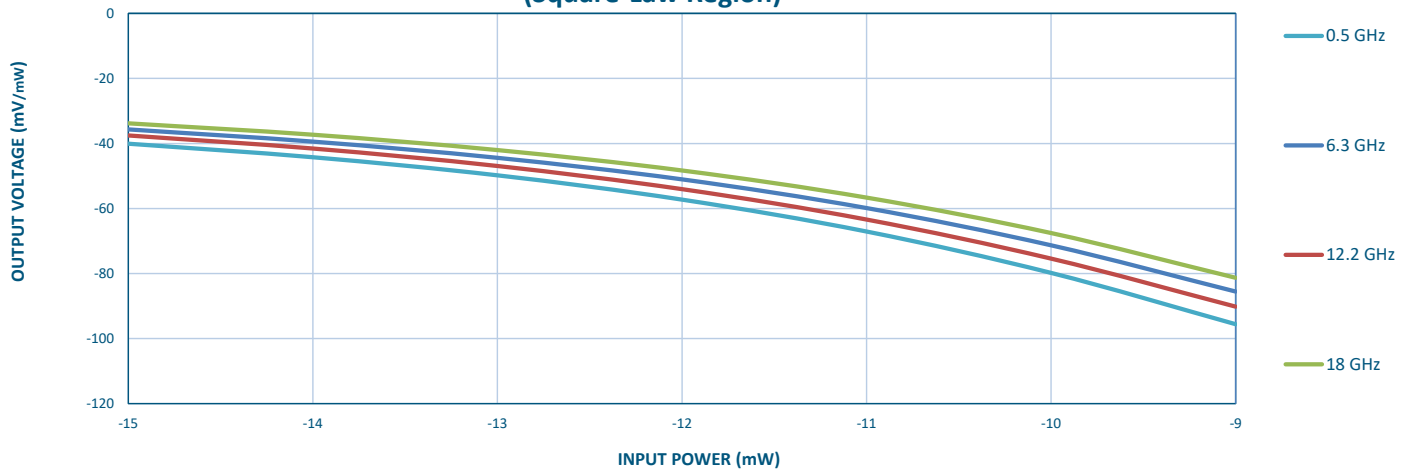
Sensitivity with 100Ω at +85°C (Square-Law Region)



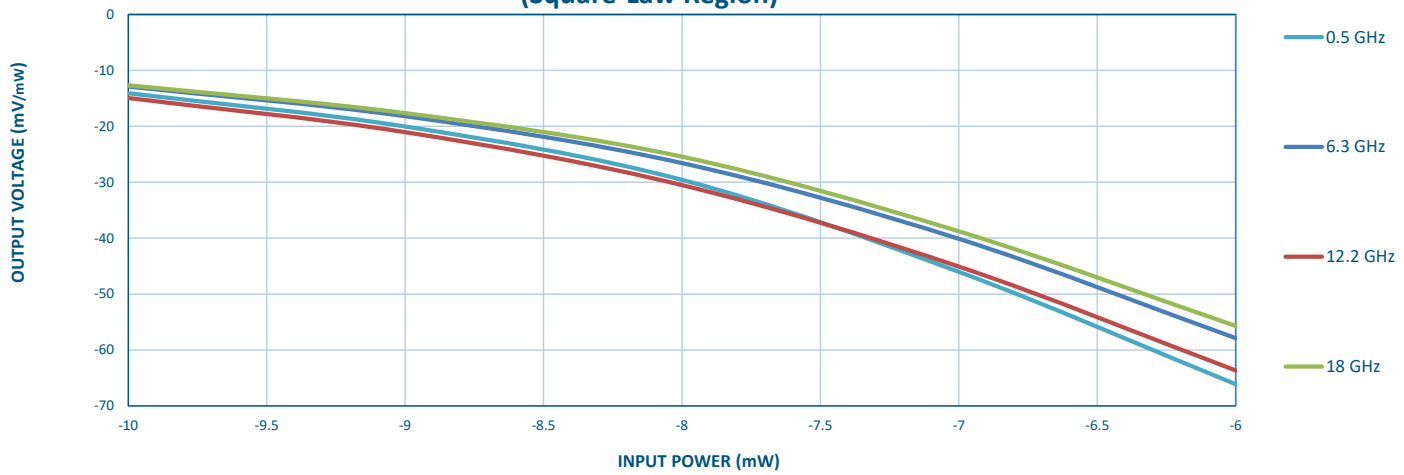
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TYPICAL CHARACTERISTICS ON DD-0R5G18G-NEG-MF-ROHS

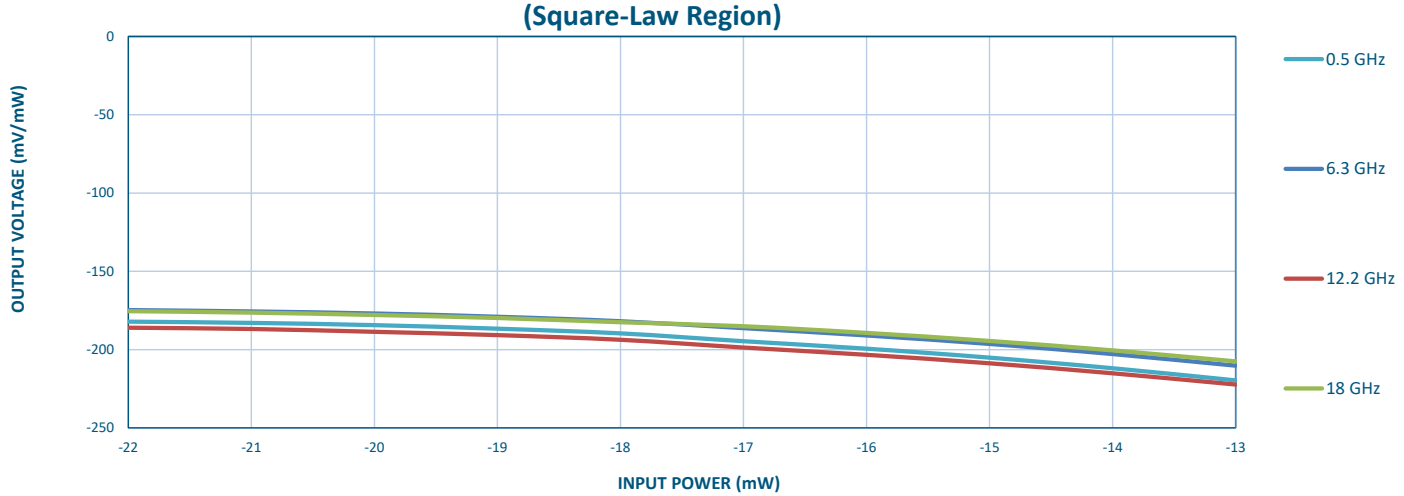
Sensitivity with 10KΩ at +25°C (Square-Law Region)



Sensitivity with 10KΩ at -20°C (Square-Law Region)



Sensitivity with 10KΩ at +85°C (Square-Law Region)



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TYPICAL CHARACTERISTICS ON DD-0R5G18G-NEG-MF-ROHS

Input Power 0 dBm
1µs PW, 25% Duty Cycle
@ 50Ω Load

Rise time - 2.6 ns
Fall Time - 2.2 ns



Input Power 0 dBm
1µs PW, 50% Duty Cycle
@ 50Ω Load

Rise time - 2.5 ns
Fall Time - 2.1 ns



Input Power 0 dBm
1µs PW, 25% Duty Cycle
@ 100Ω Load

Rise time - 4.4 ns
Fall Time - 8.2 ns



Input Power 0 dBm
1µs PW, 50% Duty Cycle
@ 100Ω Load

Rise time - 4.4 ns
Fall Time - 8.3 ns



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TYPICAL CHARACTERISTICS
ON
DD-0R5G18G-NEG-MF-ROHS

Input Power -5 dBm
1µs PW, 25% Duty Cycle
@ 50Ω Load

Rise time - 4.2 ns
Fall Time - 1.5 ns



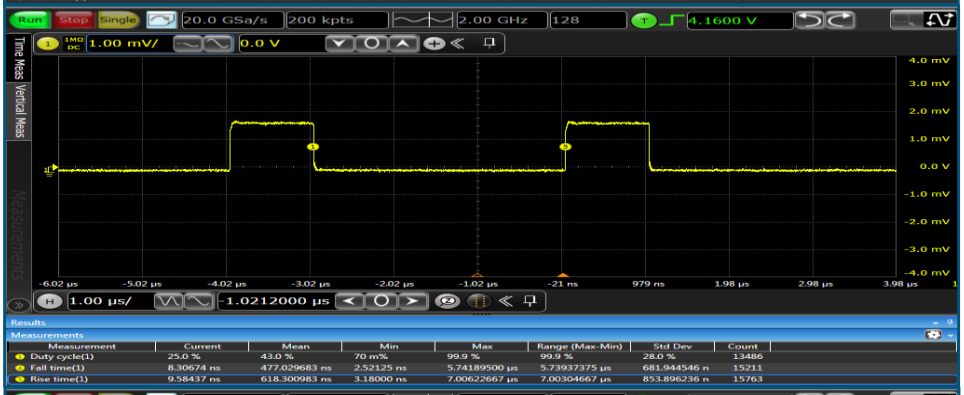
Input Power -5 dBm
1µs PW, 50% Duty Cycle
@ 50Ω Load

Rise time - 4.0 ns
Fall Time - 1.4 ns



Input Power -5 dBm
1µs PW, 25% Duty Cycle
@ 100Ω Load

Rise time - 9.6 ns
Fall Time - 8.3 ns



Input Power -5 dBm
1µs PW, 50% Duty Cycle
@ 100Ω Load

Rise time - 9.4 ns
Fall Time - 8.4 ns

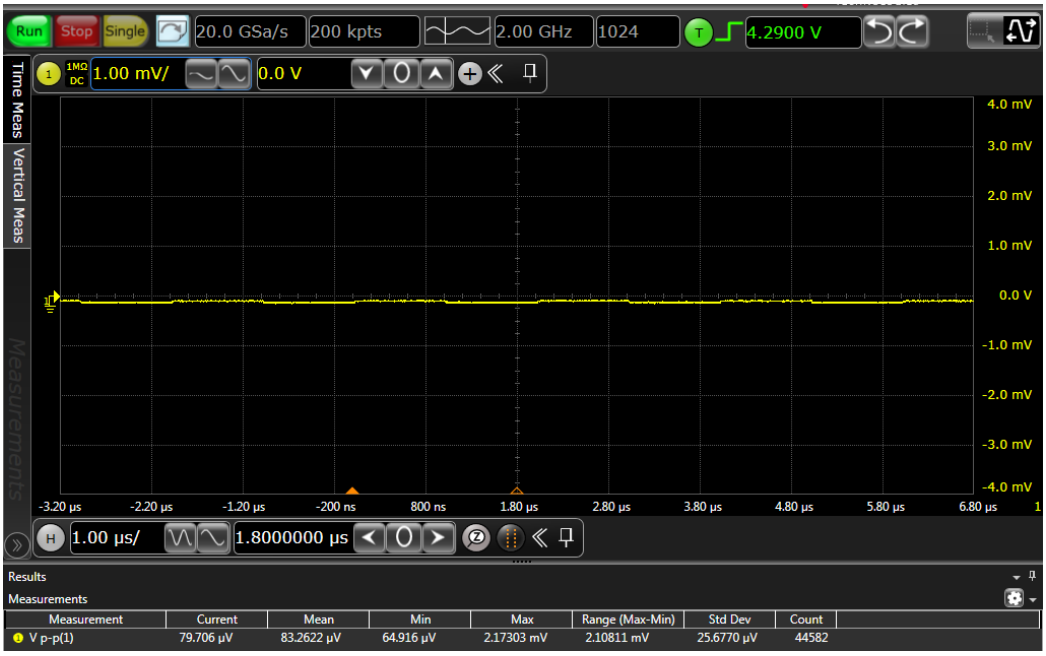


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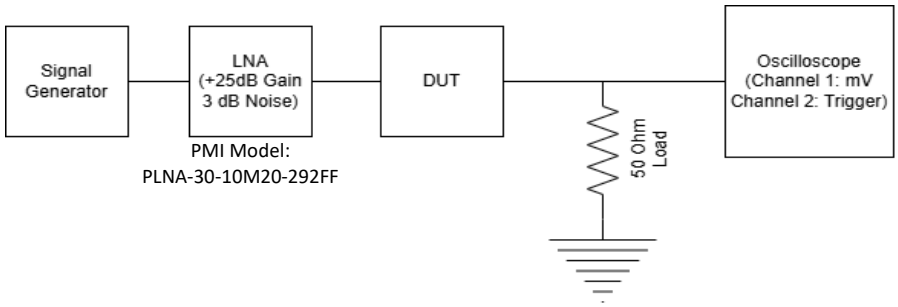
TYPICAL CHARACTERISTICS ON DD-0R5G18G-NEG-MF-ROHS

Tangential Sensitivity (TSS)

1 µs PW, 50% Duty Cycle
Frequency (0.5 GHz to 18 GHz)
Measured value (-37 dBm)



Block Diagram For TSS Test With 50Ω Load



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