



**TYPICAL CHARACTERISTICS
ON
SDLVA-2020-70-818**

THE SDLVA-2020-70-818 IS A TRULY DC COUPLED SUCCESSIVE DETECTION LOG VIDEO AMPLIFIERS (SDLVA'S) AVAILABLE IN EXTENDED 70/75 dB DYNAMIC RANGE OVER THE RANGE OF 8 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 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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**TYPICAL CHARACTERISTICS
ON
SDLVA-2020-70-818**

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TYPICAL CHARACTERISTICS ON SDLVA-2020-70-818

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: 8.0 TO 18.0 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 80°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 ($\pm 10\%$ TOLERANCE)
- LOG TEMPERATURE STABILITY: ± 1.75 dB (0°C TO 80°C)
- RISE TIME: 30 ns MAXIMUM
- RECOVERY TIME: 250 ns MAXIMUM, 150 ns TYPICAL
- OUTPUT VIDEO LOAD: 50 Ω $\pm 10\%$
- OUTPUT VOLTAGE: 1.00 VDC MAXIMUM
- DC OFFSET UNIT TO UNIT: $\pm 5\%$ 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

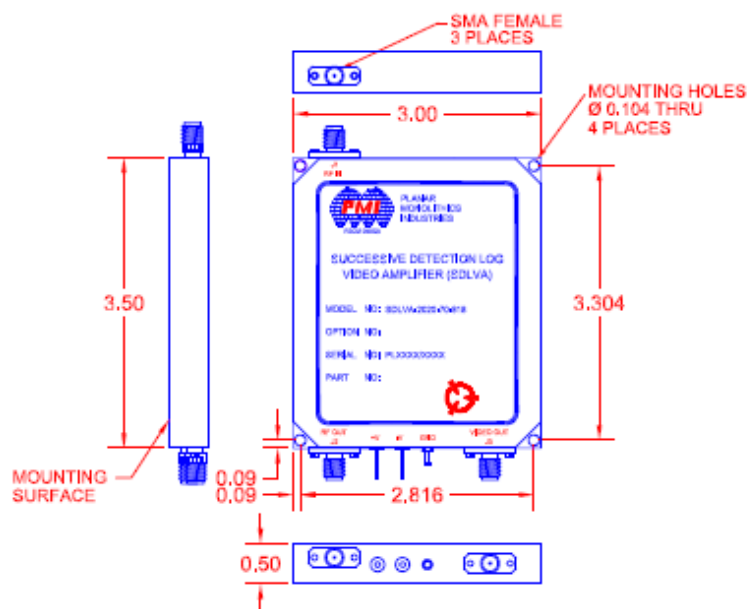
ENVIRONMENTAL RATINGS

- TEMPERATURE: -55°C TO +85°C (OPERATING)
-55°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

NOTES: SPECIFICATIONS WILL VARY OVER OPERATING TEMPERATURE.
NOTES: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION.

ALL DIMENSIONS ARE IN INCHES
TOLERANCES:
XXXX ± 0.010
XXXX ± 0.010

REVISIONS				
DATE	REV.	DESCRIPTION	DATE	APPROVED
	1	ORIGINAL RELEASE	10/15/10	
	A1	ECN # 17-0058	3/29/17	
	A2	ECN # 22-0092	7/21/22	



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ISO 9001 CERTIFIED



APPROVALS		DATE		TITLE	
DRAWN		JPU		PRODUCT FEATURE	
CHECKED		3/20/15		SDLVA-2020-70-818	
REVISED				8 - 18 GHz, 70/75 dB, TRULY DC-COUPLED	
				SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER	
				REV. A2	
				27031366	
				1 OF 2	



TYPICAL CHARACTERISTICS ON SDLVA-2020-70-818

Tabulated Data

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range	8.0 GHz to 18.0 GHz	8.0 GHz to 18.0 GHz See Plot	
2	Frequency Flatness	±2.5 dB Max	±1.0 dB See Plot	
3	Limited RF Output	0 dBm Min	13.3 dBm See Plot	
4	TSS	-65 dBm Min	-68 dBm See Plot	
5	Output Stability	±2.5 dB Max (0°C TO 60°C)	< ±2.5 dB See Plot	
6	VSWR	2.0:1 (@ -20dBm)	1.93:1 See Plot	
7	Logging Range	-65 dBm to +10 dBm	-65 dBm to +10 dBm See Plot	
8	Log Linearity	±1.75 dB Max (-65 dBm TO +10 dBm)	±1.01 dB See Plot	
9	Log Slope	10 mV/dB (±10% Tolerance)	9.38 mV/dB	
10	Log Temperature Stability	±1.75 dB (0°C to 60°C)	±1.27 dB See Plot	
11	Rise Time	30 ns Max	18.37 ns See Plot	
12	Recovery Time	250 ns Max, 150 ns Typ	45.07 ns See Plot	
13	Output Video Load:	50Ω ±10%	Pass	
14	Output Voltage:	1.00 VDC Max	< 1 VDC	
15	DC Offset unit to unit	±5% Max	< 5%	
16	Power Supply:	+15V @ 650mA Max -15V @ 175mA Max	544mA 92mA	



TYPICAL CHARACTERISTICS ON SDLVA-2020-70-818

LOGGING CHARACTERISTICS @+25C

LOG TRANSFER WITH FREQUENCY
MODEL: SDLVA-2020-70-818
TESTED BY: J.Emperador
TEST DATE: 03/06/17
SERIAL NO: PL20568
TEST TEMP: +25C

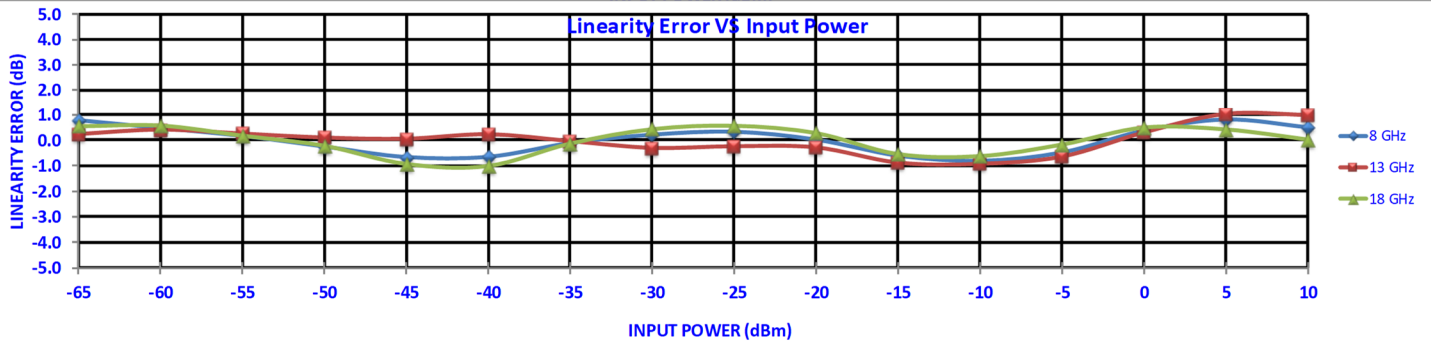
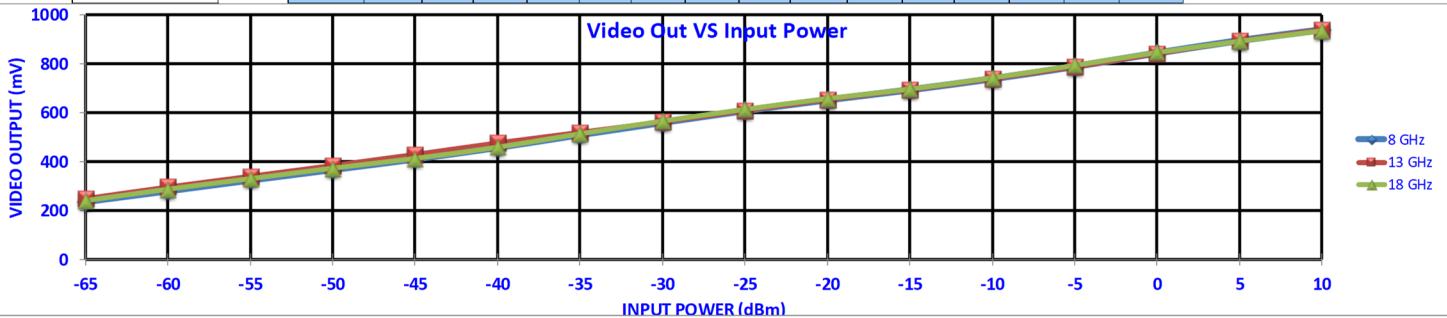


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Frequency

Output Vos= 0.192

		-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	RF Input Power (dBm)
8 GHz	INTERCEPT (mV)	237	281	325	368	411	458	510	560	608	652	693	738	788	843	894	938	Measured Value (mV)
	SLOPE (mV/dB)	7	4	2	-2	-6	-6	-1	2	3	0	-6	-8	-5	3	8	5	Error (mV)
		0.78	0.47	0.16	-0.26	-0.67	-0.66	-0.12	0.21	0.32	0.01	-0.62	-0.82	-0.49	0.37	0.81	0.50	LINEARITY ERROR (dB)
13 GHz	INTERCEPT (mV)	249	296	340	384	429	476	519	562	608	653	693	738	786	840	892	937	Measured Value (mV)
	SLOPE (mV/dB)	2	4	2	1	0	2	-1	-3	-2	-3	-8	-9	-6	3	9	9	Error (mV)
		0.22	0.39	0.24	0.08	0.04	0.21	-0.06	-0.32	-0.26	-0.30	-0.90	-0.94	-0.66	0.29	1.01	0.96	LINEARITY ERROR (dB)
18 GHz	INTERCEPT (mV)	240	287	330	373	413	459	514	566	614	658	697	743	794	847	893	936	Measured Value (mV)
	SLOPE (mV/dB)	5	5	2	-2	-9	-9	-1	4	5	3	-5	-6	-2	5	4	0	Error (mV)
		0.56	0.59	0.19	-0.21	-0.93	-1.01	-0.12	0.44	0.58	0.28	-0.54	-0.62	-0.16	0.51	0.43	0.03	LINEARITY ERROR (dB)
Flatness +/-dB		0.7	0.8	0.8	0.9	1	1	0.5	0.3	0.3	0.3	0.2	0.3	0.4	0.4	0.1	0.1	





TYPICAL CHARACTERISTICS ON SDLVA-2020-70-818

LOGGING CHARACTERISTICS @ 0C

LOG TRANSFER WITH FREQUENCY
MODEL: SDLVA-2020-70-818
TESTED BY: J.Emperador
TEST DATE: 03/06/17
SERIAL NO: PL20568
TEST TEMP: 0C

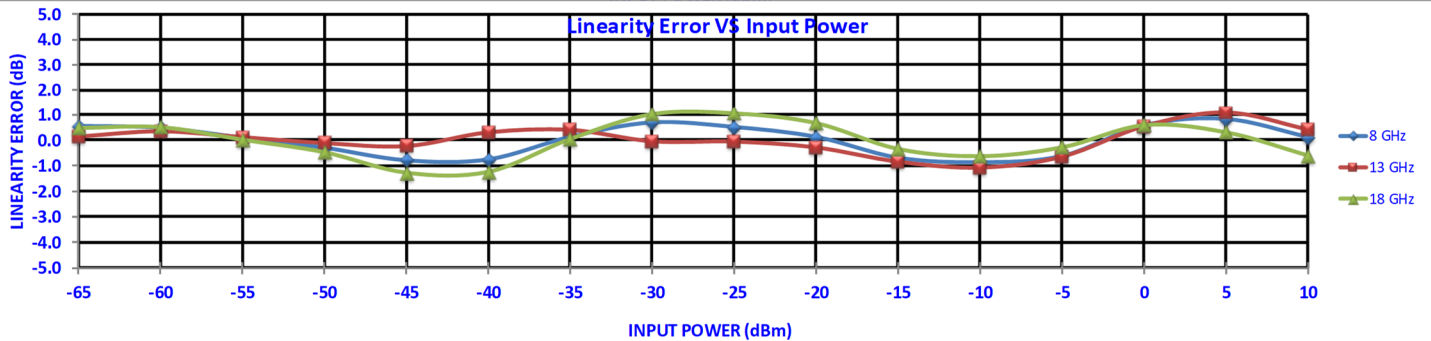
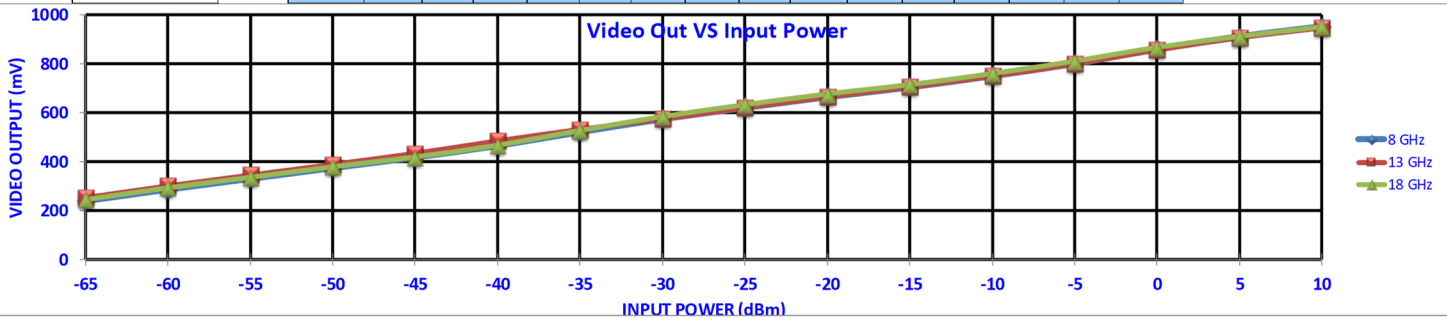


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Frequency

Output Vos = 0.189

		-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	RF Input Power (dBm)
8 GHz	INTERCEPT (mV)	239	286	330	374	417	465	521	574	620	664	704	750	800	859	909	950	Measured Value (mV)
	SLOPE (mV/dB)	5	5	1	-3	-8	-7	1	6	5	1	-7	-8	-6	5	8	1	Error (mV)
		0.54	0.47	0.09	-0.30	-0.79	-0.75	0.12	0.68	0.50	0.12	-0.69	-0.86	-0.62	0.57	0.81	0.11	LINEARITY ERROR (dB)
13 GHz	INTERCEPT (mV)	253	301	345	389	434	485	532	574	620	664	705	749	799	856	907	947	Measured Value (mV)
	SLOPE (mV/dB)	1	3	1	-1	-2	3	4	0	-1	-3	-8	-10	-6	5	10	4	Error (mV)
		0.13	0.34	0.11	-0.12	-0.23	0.30	0.40	-0.05	-0.06	-0.29	-0.84	-1.07	-0.64	0.54	1.07	0.41	LINEARITY ERROR (dB)
18 GHz	INTERCEPT (mV)	244	292	335	378	418	466	526	583	631	675	713	758	809	865	910	949	Measured Value (mV)
	SLOPE (mV/dB)	5	5	0	-4	-12	-12	1	10	10	6	-3	-6	-3	6	3	-6	Error (mV)
		0.49	0.52	0.03	-0.46	-1.27	-1.24	0.06	1.03	1.06	0.68	-0.34	-0.62	-0.27	0.60	0.32	-0.59	LINEARITY ERROR (dB)
Flatness +/-dB		0.8	0.8	0.8	0.8	0.9	1.1	0.6	0.5	0.6	0.6	0.5	0.5	0.5	0.5	0.2	0.2	





TYPICAL CHARACTERISTICS ON SDLVA-2020-70-818

LOGGING CHARACTERISTICS @ +60C

LOG TRANSFER WITH FREQUENCY
MODEL: SDLVA-2020-70-818
TESTED BY: J.Emperador
TEST DATE: 03/06/17
SERIAL NO: PL20568
TEST TEMP: +60C

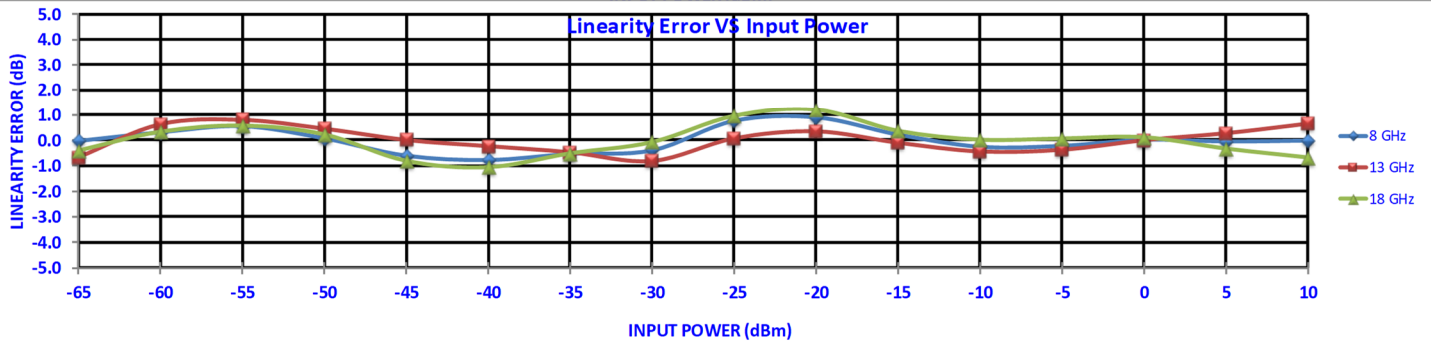
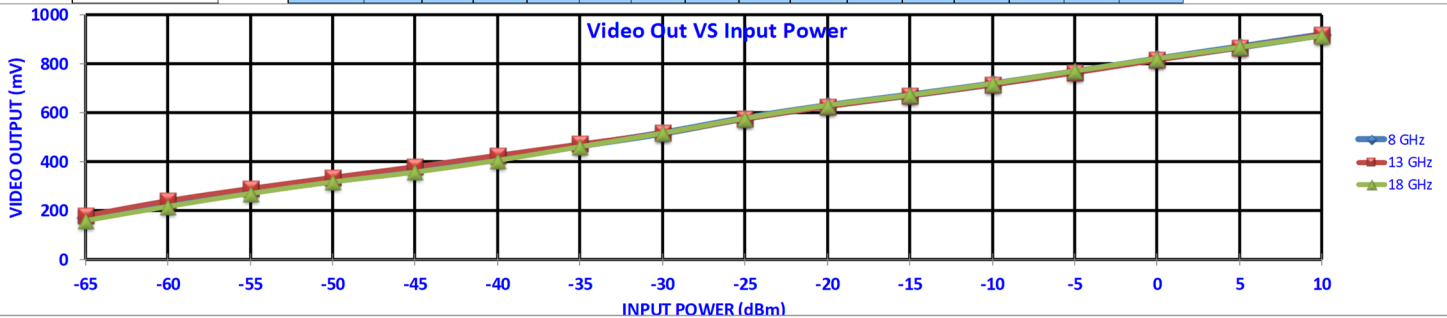


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Frequency

Output Vos= 0.14

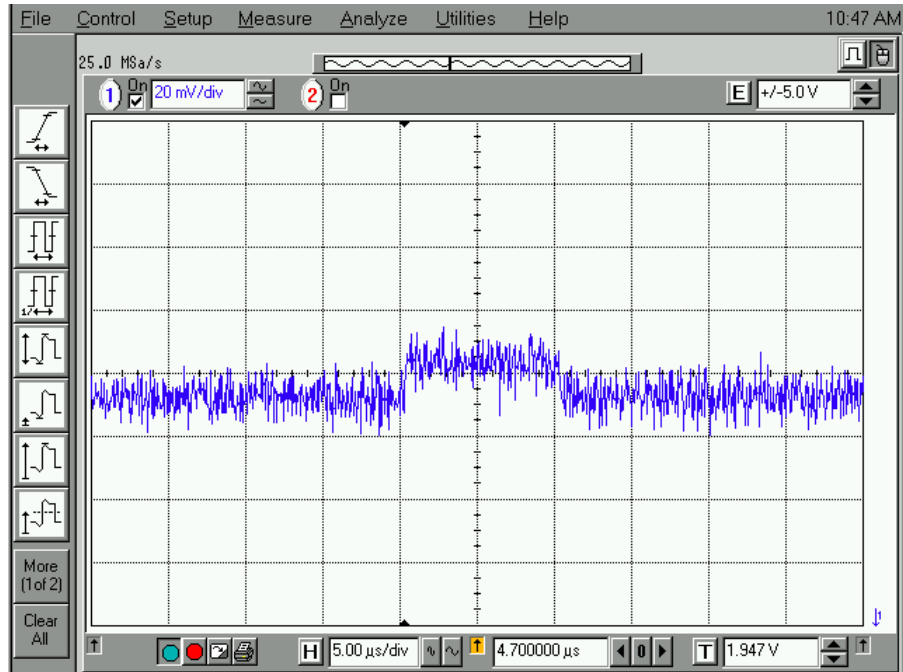
		-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	RF Input Power (dBm)
8 GHz	INTERCEPT (mV)	172	225	277	322	365	413	465	516	577	628	671	716	766	818	867	917	Measured Value (mV)
	SLOPE (mV/dB)	0	3	5	1	-6	-8	-5	-4	7	9	2	-2	-2	0	0	0	Error (mV)
		-0.03	0.31	0.54	0.08	-0.59	-0.76	-0.52	-0.39	0.75	0.89	0.22	-0.25	-0.21	0.02	-0.04	-0.01	LINEARITY ERROR (dB)
		X																
13 GHz	INTERCEPT (mV)	180	241	291	336	380	426	472	517	574	625	669	714	763	815	866	918	Measured Value (mV)
	SLOPE (mV/dB)	-7	6	8	4	0	-2	-5	-8	1	3	-1	-4	-4	0	3	6	Error (mV)
		-0.69	0.62	0.79	0.45	0.00	-0.24	-0.48	-0.83	0.07	0.34	-0.11	-0.45	-0.38	-0.01	0.27	0.65	LINEARITY ERROR (dB)
		X																
18 GHz	INTERCEPT (mV)	159	217	270	317	357	405	461	516	577	630	672	719	770	821	867	914	Measured Value (mV)
	SLOPE (mV/dB)	-4	3	6	2	-8	-11	-5	-1	10	12	4	0	1	1	-3	-7	Error (mV)
		-0.41	0.33	0.58	0.23	-0.81	-1.06	-0.52	-0.07	0.96	1.21	0.37	0.02	0.07	0.12	-0.33	-0.68	LINEARITY ERROR (dB)
		X																
Flatness +/-dB		1.1	1.2	1.1	1	1.2	1.1	0.6	0.1	0.2	0.3	0.2	0.3	0.4	0.3	0.1	0.2	



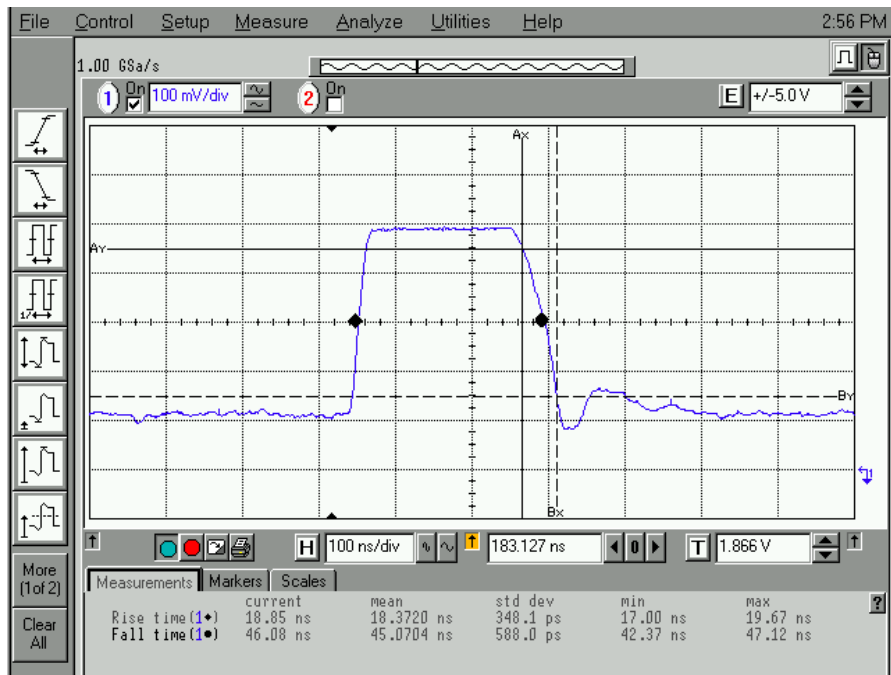


TYPICAL CHARACTERISTICS ON SDLVA-2020-70-818

TSS



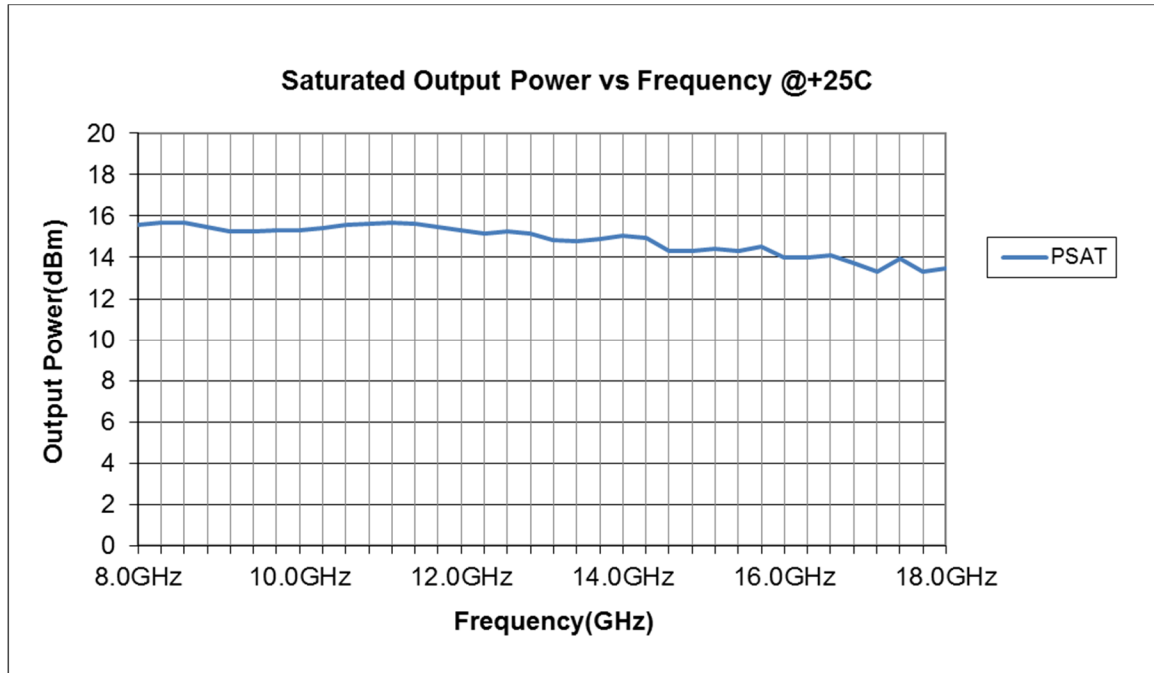
Rise/Recovery Time





TYPICAL CHARACTERISTICS
ON
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RF output



VSWR @ -20dbm

