



**TYPICAL CHARACTERISTICS  
ON  
SDLVA-2020-70-108**

**THE SDLVA-2020-70-108 IS A TRULY DC COUPLED SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S) AVAILABLE IN EXTENDED 70/75 dB DYNAMIC RANGE OVER THE RANGE OF 1 TO 8 GHz BANDWIDTH, WITH TRUE DC COUPLING. UNITS EMPLOY PLANAR DIODE DETECTORS AND INTEGRATED VIDEO CIRCUITRY FOR HIGH SPEED PERFORMANCE AND OUTSTANDING RELIABILITY. THE DLVA'S ARE OF SUPERIOR CONTRUCTION USING STATE OF THE ART MIC/MMC TECHNOLOGY. THE SIZE IS 3.0" X 3.5" X 0.5".**



**APRIL 5, 2017**

**DESIGNED BY: PMI ENGINEERING  
TESTED BY: EDD, JOJO, STERLING, SIMON  
REPORTED BY: SIMON KUHN**

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SDLVA-2020-70-108**

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# TYPICAL CHARACTERISTICS ON SDLVA-2020-70-108

## Product Feature & Mechanical Drawing

### DESCRIPTION

THE SDLVA-2020 SERIES OF TRULY DC-COUPLED SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S) ARE AVAILABLE IN EXTENDED 70/75 dB DYNAMIC RANGE OVER THE RANGE OF 1 TO 18 GHz BANDWIDTH, WITH TRUE DC COUPLING. UNITS EMPLOY PLANAR DIODE DETECTORS AND INTEGRATED VIDEO CIRCUITRY FOR HIGH SPEED PERFORMANCE AND OUTSTANDING RELIABILITY. THE DLVA'S ARE OF SUPERIOR CONSTRUCTION USING STATE-OF-THE-ART MIC/MMC TECHNOLOGY. THE SIZE IS 3.0" X 3.5" X 0.5".

### SPECIFICATIONS

- FREQUENCY RANGE: 1.0 TO 8.0 GHz
- FREQUENCY FLATNESS: ±2.5 dB MAXIMUM
- LIMITED RF OUTPUT: 0 dBm MINIMUM
- TSS: -65 dBm MINIMUM
- OUTPUT STABILITY: ±2.5 dB MAXIMUM (0°C TO 60°C)
- VSWR: 2.0:1 (@ -20 dBm)
- LOGGING RANGE: -65 dBm TO +10 dBm
- LOG LINEARITY: ±1.75 dB MAXIMUM (-65 dBm TO +10 dBm)
- LOG SLOPE: 10 mV/dB (±10% TOLERANCE)
- LOG TEMPERATURE STABILITY: ±1.75 dB (0°C TO 60°C)
- RISE TIME: 30 ns MAXIMUM
- RECOVERY TIME: 250 ns MAXIMUM, 150 ns TYPICAL
- OUTPUT VIDEO LOAD: 50 Ω ±10%
- OUTPUT VOLTAGE: 1.00 VDC MAXIMUM
- DC OFFSET UNIT TO UNIT: ±5% MAXIMUM
- POWER SUPPLY: +15 V @ 650 mA MAXIMUM  
-15 V @ 175 mA MAXIMUM
- SIZE: 3.50" (L) x 3.00" (W) x 0.50" (H)
- FINISH: PAINTED BLUE, NO PAINT ON MOUNTING SURFACE, GOLD PLATED

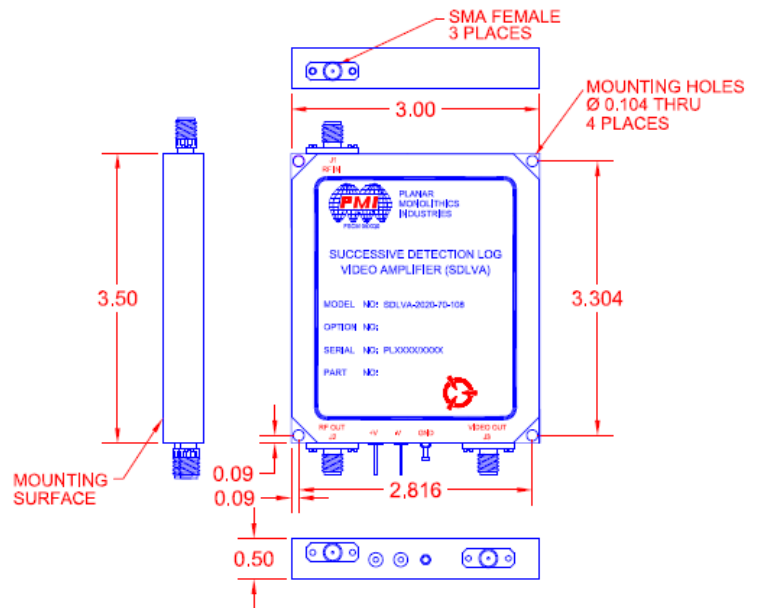
### ENVIRONMENTAL RATINGS

- TEMPERATURE: -55°C TO +85°C (OPERATING)  
-65°C TO +100°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 INCHES  
TOLERANCES:  
X.XXX ±0.020  
X.XXXX ±0.010

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	1	ORIGINAL RELEASE	12/19/16	
	A1	ECN # 17-0059	8/29/17	
	A2	ECN # 22-0092	7/21/22	



### PLANAR MONOLITHICS INDUSTRIES, INC.

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ISO 9001 CERTIFIED



APPROVALS		DATE	TITLE		
DRAWN: JPU		12/19/16	PRODUCT FEATURE SDLVA-2020-70-108		
CHECKED:			1 - 8 GHz, 70/75 dB, TRULY DC-COUPLED SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER		
ISSUED:			SIZE: A	FSM NO. 05XQ0	DWG NO. 27031348
			SCALE: N:S	REV. A2	
					SHEET 1 OF 2



**TYPICAL CHARACTERISTICS  
ON  
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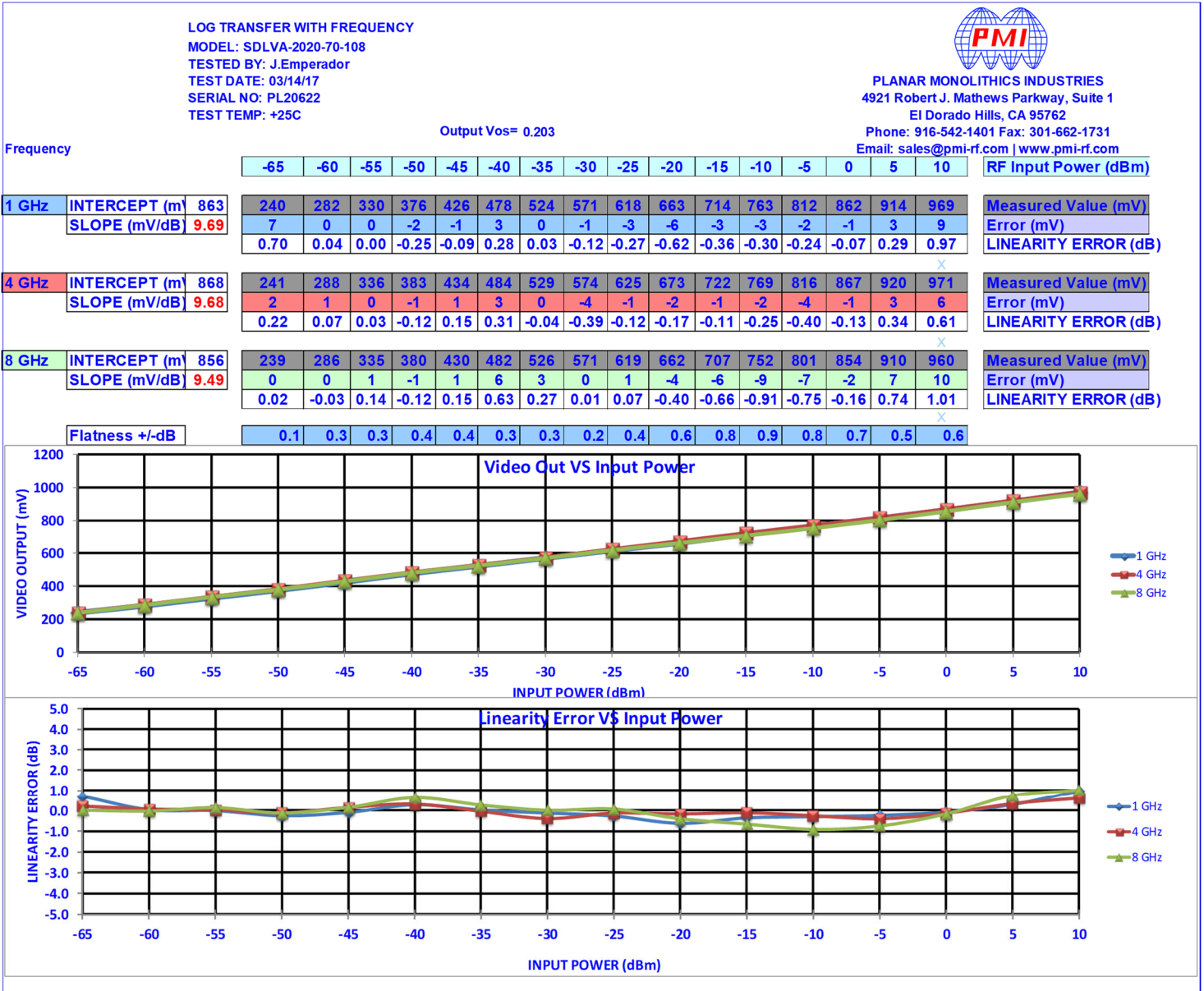
**Tabulated Data**

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range	1.0 GHz to 8.0 GHz	<b>1.0 GHz to 8.0 GHz See Plot</b>	
2	Frequency Flatness	±2.5 dB Max	<b>± 0.8 dB See Plot</b>	
3	Limited RF Output	0 dBm Min	<b>14.49 dBm See Plot</b>	
4	TSS	-65 dBm Min	<b>-66 dBm See Plot</b>	
5	Output Stability	±2.5 dB Max (0°C TO 60°C)	<b>&lt; ±2.5 dB See Plot</b>	
6	VSWR	2.0:1 (@ -20 dBm)	<b>1.74:1 See Plot</b>	
7	Logging Range	-65 dBm to +10 dBm	<b>Pass See Plot</b>	
8	Log Linearity	±1.75 dB Max (-65 dBm TO +10 dBm)	<b>±1.01 dB See Plot</b>	
9	Log Slope	10 mV/dB (±10% Tolerance)	<b>9.49 mV/dB</b>	
10	Log Temperature Stability	±1.75 dB (0°C to 60°C)	<b>±1.01 dB See Plot</b>	
11	Rise Time	30 ns Max	<b>13.5 ns See Plot</b>	
12	Recover Time	250 ns Max, 150 ns Typ	<b>38.5 ns See Plot</b>	
13	Output Video Load:	50Ω ±10%	<b>Pass</b>	
14	Output Voltage:	1.00 VDC Max	<b>&lt; 1 VDC</b>	
15	DC Offset unit to unit	±5% Max	<b>&lt; 5%</b>	
16	Power Supply:	+15V @ 650mA Max -15V @ 175mA Max	<b>540 mA 94 mA</b>	



# TYPICAL CHARACTERISTICS ON SDLVA-2020-70-108

## LOGGING CHARACTERISTICS @+25C





# TYPICAL CHARACTERISTICS ON SDLVA-2020-70-108

## LOGGING CHARACTERISTICS @ 0C

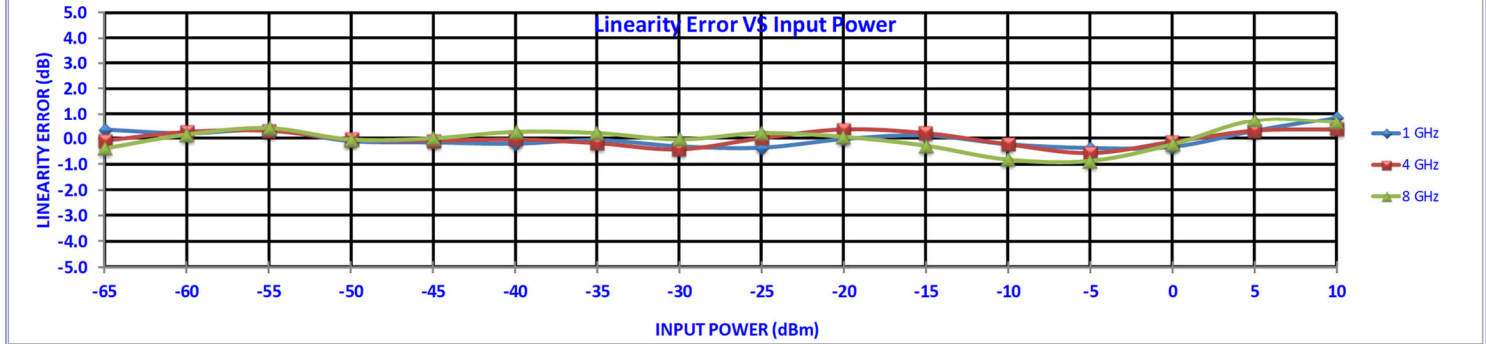
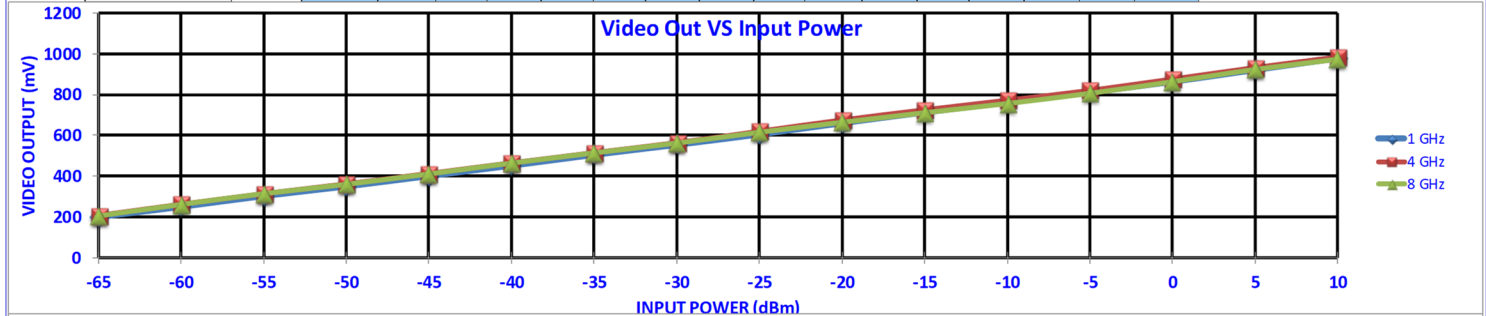
LOG TRANSFER WITH FREQUENCY  
 MODEL: SDLVA-2020-70-108  
 TESTED BY: J.Emperador  
 TEST DATE: 03/14/17  
 SERIAL NO: PL20622  
 TEST TEMP: 0C



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Output Vos= 0.165

Frequency		-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	RF Input Power (dBm)
1 GHz	INTERCEPT (m)	202 252 305 352 403 454 507 556 607 662 715 763 813 865 923 980																Measured Value (mV)
	SLOPE (mV/dB)	4 2 3 -1 -2 -2 -1 -3 -4 0 1 -2 -4 -3 3 9																Error (mV)
		0.35 0.20 0.34 -0.10 -0.15 -0.20 -0.06 -0.31 -0.36 -0.02 0.12 -0.22 -0.37 -0.33 0.30 0.83																LINEARITY ERROR (dB)
4 GHz	INTERCEPT (m)	207 262 314 362 413 465 515 564 620 675 725 772 820 876 932 984																Measured Value (mV)
	SLOPE (mV/dB)	-1 3 3 0 -1 0 -2 -4 0 4 2 -2 -6 -1 3 4																Error (mV)
		-0.09 0.25 0.30 -0.04 -0.09 -0.04 -0.18 -0.42 0.01 0.35 0.21 -0.23 -0.57 -0.13 0.31 0.35																LINEARITY ERROR (dB)
8 GHz	INTERCEPT (m)	205 261 314 360 411 464 514 562 615 664 711 756 806 863 923 973																Measured Value (mV)
	SLOPE (mV/dB)	-4 2 4 0 0 3 2 0 2 1 -3 -8 -9 -2 7 7																Error (mV)
		-0.39 0.15 0.40 -0.04 0.01 0.26 0.21 -0.04 0.21 0.06 -0.28 -0.83 -0.87 -0.23 0.71 0.66																LINEARITY ERROR (dB)
Flatness +/-dB		0.2 0.5 0.4 0.5 0.5 0.5 0.4 0.4 0.6 0.6 0.7 0.8 0.7 0.6 0.4 0.5																





# TYPICAL CHARACTERISTICS ON SDLVA-2020-70-108

## LOGGING CHARACTERISTICS @ +60C

LOG TRANSFER WITH FREQUENCY  
 MODEL: SDLVA-2020-70-108  
 TESTED BY: J.Emperador  
 TEST DATE: 03/14/17  
 SERIAL NO: PL20622  
 TEST TEMP: +60C



PLANAR MONOLITHICS INDUSTRIES  
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Output Vos= 0.227

Frequency

-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	RF Input Power (dBm)
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1 GHz	INTERCEPT (m)	849
	SLOPE (mV/dB)	9.22

256	293	340	385	434	484	528	572	617	658	705	754	801	849	897	948
7	-2	-1	-3	0	4	2	0	-1	-6	-5	-2	-2	0	2	7
0.73	-0.25	-0.16	-0.28	0.04	0.46	0.23	0.00	-0.12	-0.68	-0.58	-0.27	-0.17	0.04	0.24	0.77

Measured Value (mV)
Error (mV)
LINEARITY ERROR (dB)

4 GHz	INTERCEPT (m)	856
	SLOPE (mV/dB)	9.29

256	296	344	390	439	489	531	573	621	666	714	760	807	858	906	952
4	-2	-1	-1	2	5	1	-4	-2	-4	-2	-3	-2	2	4	3
0.48	-0.22	-0.06	-0.11	0.16	0.54	0.06	-0.42	-0.25	-0.41	-0.25	-0.30	-0.24	0.24	0.41	0.36

Measured Value (mV)
Error (mV)
LINEARITY ERROR (dB)

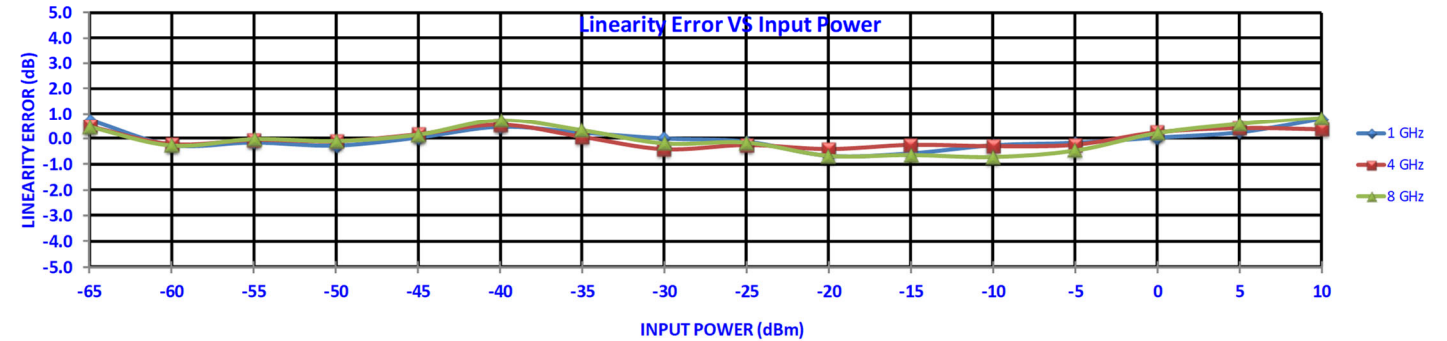
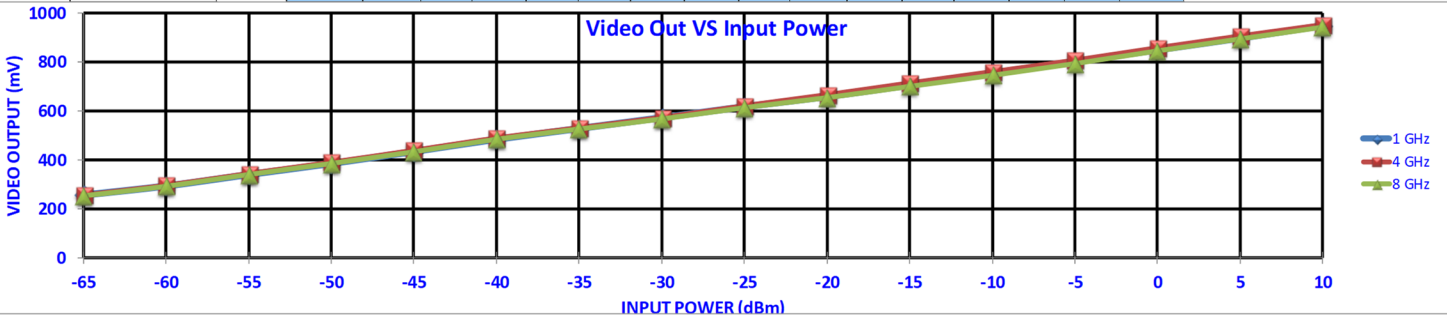
8 GHz	INTERCEPT (m)	843
	SLOPE (mV/dB)	9.14

253	292	340	385	433	484	526	567	613	654	700	745	793	845	894	942
4	-3	0	-1	1	7	3	-2	-1	-6	-6	-7	-4	2	5	8
0.46	-0.28	-0.02	-0.10	0.15	0.73	0.32	-0.19	-0.16	-0.68	-0.65	-0.72	-0.47	0.22	0.58	0.83

Measured Value (mV)
Error (mV)
LINEARITY ERROR (dB)

Flatness +/-dB

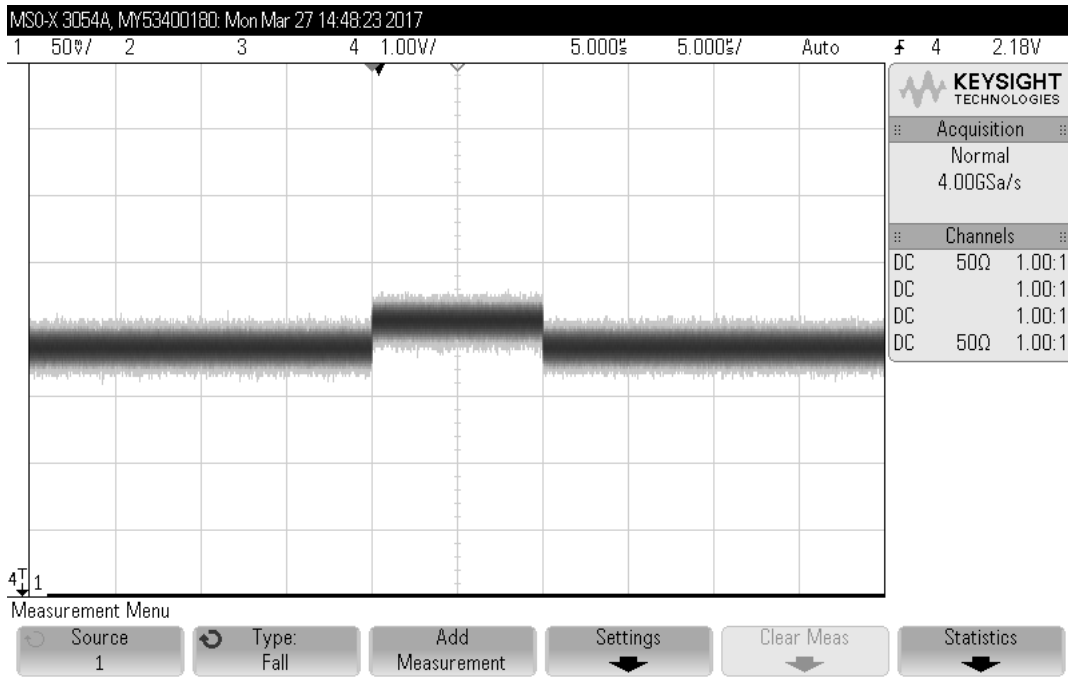
0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.6	0.8	0.8	0.8	0.7	0.6	0.5
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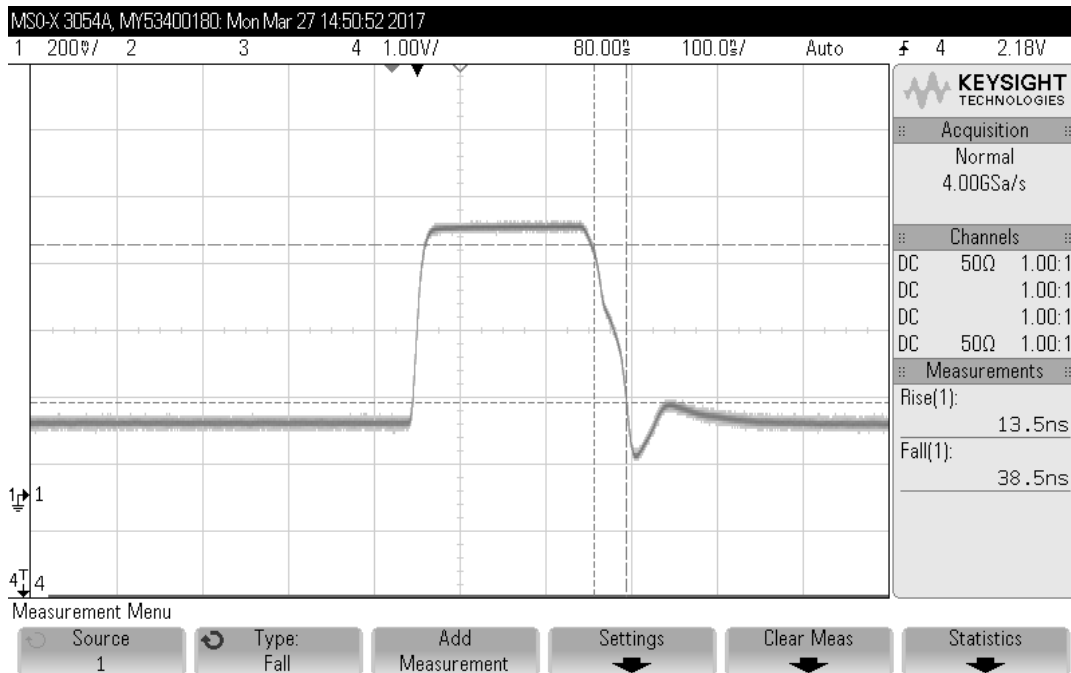


# TYPICAL CHARACTERISTICS ON SDLVA-2020-70-108

## TSS



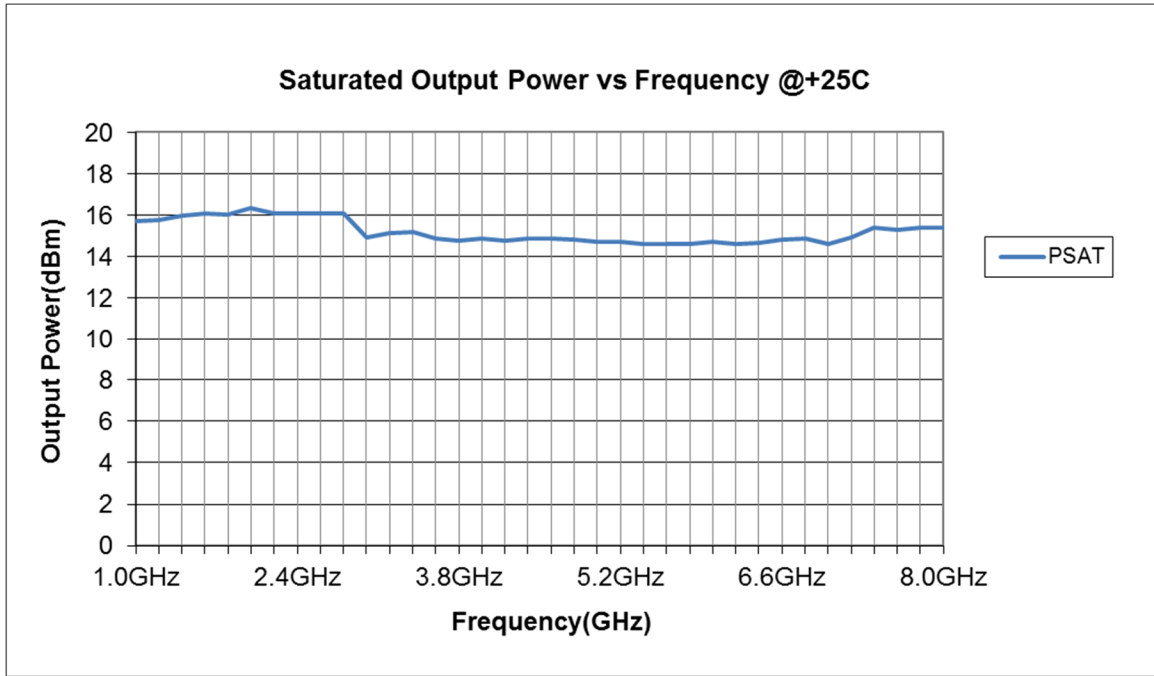
## Rise/Recovery Time





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**RF output**



**VSWR @ -20dbm**

