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

PMI MODEL NUMBER DD-0R5G18G-POS-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 29, 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-POS-MF-ROHS

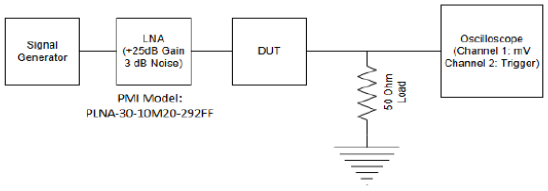
PRODUCT FEATURE

DESCRIPTION:
PMI MODEL NUMBER DD-0R5G18G-POS-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]: ..... -40 dBm @ 500 MHz VIDEO BANDWIDTH
- OUTPUT VOLTAGE: ..... POSITIVE
- 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: ..... SMA MALE (IN)/ SMA FEMALE (OUT)
- FINISH: ..... PAINTED BLUE

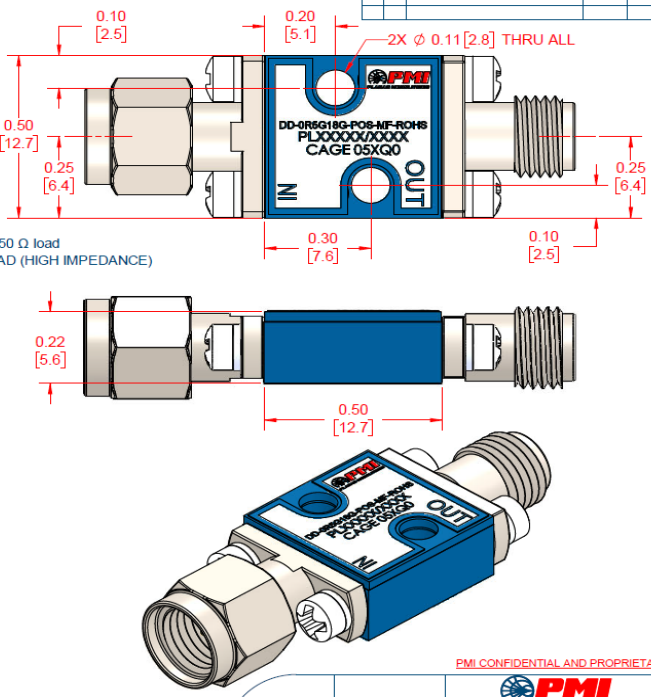
1. TSS MEASUREMENTS PERFORMED WITH LNA THAT HAS 20 dB GAIN AND 3 dB NOISE AT DIODE DETECTOR INPUT
2. PULSED MEASUREMENTS PERFORMED USING AN EXTERNAL 50 Ω TERMINATION (OR 100 Ω TERMINATION FOR HIGH IMPEDANCE) THROUGH A T-CONNECTOR FOR PROPER PULSE SHAPING. OUTPUT VOLTAGE MEASURED AT 50Ω OSCILLOSCOPE INPUT.



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
- TEMPERATURE CYCLE: ..... MIL-STD-202, METHOD 107 COND. A

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



PMI CONFIDENTIAL AND PROPRIETARY

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	3/13/2026	

APPROVALS	DATE
DRAWN VP	3/13/2026
REDRAWN	
ISSUED	

TITLE: OUTLINE
DD-0R5G18G-POS-MF-ROHS
SIZE B | FSCM NO. 05XQ0 | DWG NO. 27054180 | REV. A1
SCALE 4:1 | SHEET 1 OF 1

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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**	**2.84 :1 See Graph**
3	Polarity/Output Voltage	POSITIVE	**POSITIVE**		
4	Frequency Flatness:	±1.5 dB Max. WITH 10 MΩ LOAD	**±0.52 dB @ 10MΩ. Load See Graph**	**±0.47 dB @ 10MΩ. Load See Graph**	**±0.73 dB @ 10MΩ. Load See Graph**
		±1.5 dB Max. WITH 1 MΩ LOAD	**±0.5 dB @ 1MΩ. Load See Graph**	**±0.81 dB @ 1MΩ. Load See Graph**	**±0.71 dB @ 1MΩ. Load See Graph**
		Not Specified	**±1.04 dB @ 10kΩ. Load See Graph**	**±1.56 dB @ 10kΩ. Load See Graph**	**±0.75 dB @ 10kΩ. Load See Graph**
			±1.5 dB @ 100Ω. Load See Graph	**±2.64 dB @ 100Ω. Load See Graph**	**±1.07 dB @ 100Ω. Load See Graph**
5	Voltage Sensitivity: (SQUARE-LAW REGION)	700 mV/mW TYP. WITH 10 MΩ LOAD	**1183.22 mV/mW @ 10MΩ. Load See Graph.**	**1003.2 mV/mW @ 10MΩ. Load See Graph.**	**1005.88 mV/mW @ 10MΩ. Load See Graph.**
		300 mV/mW TYP. WITH 1 MΩ LOAD	**770.59 mV/mW @ 1MΩ. Load See Graph.**	**307.54 mV/mW @ 1MΩ. Load See Graph.**	**952.79 mV/mW @ 1MΩ. Load See Graph.**
		Not Specified	**82.5 mV/mW @ 10kΩ. Load See Graph.**	**61.27 mV/mW @ 10kΩ. Load See Graph.**	**228.78 mV/mW @ 10kΩ. Load See Graph.**
			17.44 mV/mW @ 100Ω. Load See Graph.	**14.14 mV/mW @ 100Ω. Load See Graph.**	**5.18 mV/mW @ 100Ω. Load See Graph.**

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6	Maximum Input Power:	+20 dBm	**+20 dBm See Graphs**		
7	Tangential Sensitivity[1]:	-40dBm @ 500 MHz Video Bandwidth	**-40 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	**4.5ns @ 0 dBm 8.5ns @ -5 dBm**	**2.8ns @ 0 dBm 3.5ns @ -5 dBm**
			Fall	**8.3ns @ 0 dBm 8.6ns @ -5 dBm**	**3.1ns @ 0 dBm 2.2ns @ -5 dBm**
9	Dynamic Range:	-40 dBm to +20 dBm.	**-40 dBm to +20 dBm See Graphs**		

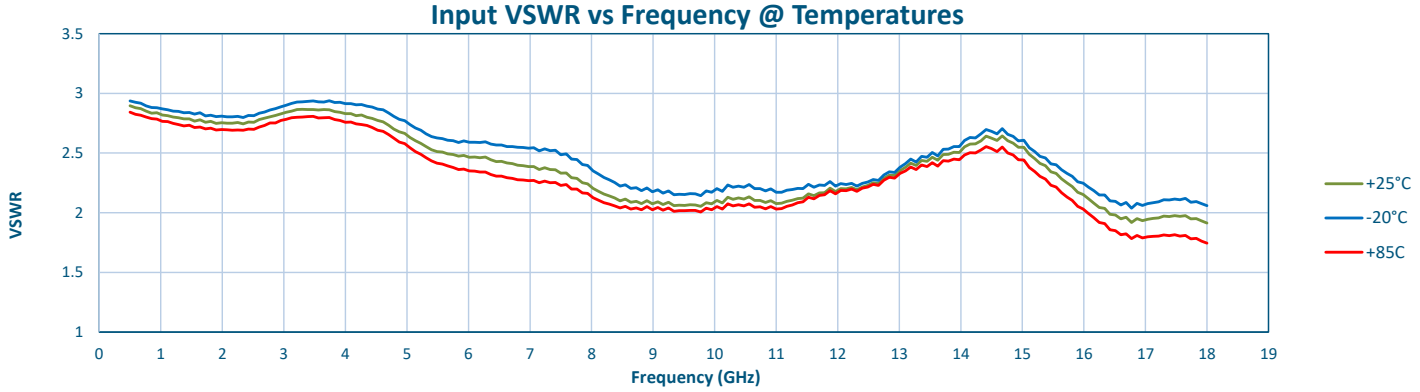
Note 1: TSS MEASUREMENTS PERFORMED WITH LNA THAT HAS 20 DB GAIN AND 3 DB NOISE AT DIODE DETECTOR INPUT.

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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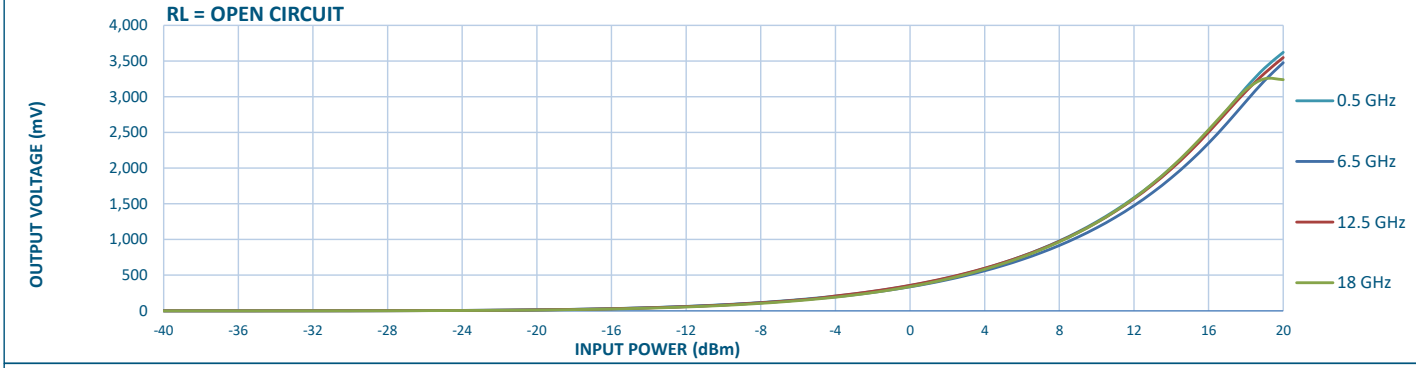
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Input VSWR vs Frequency @ Temperatures



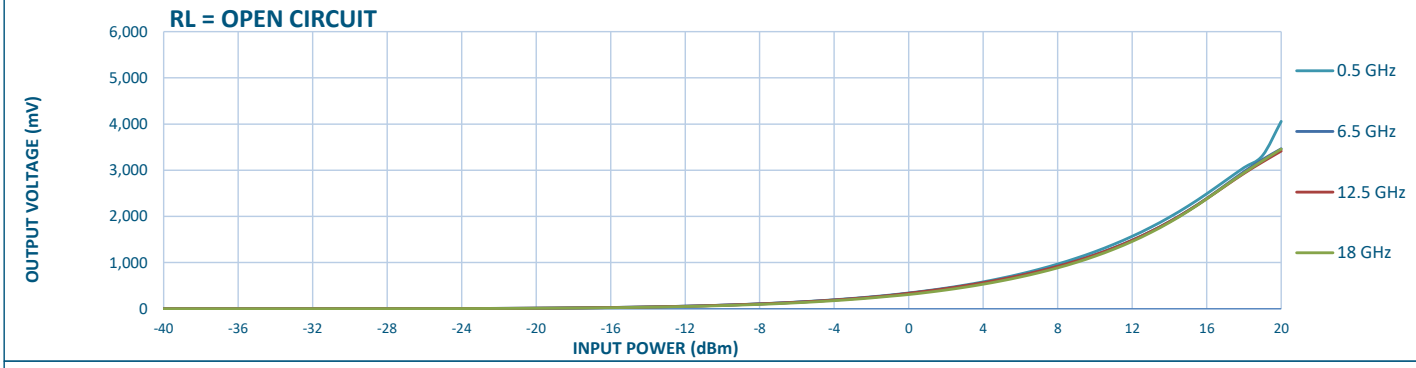
Transfer Curve with 10MΩ at 25°C (Dynamic Range)

RL = OPEN CIRCUIT



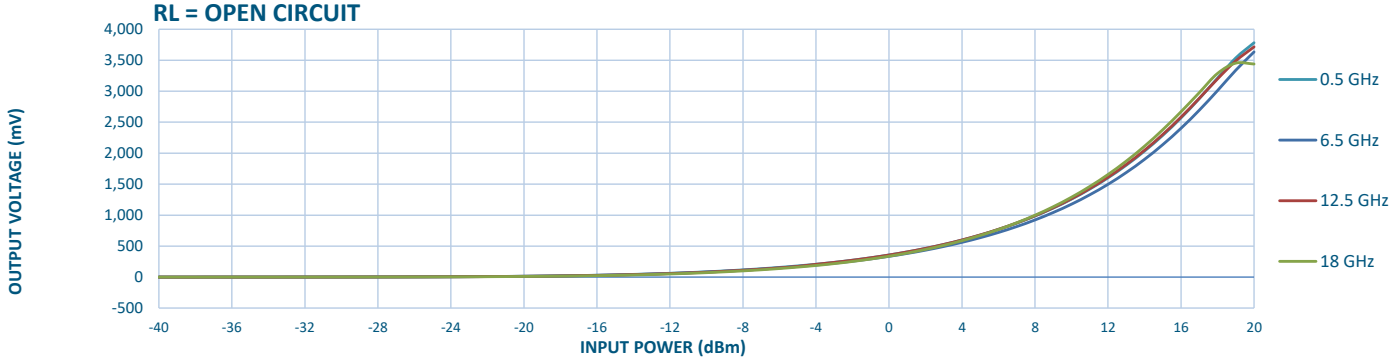
Transfer Curve with 10MΩ at -20°C (Dynamic Range)

RL = OPEN CIRCUIT



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

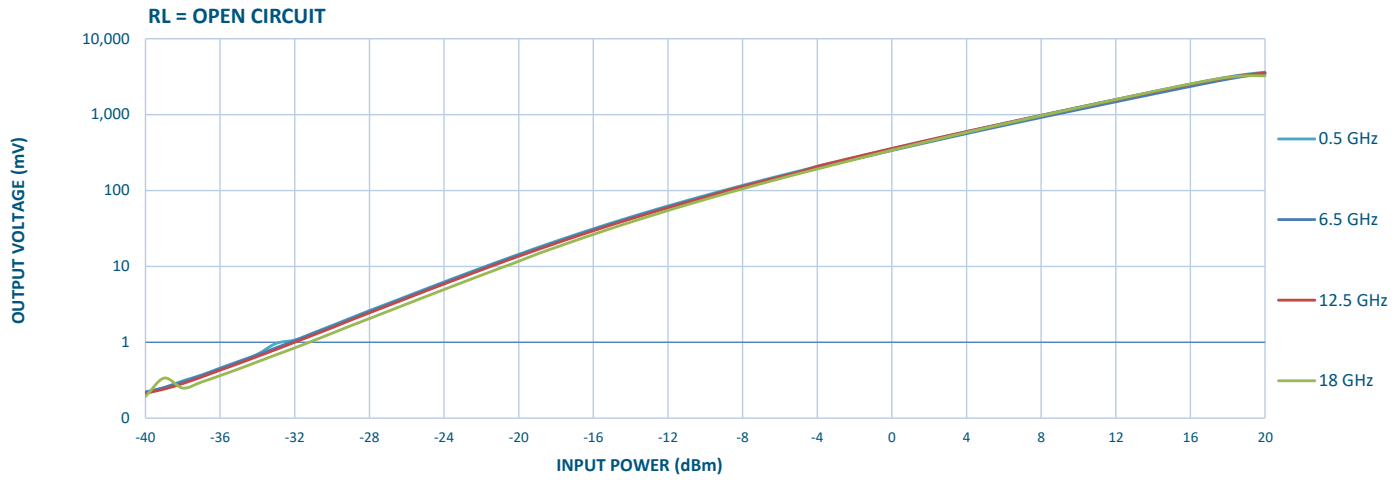
RL = OPEN CIRCUIT



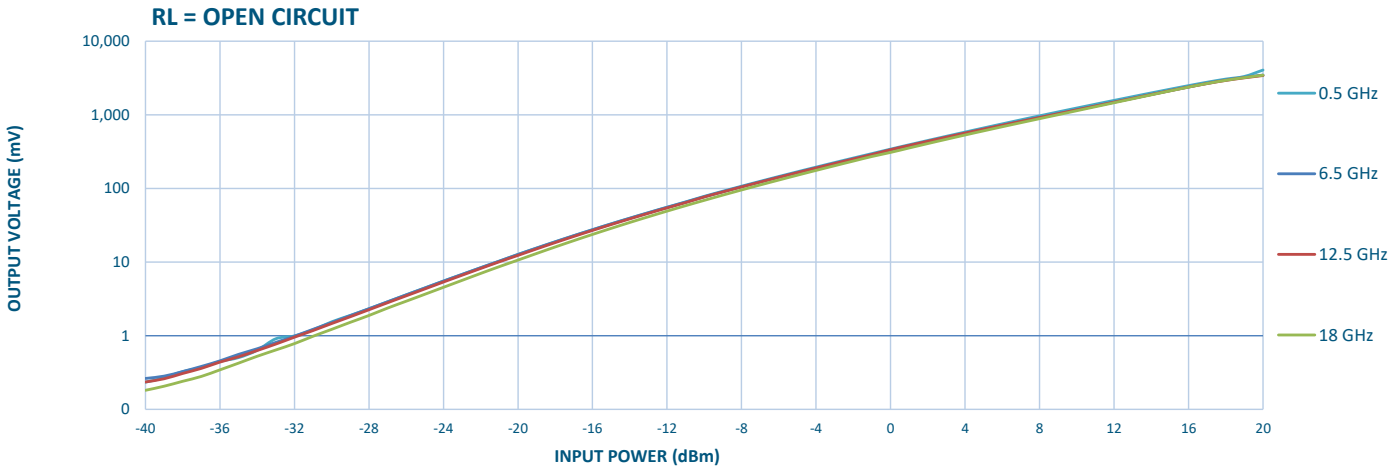
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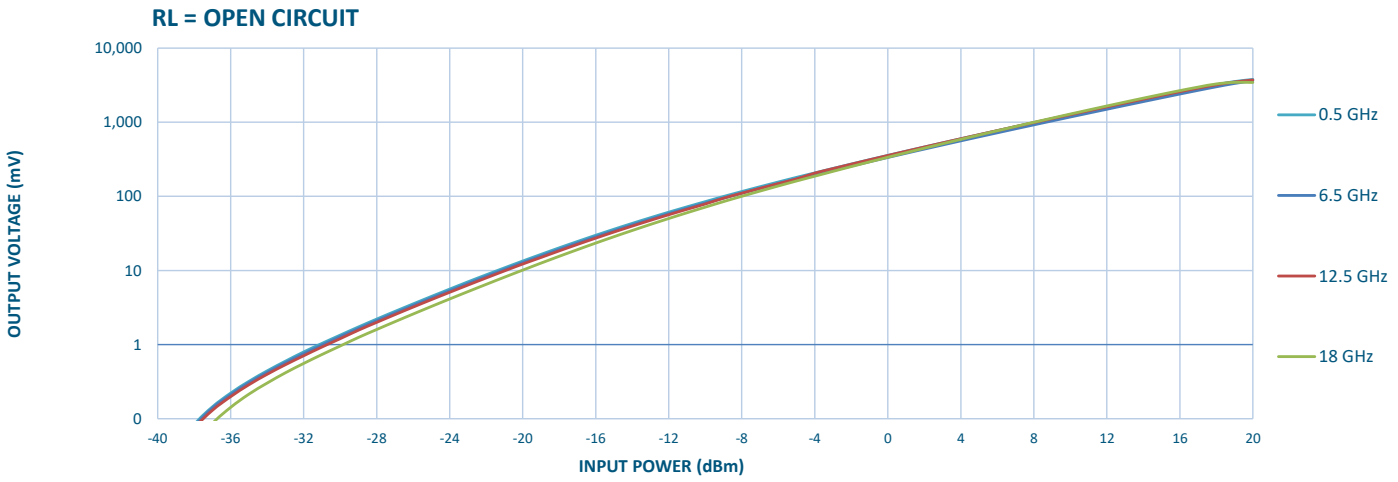
Log Transfer Curve with 10MΩ at 25°C (Dynamic Range)



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



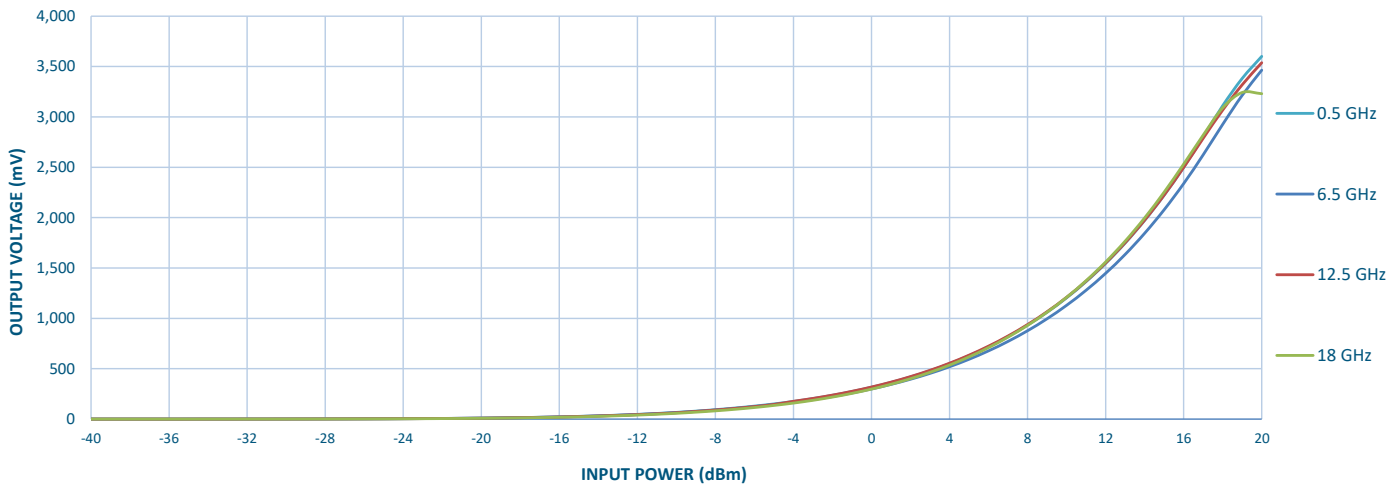
Log Transfer Curve with 10MΩ at +85°C (Dynamic Range)



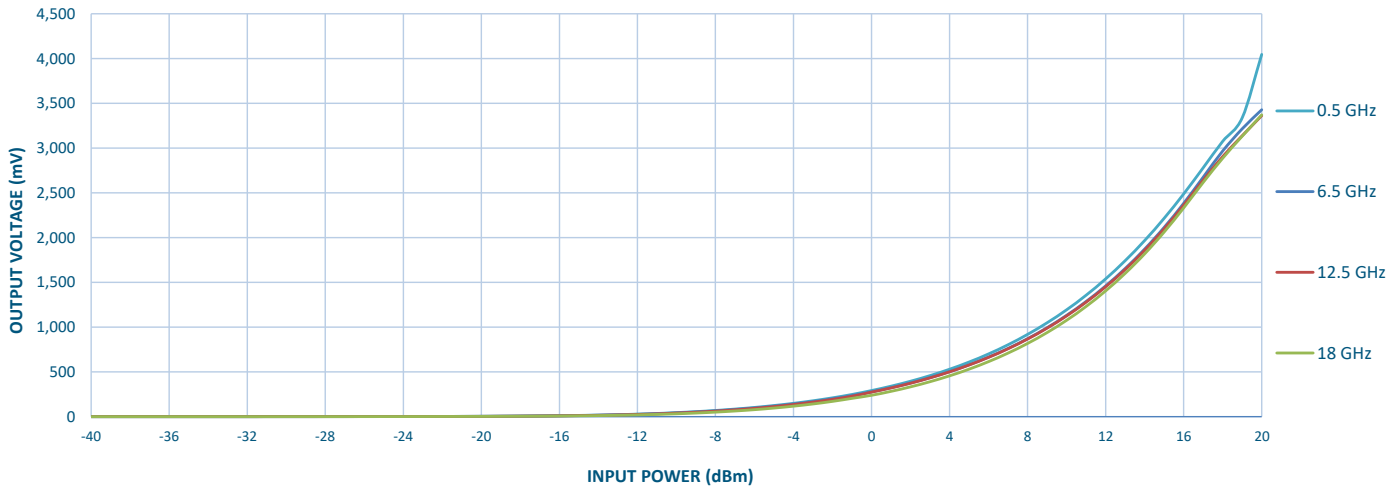
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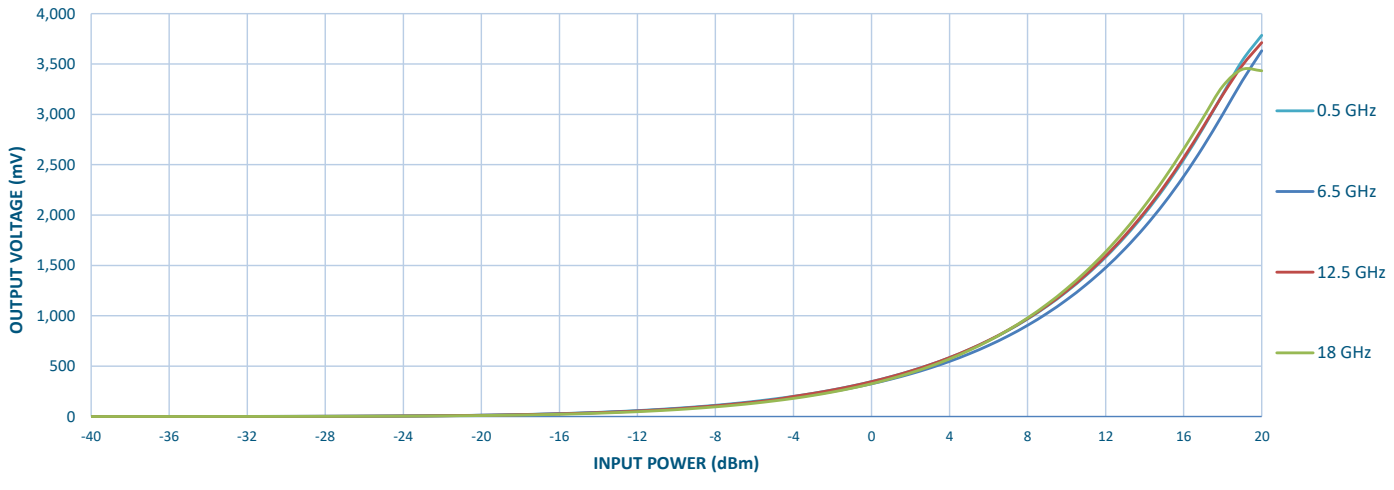
Transfer Curve with 1MΩ at 25°C (Dynamic Range)



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



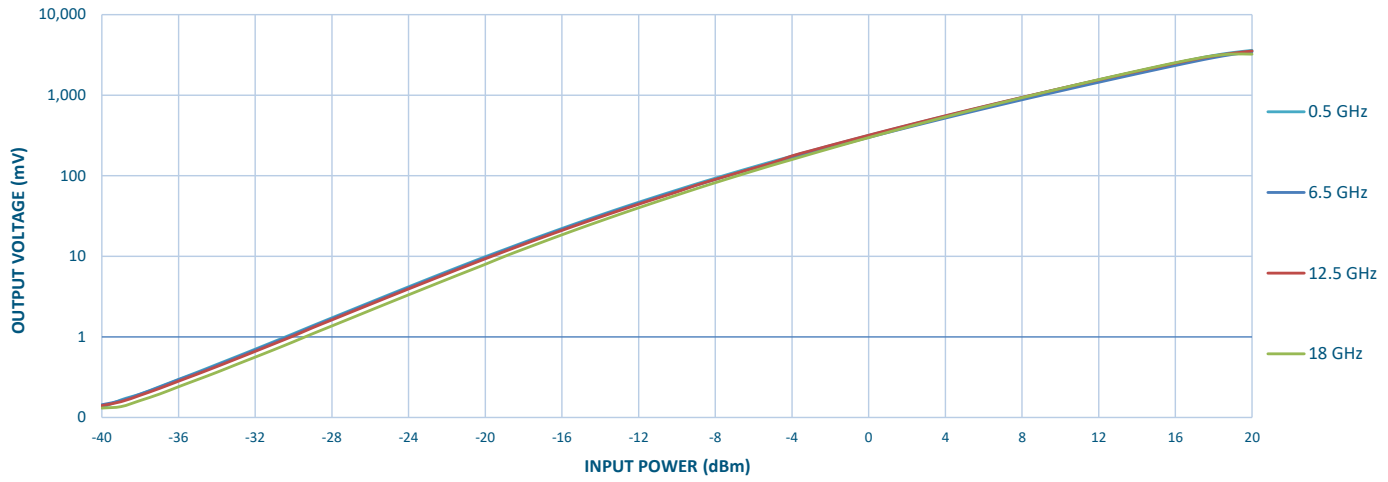
Transfer Curve with 1MΩ at +85°C (Dynamic Range)



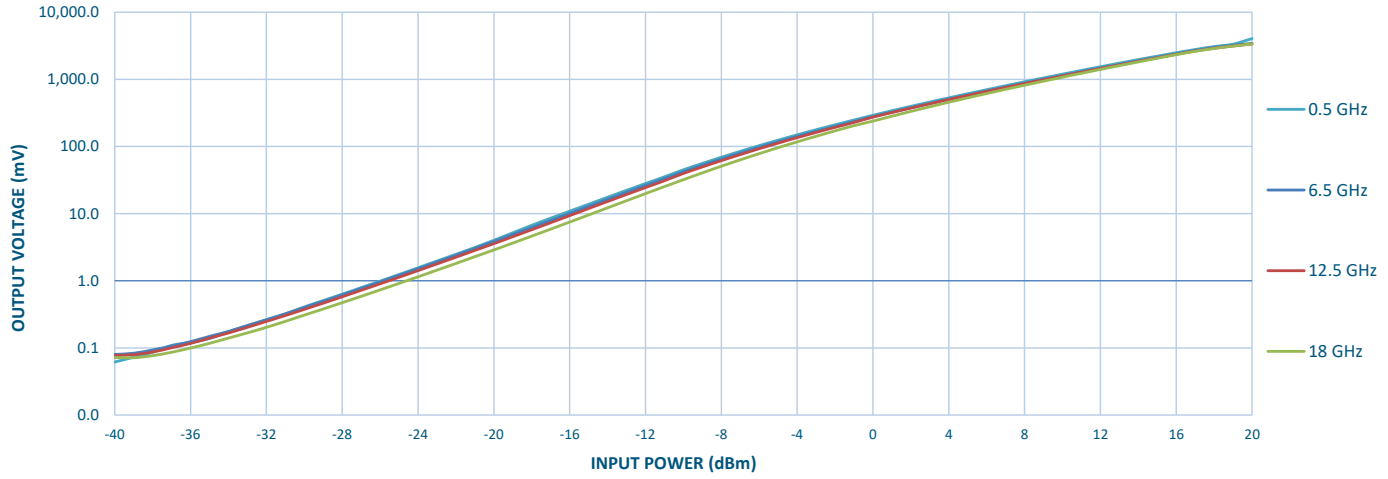
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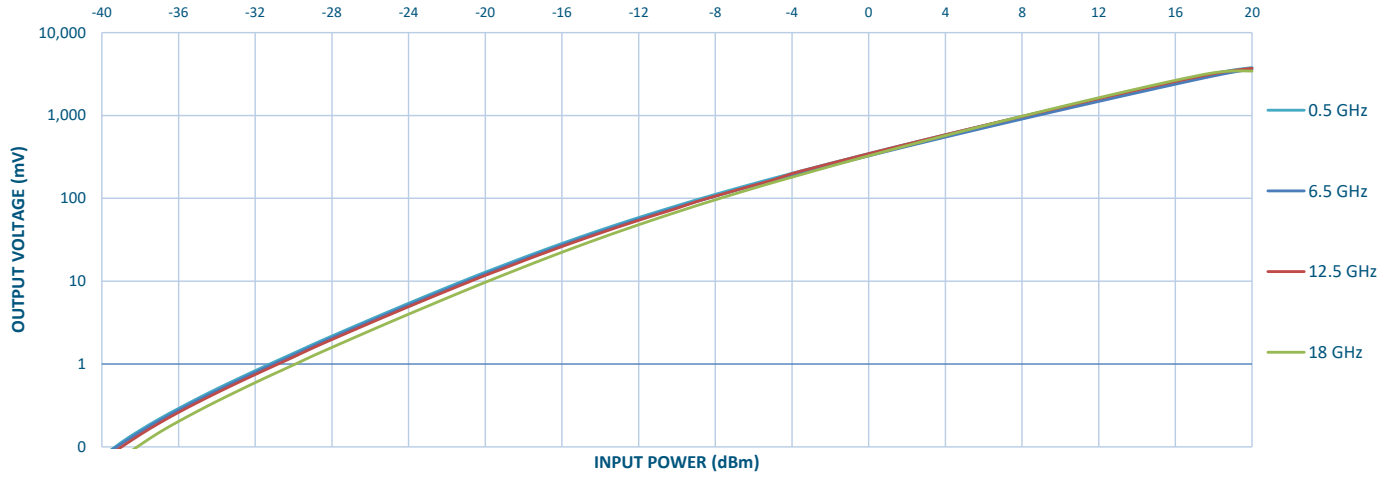
Log Transfer Curve with 1MΩ at 25°C (Dynamic Range)



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



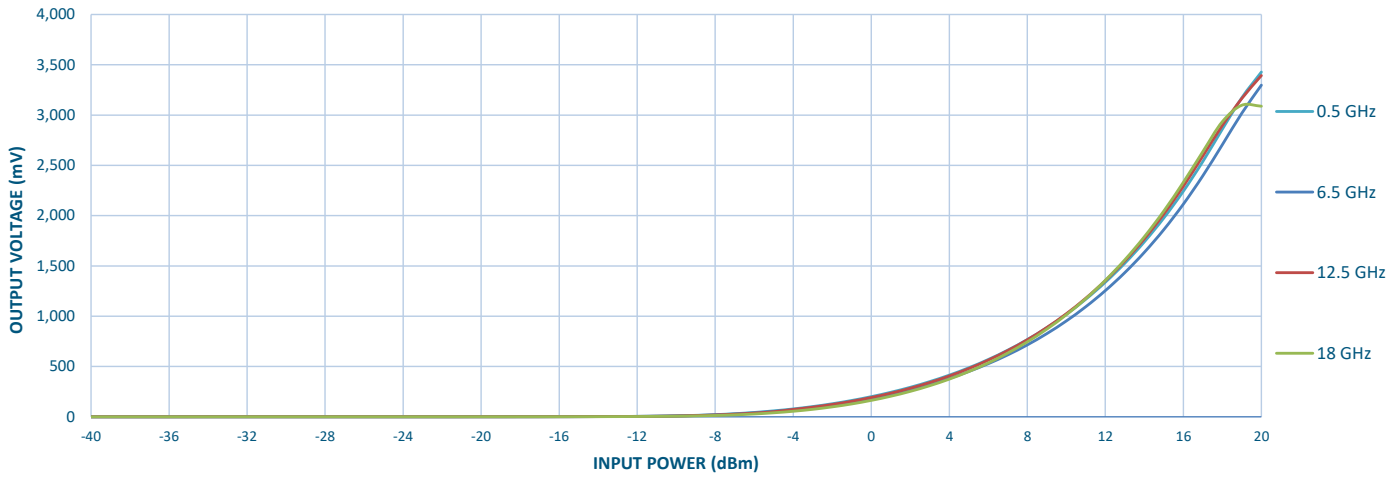
Log Transfer Curve with 1MΩ at +85°C (Dynamic Range)



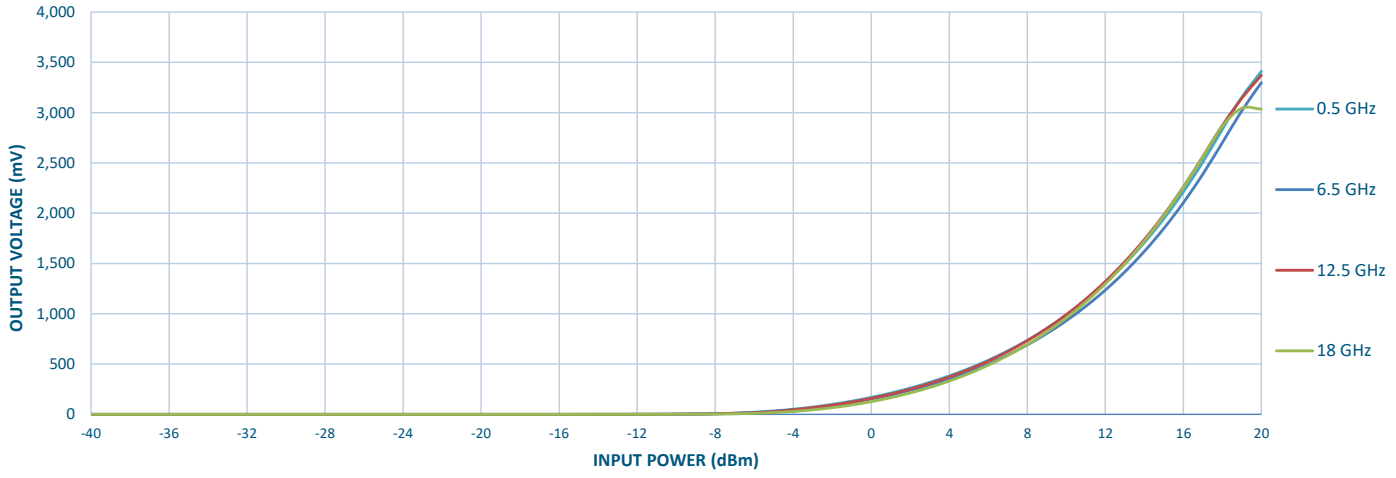
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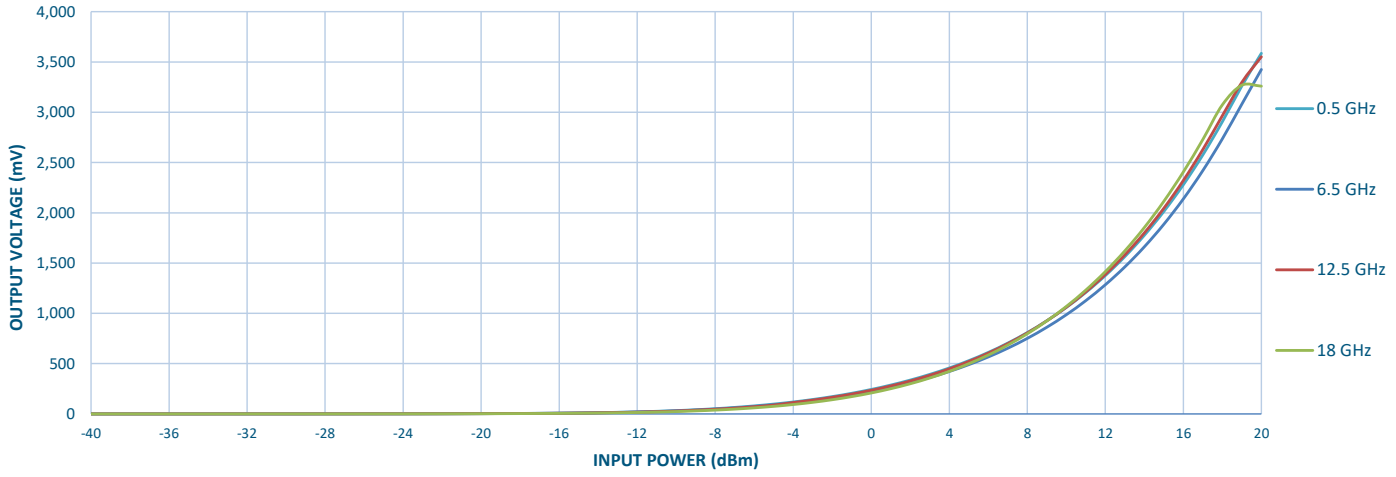
Transfer Curve with 10KΩ at 25°C (Dynamic Range)



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



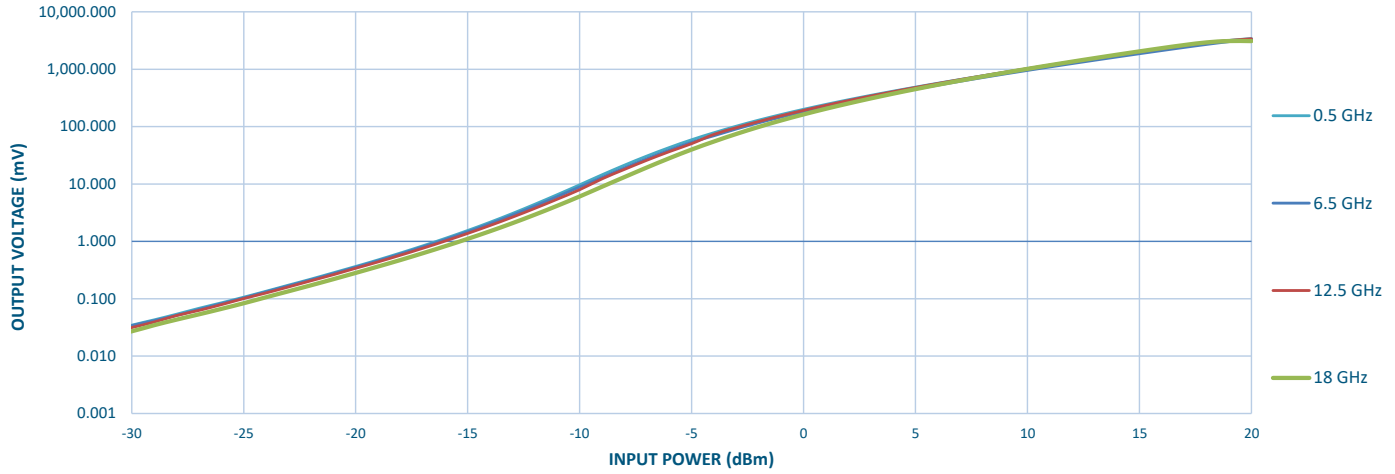
Transfer Curve with 10KΩ at 85°C (Dynamic Range)



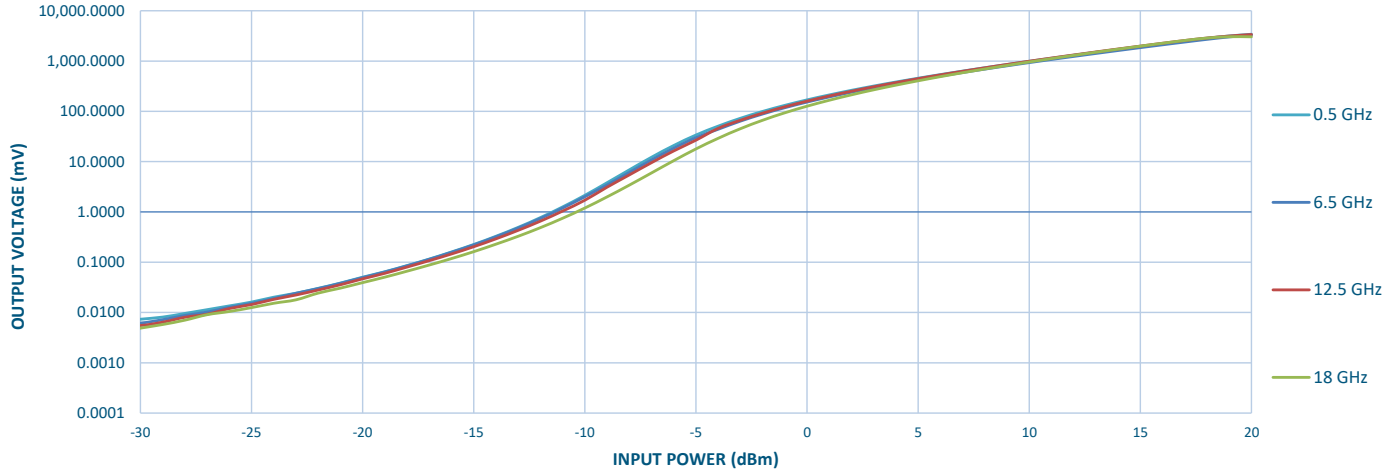
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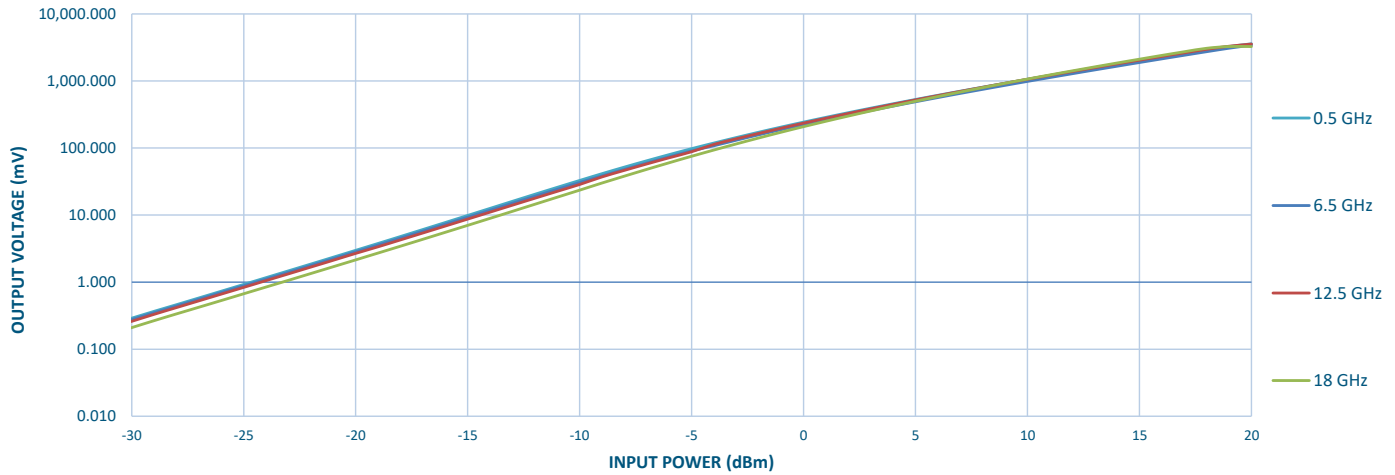
Log Transfer Curve with 10KΩ at 25°C (Dynamic Range)



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



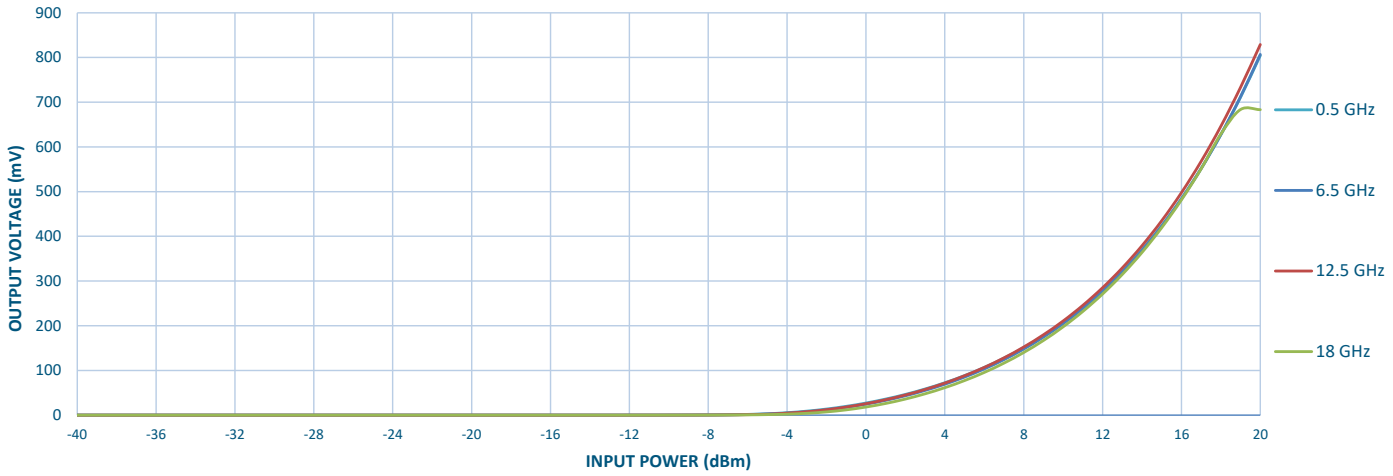
Log Transfer Curve with 10KΩ at 85°C (Dynamic Range)



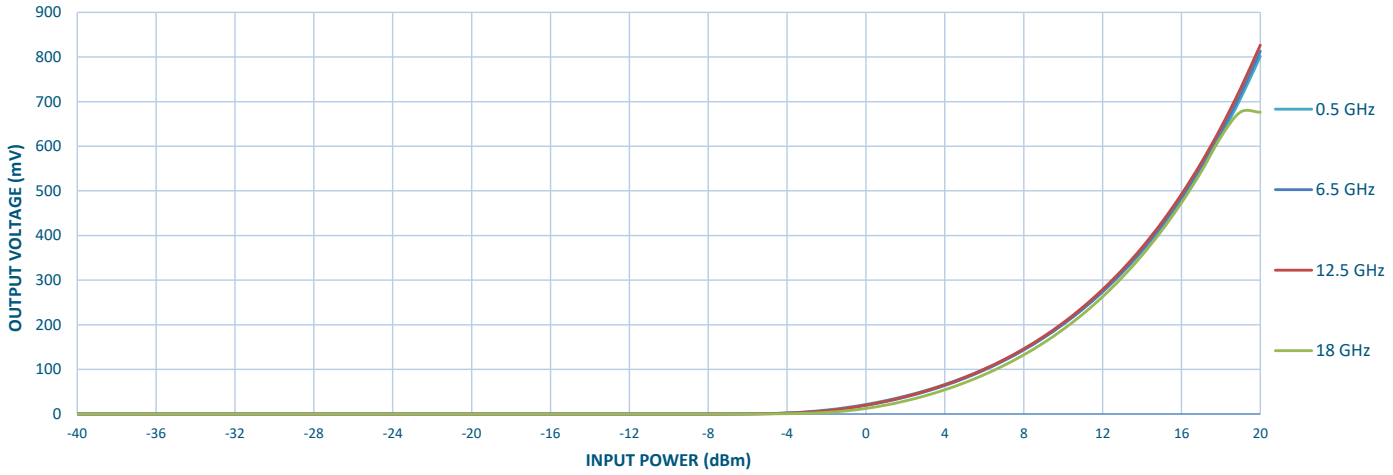
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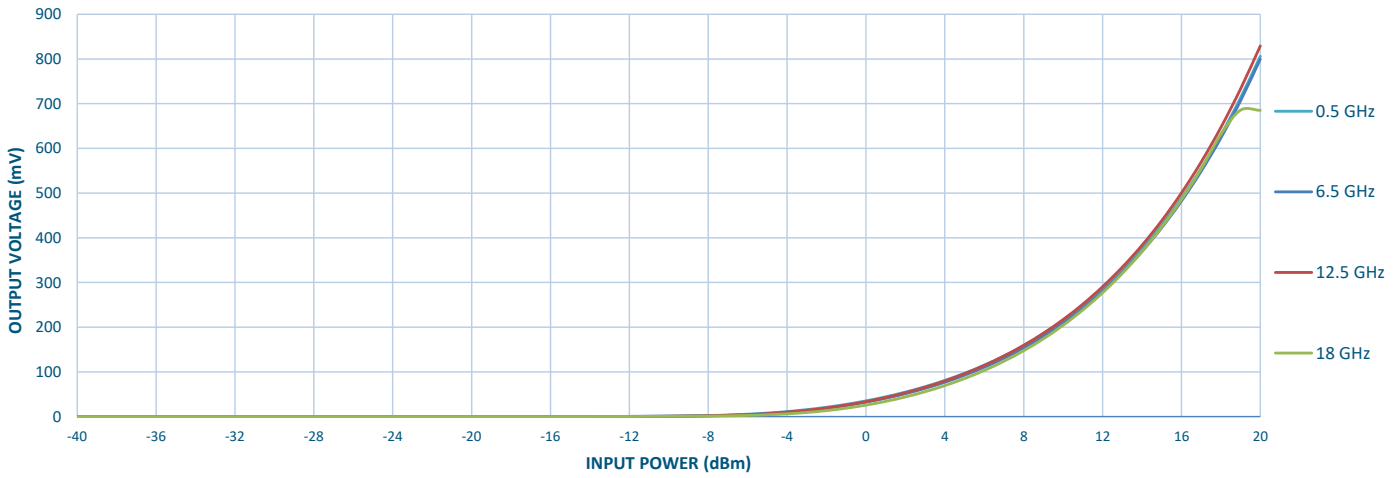
Transfer Curve with 100Ω at 25°C (Dynamic Range)



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



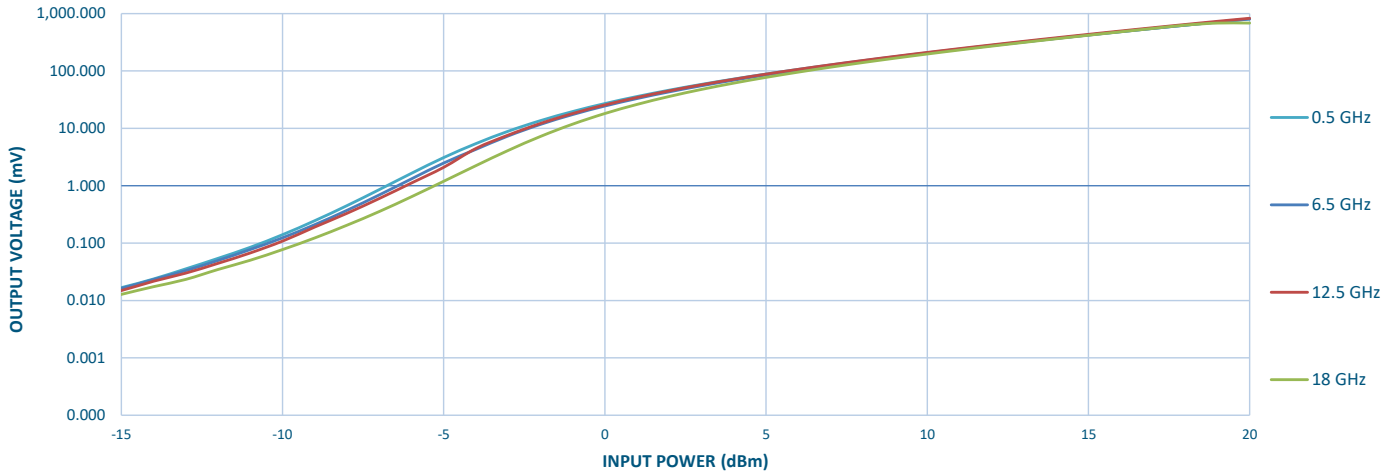
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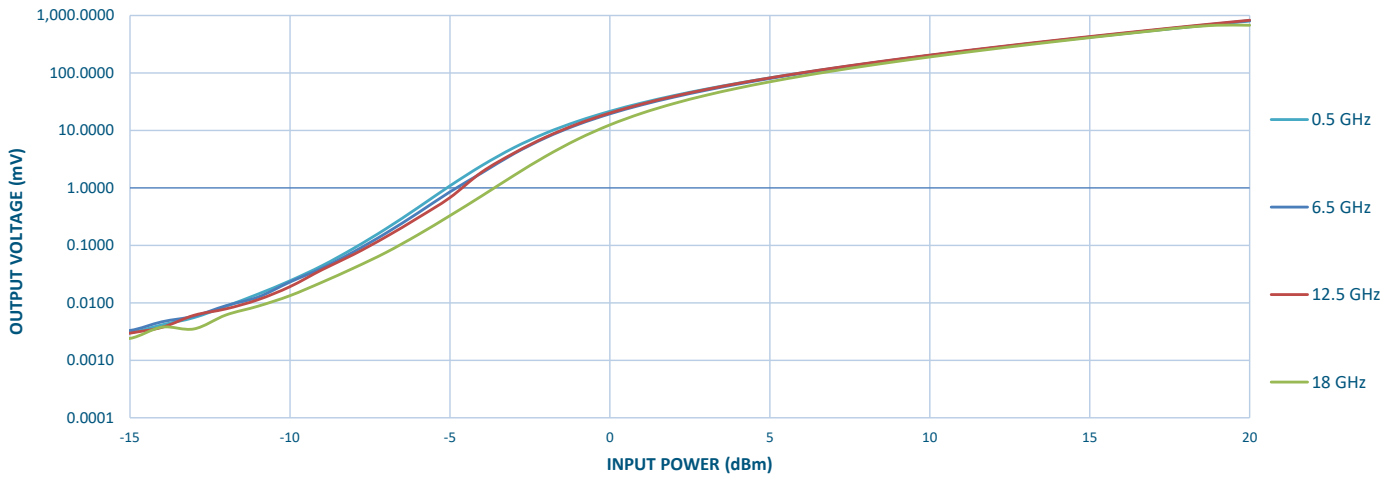
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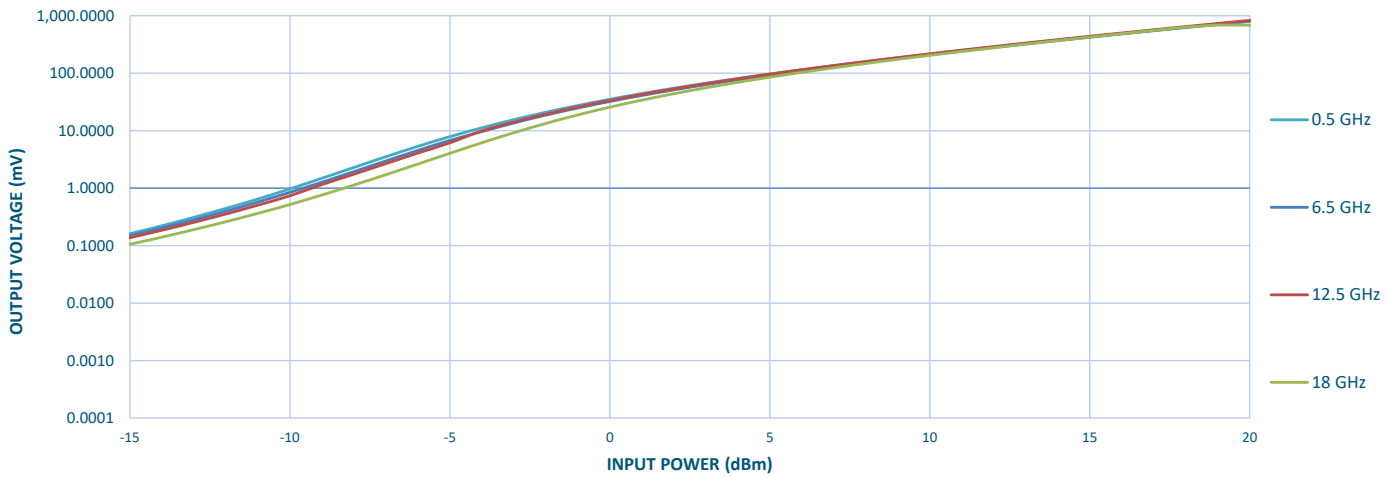
Log Transfer Curve with 100Ω at 25°C (Dynamic Range)



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



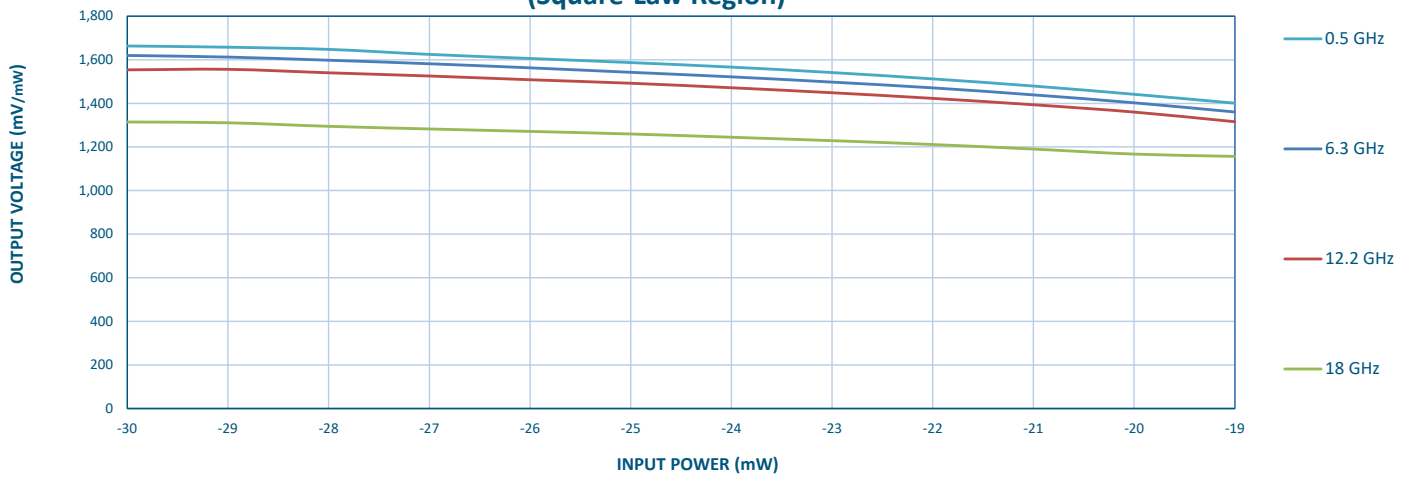
Log Transfer Curve with 100Ω at 85°C (Dynamic Range)



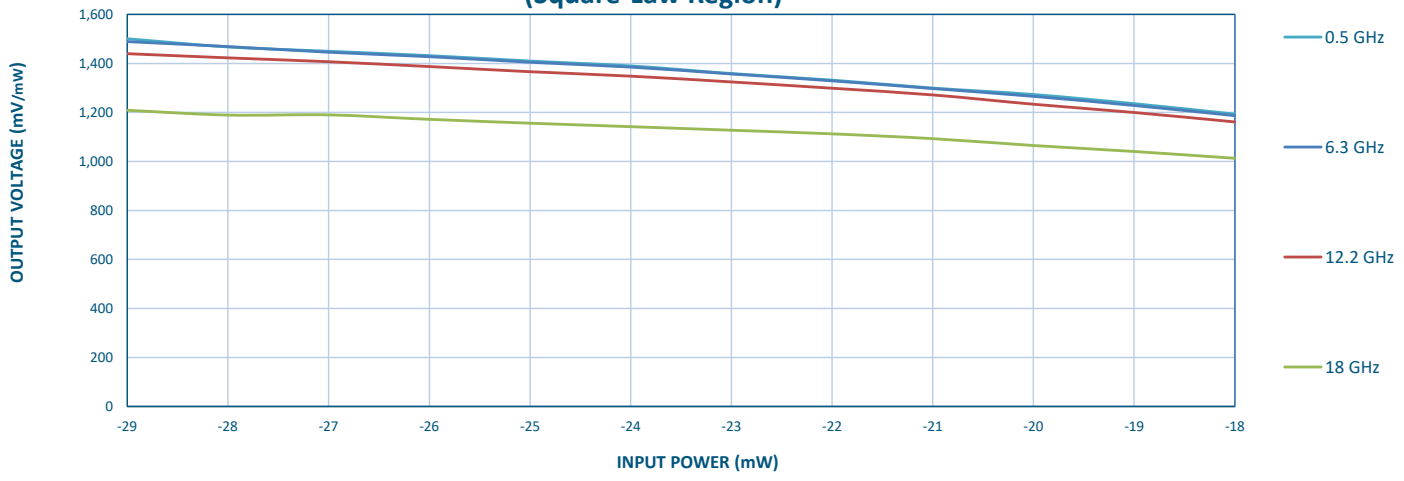
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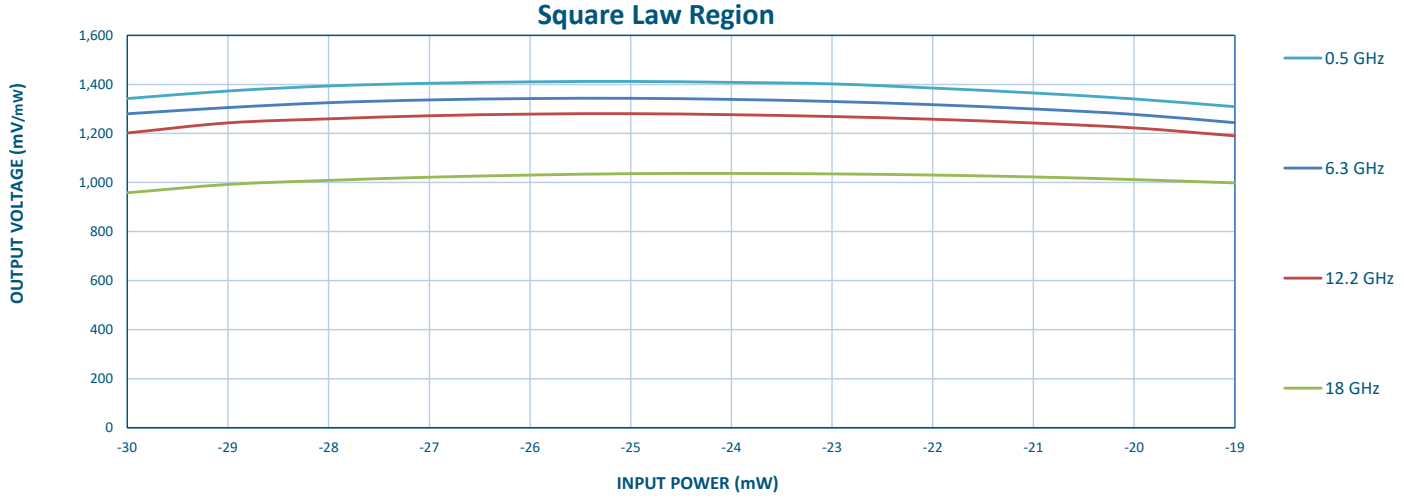
Sensitivity with 10MΩ at +25°C
(Square-Law Region)



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

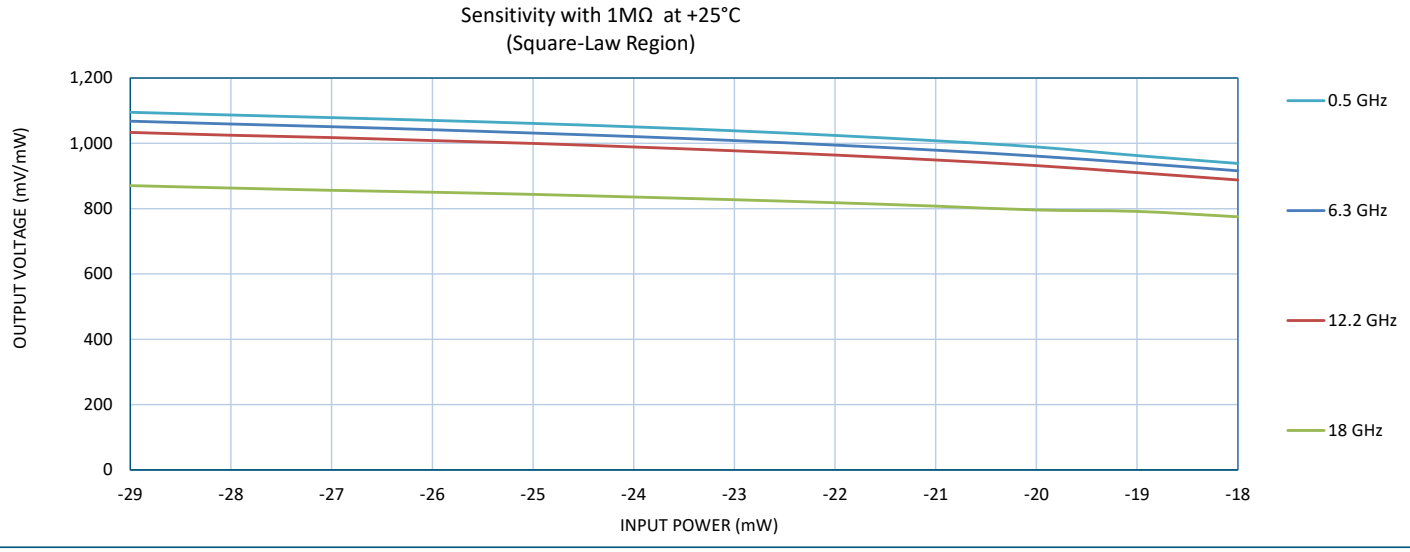


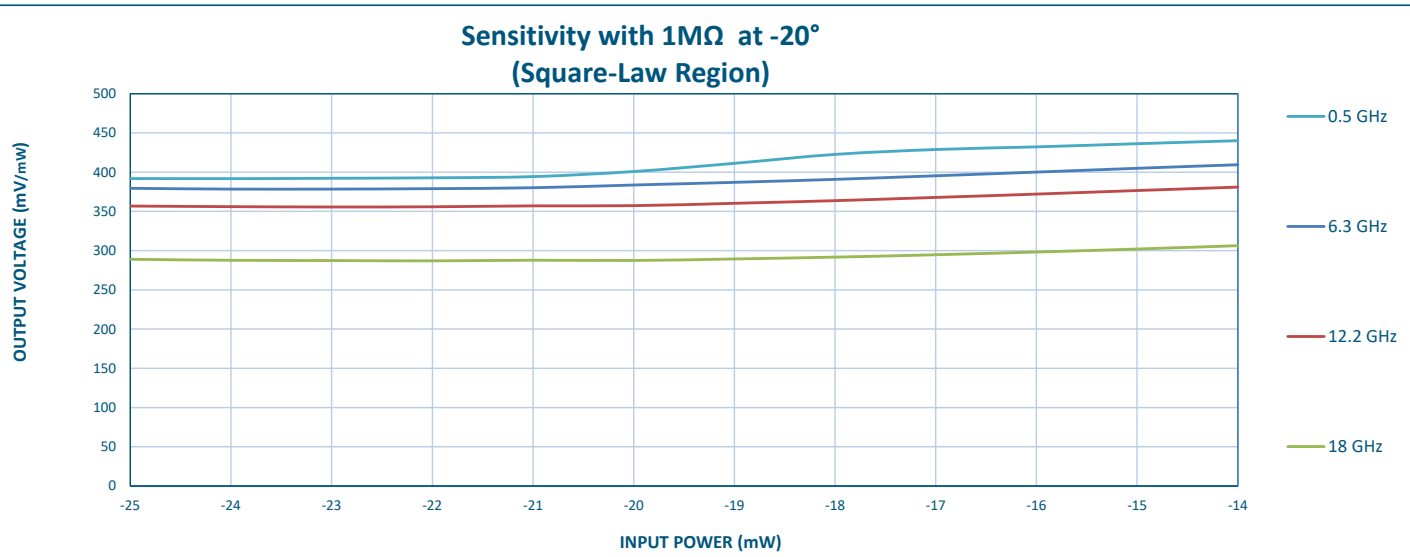
Sensitivity with 10MΩ at +85°C
Square Law Region

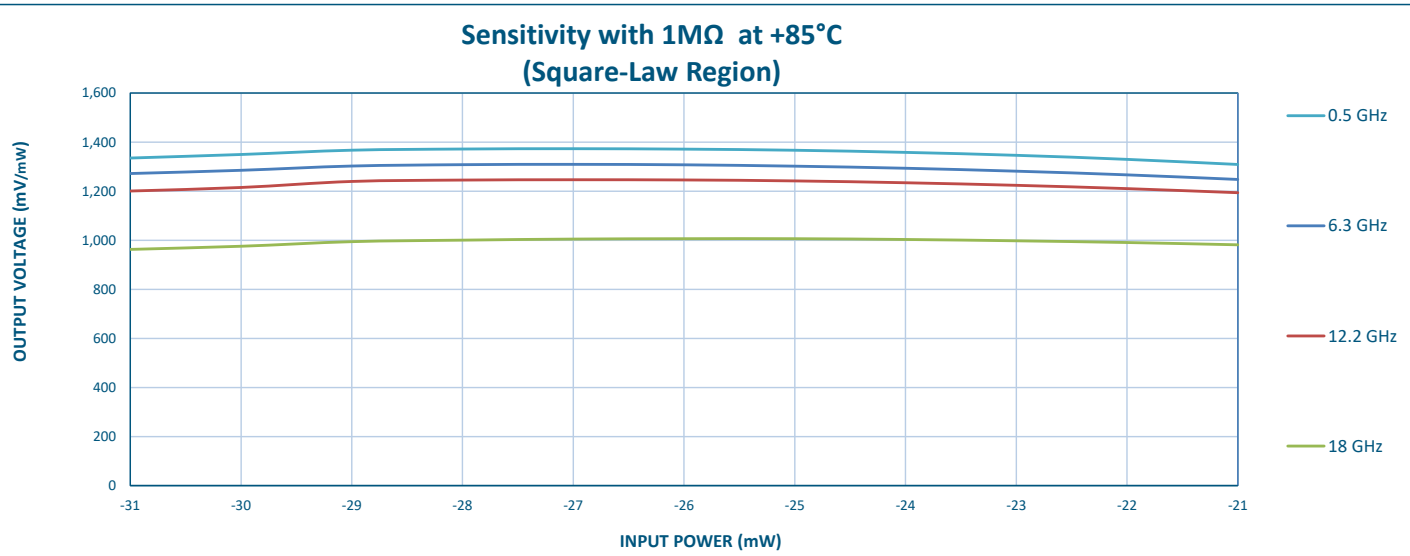


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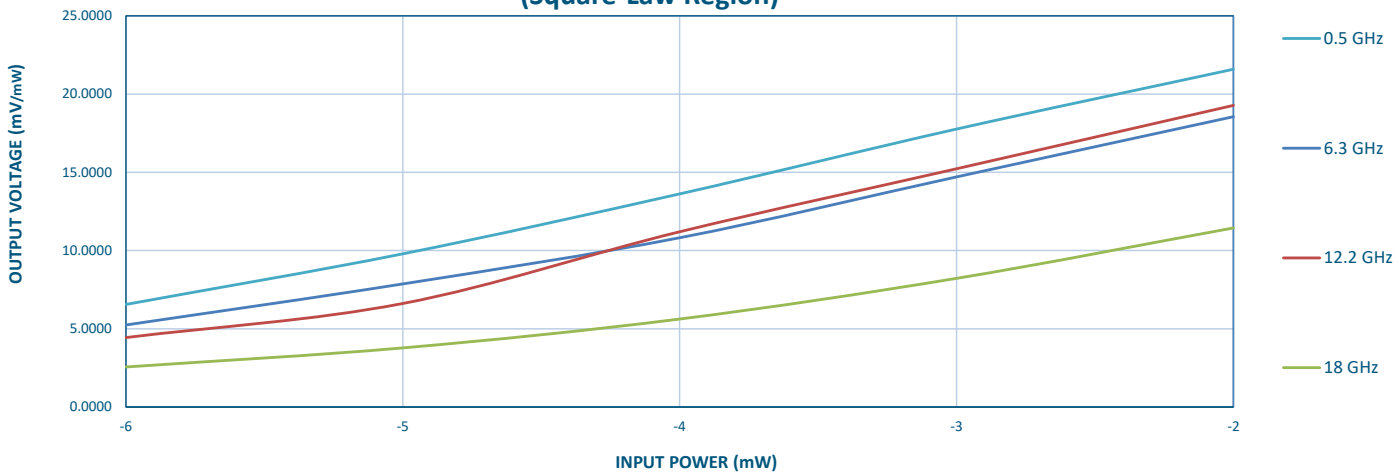




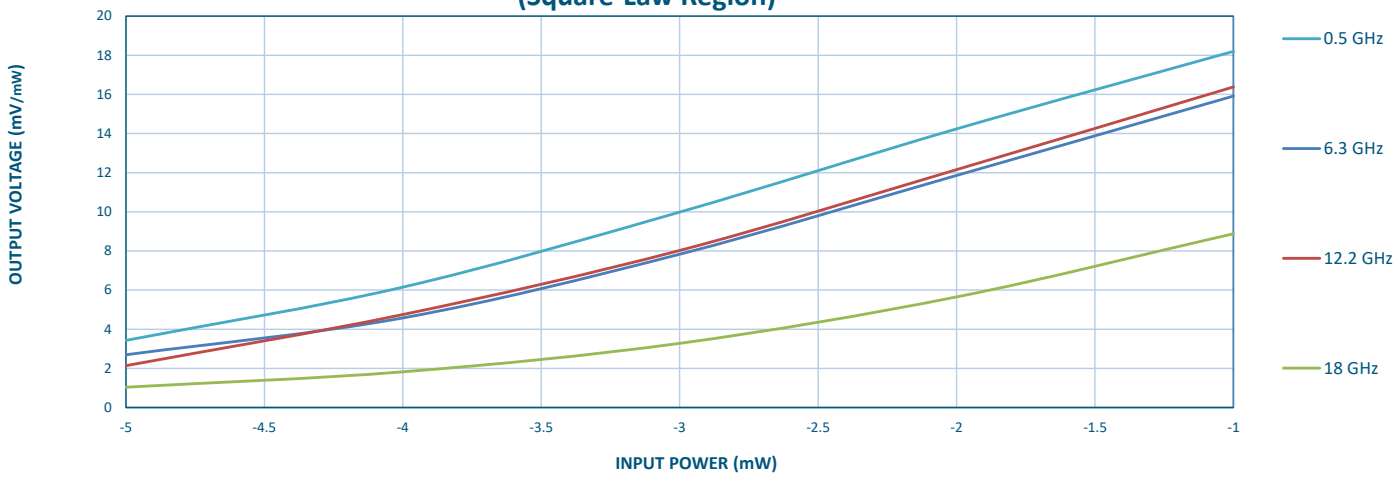
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TYPICAL CHARACTERISTICS ON DD-0R5G18G-POS-MF-ROHS

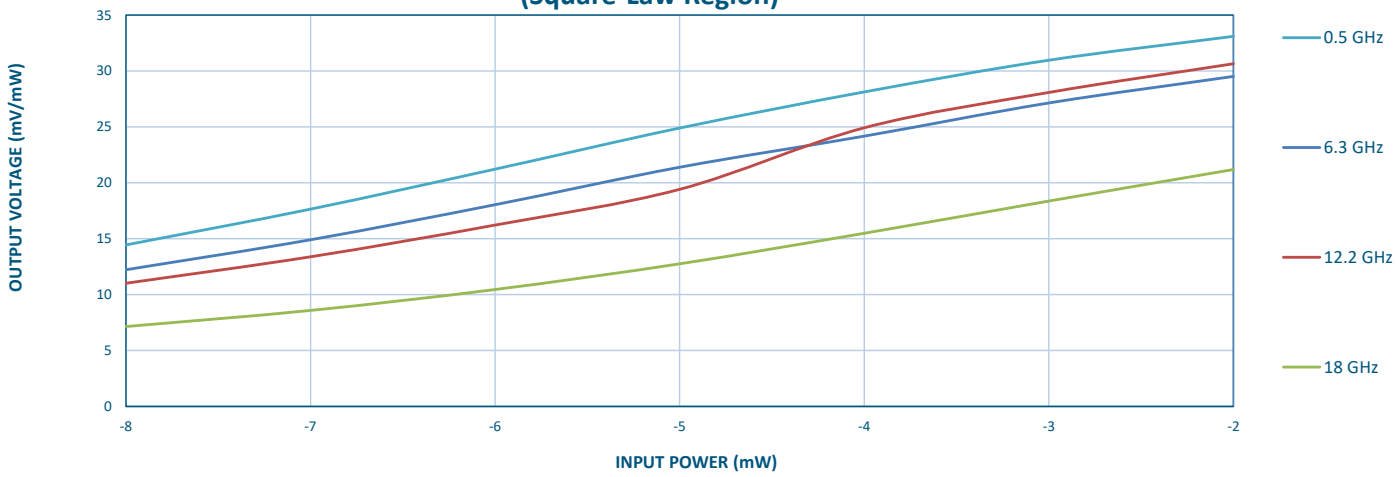
Sensitivity with 100Ω at +25°C (Square-Law Region)



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



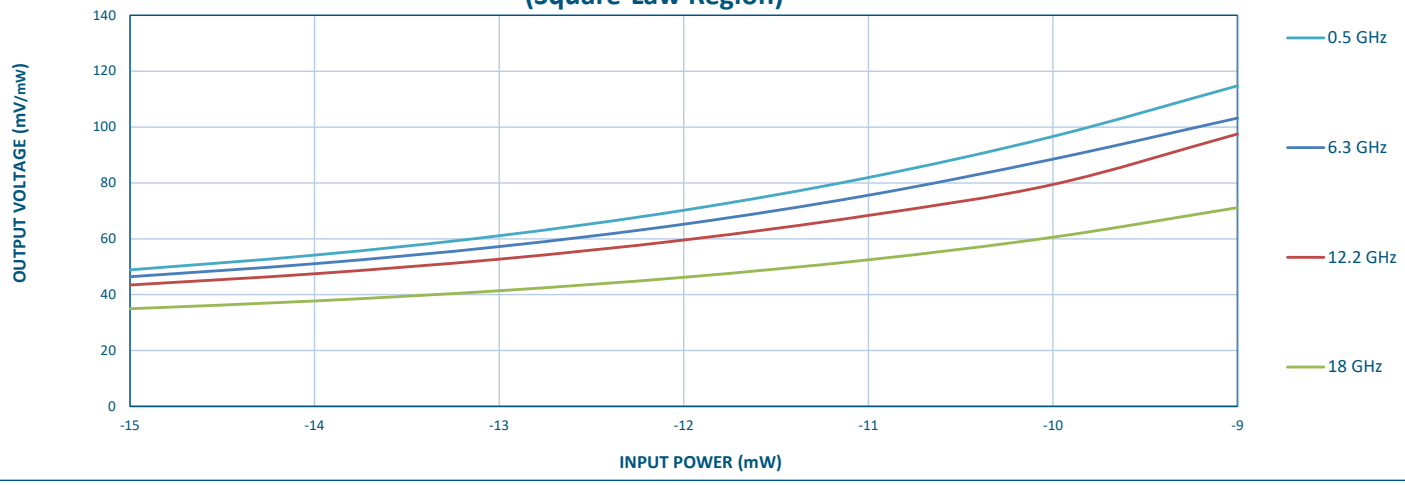
Sensitivity with 100Ω at +85°C (Square-Law Region)



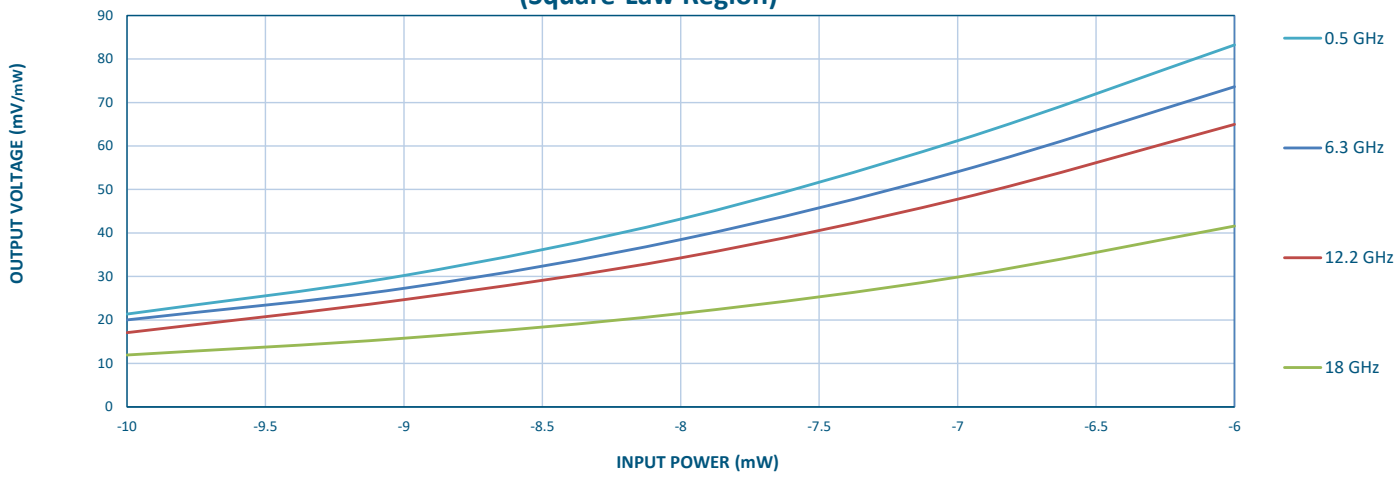
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TYPICAL CHARACTERISTICS
ON
DD-0R5G18G-POS-MF-ROHS

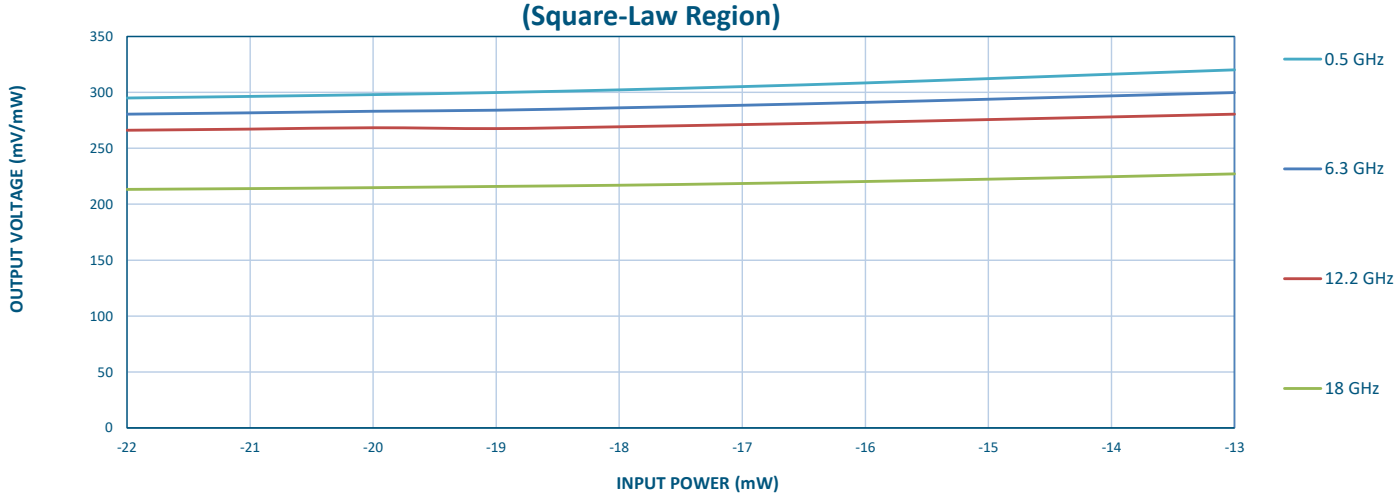
Sensitivity with 10KΩ at +25°C
(Square-Law Region)



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



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

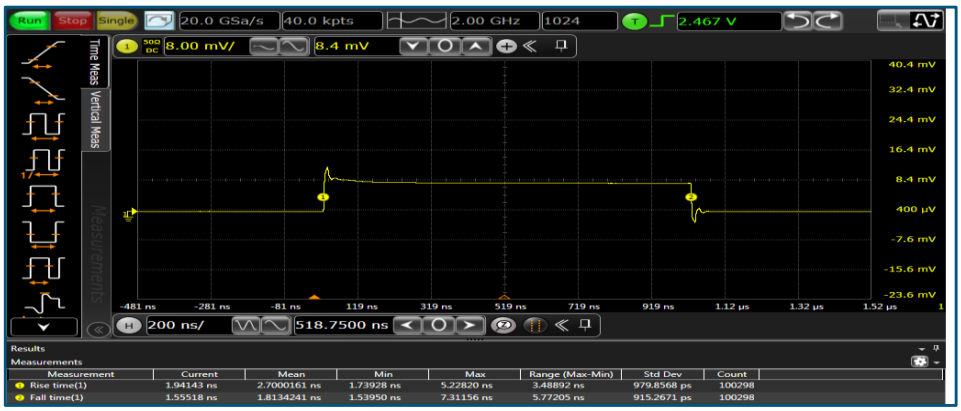


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TYPICAL CHARACTERISTICS
ON
DD-0R5G18G-POS-MF-ROHS

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

Rise time - 1.9 ns
Fall Time - 1.6 ns



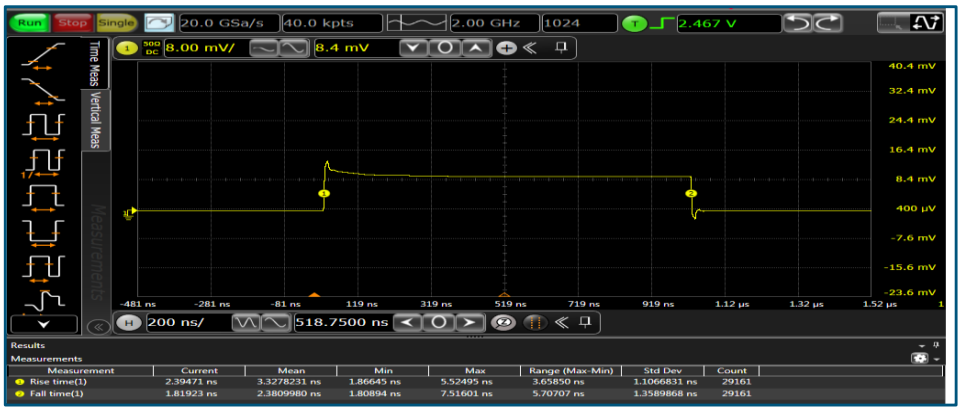
Input Power 0 dBm
1µs PW, 50% Duty Cycle
@ 50Ω Load

Rise time - 2.8 ns
Fall Time - 3.1 ns



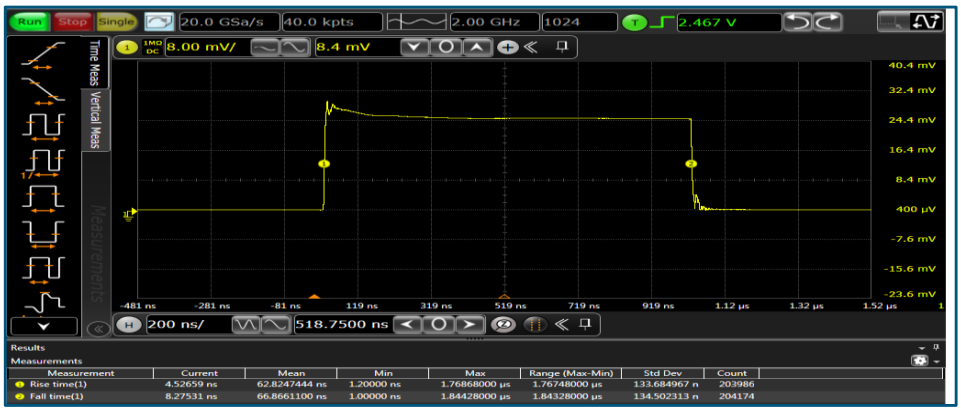
Input Power 0 dBm
1µs PW, 25% Duty Cycle
@ 100Ω Load

Rise time - 2.4 ns
Fall Time - 1.8 ns



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

Rise time - 4.5 ns
Fall Time - 8.3 ns

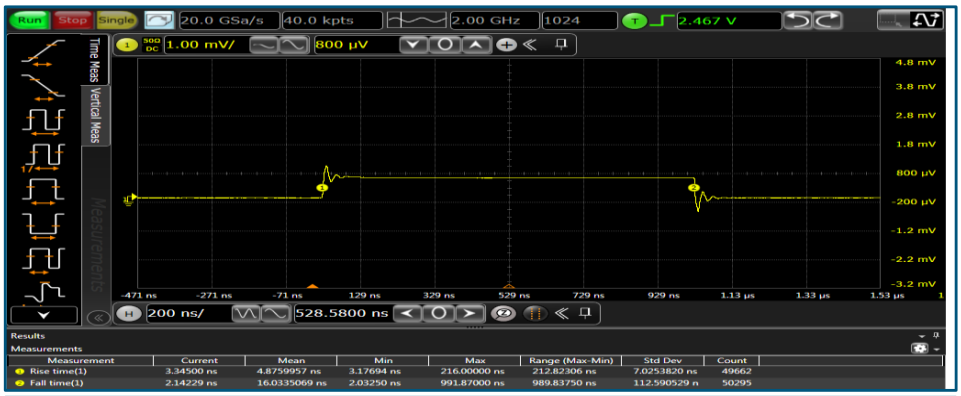


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TYPICAL CHARACTERISTICS ON DD-0R5G18G-POS-MF-ROHS

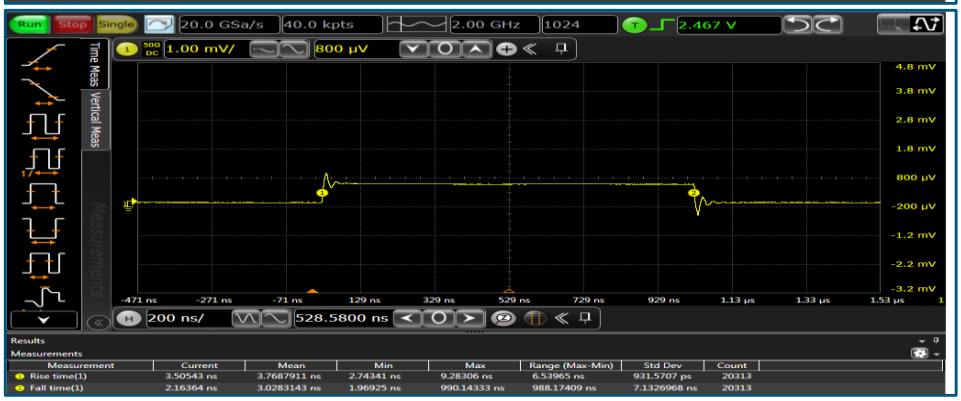
Input Power -5 dBm
1µs PW, 25% Duty Cycle
@ 50Ω Load

Rise time - 3.3 ns
Fall Time - 2.1 ns



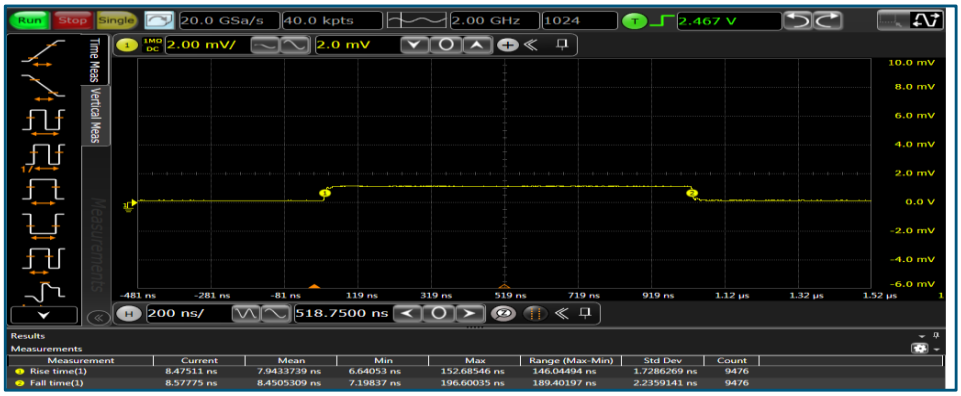
Input Power -5 dBm
1µs PW, 50% Duty Cycle
@ 50Ω Load

Rise time - 3.5 ns
Fall Time - 2.2 ns



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

Rise time - 8.5 ns
Fall Time - 8.6 ns



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

Rise time - 4.8 ns
Fall Time - 2.4 ns

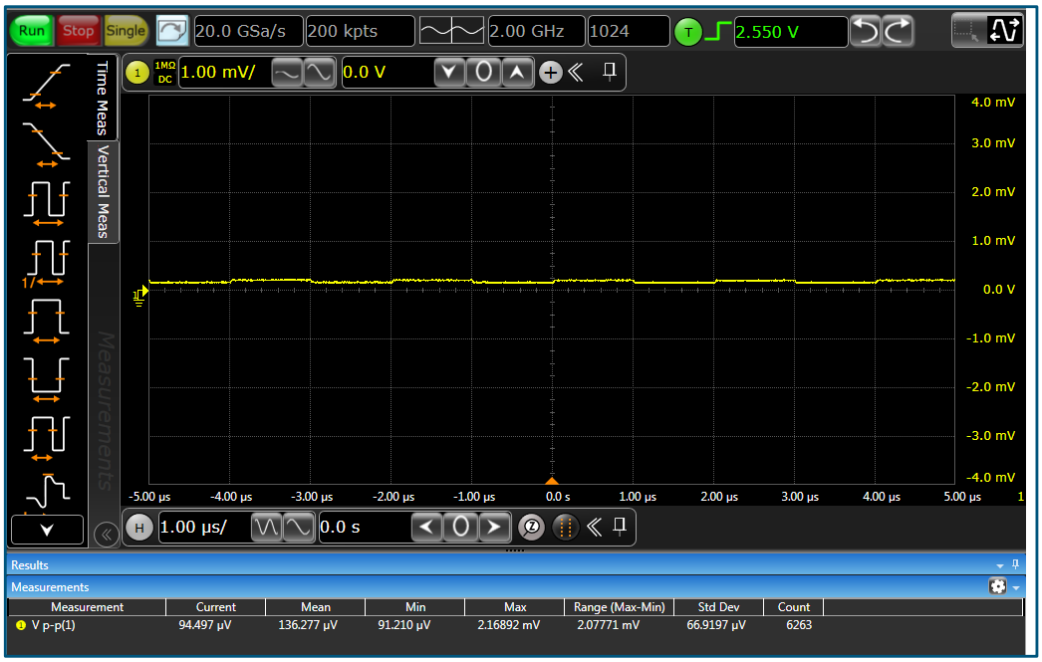


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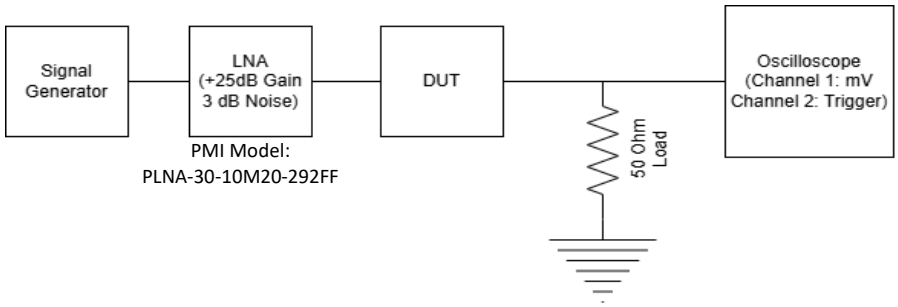
TYPICAL CHARACTERISTICS
ON
DD-0R5G18G-POS-MF-ROHS

Tangential Sensitivity (TSS)

1 µs PW, 50% Duty Cycle
Frequency (0.5 GHz to 18 GHz)
Measured value (-40 dBm)



Block Diagram For TSS Test With 50Ω Load



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