



**TYPICAL CHARACTERISTICS  
ON  
SDLVA-0120-70-CONDOR**

**THE MODEL SDLVA-0120-70-CONDOR IS A SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA) THAT OPERATES BETWEEN THE 750 TO 1250 MHz FREQUENCY RANGE. IT HAS A DYNAMIC RANGE OF 70dB MINIMUM AND A TSS OF -65 dBm. FURTHERMORE, IT HAS BEEN DESIGNED TO PROVIDER STUNNING PERFORMANCE AND RELIABILITY IN A COMPACT PACKAGE MAKING IT AN OPTIMUM SOLUTION FOR HIGH SPEED CHANNELIZED RECIEVER APPLICATIONS. THIS UNIT OFFERS A MAXIMUM FAST RISE TIME OF  $\leq 25$ nsec AND RAPID FALL TIME OD  $\leq 30$  nsec.**



**March 19, 2015**

**Designed by: Dave Durbin  
Tested by: Steve Baughman  
Reported by: Harold Holvick**



## TYPICAL CHARACTERISTICS ON SDLVA-0120-70-CONDOR

### DESCRIPTION

THE MODEL SDLVA-0120-70-CONDOR IS A SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA) THAT OPERATES BETWEEN THE 750 TO 1250 MHz FREQUENCY RANGE. IT HAS A DYNAMIC RANGE OF 70 dB MINIMUM AND A TSS OF -65 dBm. FURTHERMORE, IT HAS BEEN DESIGNED TO PROVIDE STUNNING PERFORMANCE AND RELIABILITY IN A COMPACT PACKAGE MAKING IT AN OPTIMUM SOLUTION FOR HIGH SPEED CHANNELIZED RECEIVER APPLICATIONS. THIS UNIT OFFERS A MAXIMUM FAST RISE TIME OF  $\leq 25$  nsec AND A RAPID FALL TIME OF  $\leq 30$  nsec

### SPECIFICATIONS

- FREQUENCY RANGE: 750 MHz TO 1250 MHz
- DYNAMIC RANGE: 70 dBm MINIMUM, 75 dB TYPICAL
- LOG LINEARITY:  $\pm 2.5$  dB MAXIMUM @ 1 GHz
- MINIMUM LOGGING RANGE: -60 dBm Min, -65 dBm Typ
- MAXIMUM LOGGING RANGE: +5 dBm Min, +8 dBm Typ
- VSWR INPUT: Input: 1.8:1 Max, Output: 2.5:1 Max
- TANGENTIAL SENSITIVITY: -65 dBm Min, -70 dBm Typ
- LIMITED IF OUTPUT: -6 dBm Nominal,  $\pm 2.5$  dB Max
- MAXIMUM RF INPUT POWER: +10 dBm
- LOG VIDEO OUTPUT:
  - OUTPUT COUPLING: DC
  - MAXIMUM OUTPUT VOLTAGE: 2.7 VOLTS
  - RISE TIME: 25 nsec Max
  - FALL TIME: 30 nsec Max
  - SETTLING TIME: 40 nsec Max
  - DC OFFSET: 0.1 V NOMINAL (ADJUSTABLE)
  - SLOPE: 25 mV/dB Nominal,  $\pm 5$  mV/dB
  - LOG SLOPE VARIATION WITH FREQUENCY:  $\pm 0.5$  mV/dB TYPICAL (OVER 80 MHz RF BANDWIDTH)
  - LOG SLOPE VARIATION WITH TEMPERATURE:  $\pm 1$  mV/dB TYPICAL
  - PROPAGATION DELAY: 7 nsec Typ, 10 nsec Max
  - VIDEO LOAD: 100 $\Omega$   $\pm 10\%$
- DC POWER SUPPLY:
  - +V: +10 TO +16.5V @ 200 mA MAX\*
  - V: -10 TO -16.5V @ 200 mA MAX
  - \*NOTE: DO NOT SUPPLY +V WITHOUT -V SUPPLIED AS WELL AS THIS MAY DESTROY THE UNIT
- SIZE: 3.75" x 1.50" x 0.50"
- FINISH: MOUNTING SURFACE (BOTTOM) FREE OF PAINT, GRAY EPOXY POLIMIDE COATING IAW MIL-C-22750, TYPE I OVER EPOXY POLIMIDE PRIMER IAW MIL-P-23377, TYPE I, CLASS 1 OR 3.

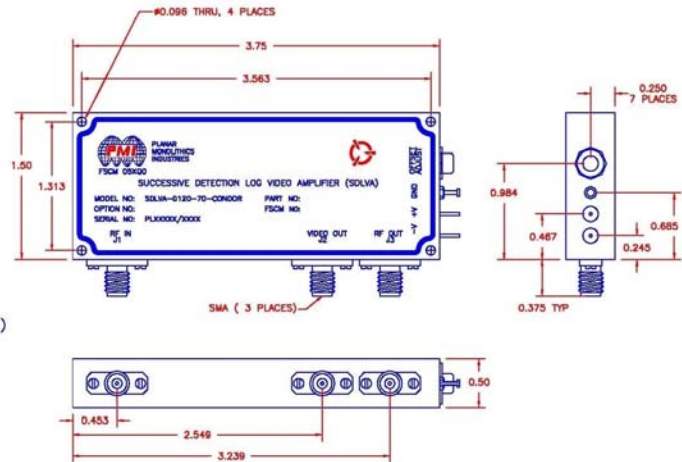
### ENVIRONMENTAL RATINGS

- TEMPERATURE: -55°C TO +85°C (OPERATING)  
-65°C TO +100°C (STORAGE)
- HUMIDITY: MIL-STD-202F, METHOD 103B COND. B
- SHOCK: MIL-STD-202F, METHOD 213B COND. B
- VIBRATION: MIL-STD-202F, METHOD 204D COND. B
- ALTITUDE: MIL-STD-202F, METHOD 105C COND. B
- TEMPERATURE CYCLE: MIL-STD-202F, 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.XX  $\pm 0.020$   
X.XXX  $\pm 0.010$   
WEIGHT: 2.75 oz.

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	01/31/14	



PMI CONFIDENTIAL AND PROPRIETARY

### PLANAR MONOLITHICS INDUSTRIES, INC.

7311-F GROVE ROAD  
FREDERICK, MARYLAND 21704 USA  
TEL: 301-662-5019 FAX: 301-662-1731  
WEBSITE: [www.pmi-rf.com](http://www.pmi-rf.com)  
E-MAIL: [sales@pmi-rf.com](mailto:sales@pmi-rf.com)  
ISO 9001 CERTIFIED



APPROVALS		DATE	TITLE	
DESIGN	<i>ylk</i>	01/31/14	PRODUCT FEATURE	
CHECKED			SDLVA-0120-70-CONDOR	
ISSUED			750 TO 1250 MHz, SUCCESSIVE DETECTOR LOG VIDEO AMPLIFIER	
			SIZE FSCM NO.	DWG NO.
			A 05XQ0	27008411
			SCALE N:S	REV. A1
				SHEET 1 OF 3

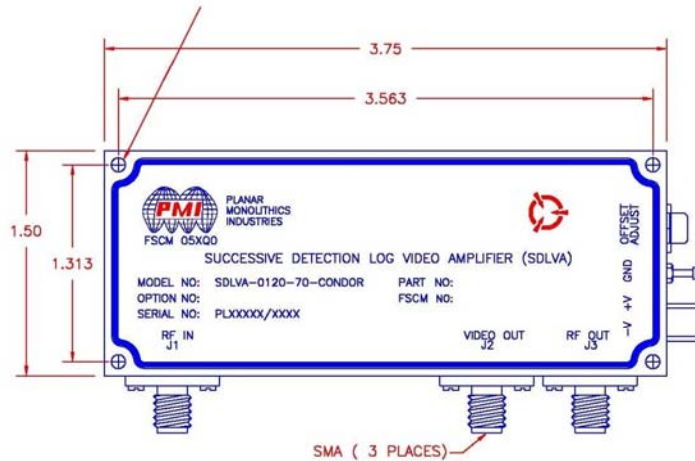


## TYPICAL CHARACTERISTICS ON SDLVA-0120-70-CONDOR

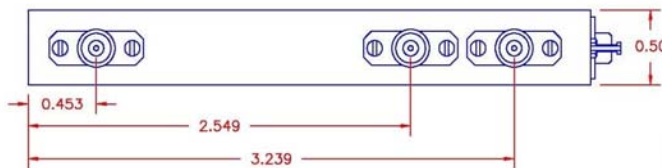
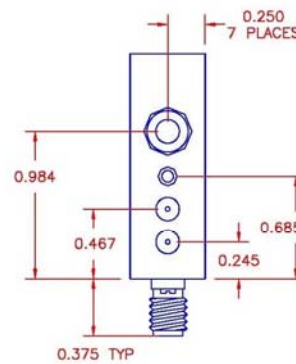
### DESCRIPTION

THE MODEL SDLVA-0120-70-CONDOR IS A SUCCESSIVE DETECTION LOG VIDEO AMPLIFIER (SDLVA) THAT OPERATES BETWEEN THE 750 TO 1250 MHz FREQUENCY RANGE. IT HAS A DYNAMIC RANGE OF 70 dB MINIMUM AND A TSS OF -65 dBm. FURTHERMORE, IT HAS BEEN DESIGNED TO PROVIDE STUNNING PERFORMANCE AND RELIABILITY IN A COMPACT PACKAGE MAKING IT AN OPTIMUM SOLUTION FOR HIGH SPEED CHANNELIZED RECEIVER APPLICATIONS. THIS UNIT OFFERS A MAXIMUM FAST RISE TIME OF  $\leq 25$  nsec AND A RAPID FALL TIME OF  $\leq 30$  nsec

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	01/21/14	



### MECHANICAL OUTLINE



ALL DIMENSIONS ARE IN INCHES  
TOLERANCES:  
X.XX ±0.020  
X.XXX ±0.010  
WEIGHT: 2.75 oz.

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APPROVALS		DATE	TITLE	
DESIGN	<i>ph</i>	01/21/14	PRODUCT FEATURE	
CHECKED			SDLVA-0120-70-CONDOR	
ISSUED			750 TO 1250 MHz, SUCCESSIVE DETECTOR LOG VIDEO AMPLIFIER	
			SIZE: FSCM NO. A 05XQ0	DWG NO. 27008411
			SCALE: N:S	REV. A1
				SHEET 2 OF 3

7311-F Grove Road Frederick, MD 21704 USA Phone: (301)662-5019 Fax: (301)662-1731  
Email: [sales@pmi-rf.com](mailto:sales@pmi-rf.com)



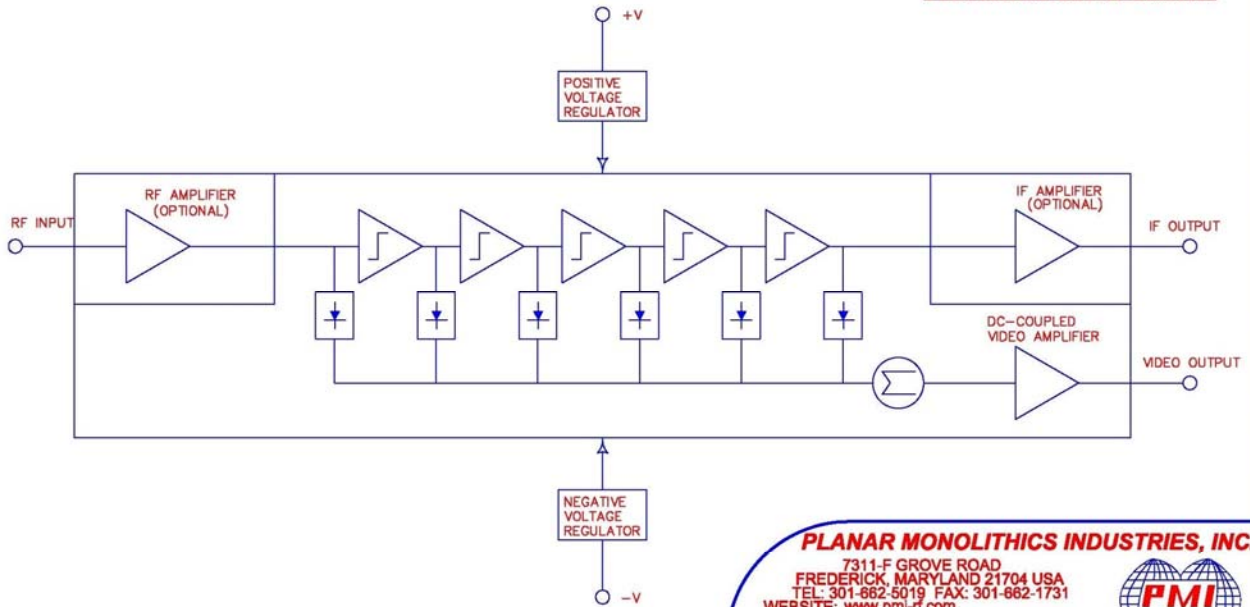
# TYPICAL CHARACTERISTICS ON SDLVA-0120-70-CONDOR

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REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A1	ORIGINAL RELEASE	01/31/14	

### FUNCTIONAL BLOCK DIAGRAM



**PLANAR MONOLITHICS INDUSTRIES, INC.**  
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 TOLERANCES:  
 .X.XX ±0.020  
 .X.XXX ±0.010  
 WEIGHT: 2.75 oz.

APPROVALS		DATE	TITLE		
DRAWN	<i>afk</i>	01/31/14	PRODUCT FEATURE		
CHECKED			SDLVA-0120-70-CONDOR		
ISSUED			750 TO 1250 MHz, SUCCESSIVE DETECTOR LOG VIDEO AMPLIFIER		
			SIZE	FIG. NO.	DWG. NO.
			A	05XQ0	27008411
			SCALE	N:S	SHEET 3 OF 3
					REV. A1



**TYPICAL CHARACTERISTICS  
ON  
SDLVA-0120-70-CONDOR**

TEST ITEM NO:	PARAMETERS	SPECIFIED VALUE	MEASURED VALUE	QA/QC
1	FREQUENCY RANGE:	750 MHz TO 1250 MHz	<b>750 MHz TO 1250 MHz</b> See Plot	
2	DYNAMIC RANGE:	70 dB MINIMUM, 75 dB TYPICAL	<b>&gt;70 dB</b>	
3	LOG LINEARITY:	±2.5 dB MAXIMUM @ 1 GHz	<b>+0.46 dB</b> <b>-0.40 dB</b> See Plot	
4	MINIMUM LOGGING RANGE:	-60 dBm MINIMUM, -65 dBm TYPICAL	<b>&lt;-60 dBm</b>	
5	MAXIMUM LOGGING RANGE:	+5 dBm MINIMUM +8 dBm TYPICAL	<b>&gt;+5 dBm</b>	
6	VSWR:	1.8:1 MAX (INPUT) 2.5:1 MAX (OUTPUT)	<b>1.70 :1</b> <b>1.25 :1</b> See Plot	
7	TANGENTIAL SENSITIVITY:	-65 dBm MINIMUM, -70 dBm TYPICAL	<b>-71.5 dBm</b>	
8	LIMITED IF OUTPUT:	-6 dBm NOMINAL, ±2.5 db MAXIMUM	<b>-4 dBm</b>	
9	MAXIMUM RF INPUT POWER:	+10 dBm	<b>PASS</b>	
10	OUTPUT COUPLING:	DC	<b>PASS</b>	
11	MAXIMUM OUTPUT VOLTAGE:	2.7 VOLTS	<b>2.0 V</b>	
12	RISE TIME:	25 ns MAXIMUM	<b>19.3 ns</b>	
13	FALL TIME:	30 ns MAXIMUM	<b>22.2 ns</b>	
14	SETTLING TIME:	40 ns MAXIMUM	<b>8 ns</b>	



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<b>15</b>	DC OFFSET:	0.1 V NOMINAL (ADJUSTABLE)	<b>PASS</b>	
<b>16</b>	SLOPE:	25 mV/dB NOMINAL $\pm 5$ mV/dB	<b>25.6 mV/dB</b>	
<b>17</b>	LOG SLOPE VARIATION WITH FREQUENCY:	$\pm 0.5$ mV/dB TYPICAL (OVER 80 MHz RF BANDWIDTH)	<b>0.5 mV/dB</b>	
<b>18</b>	LOG SLOPE VARIATION WITH TEMPERATURE:	$\pm 1$ mV/dB TYPICAL	<b>0.4 mV/dB</b>	
<b>19</b>	PROPAGATION DELAY:	7 ns TYPICAL, 10 ns MAXIMUM	<b>7 ns</b>	
<b>20</b>	VIDEO LOAD:	$100 \Omega \pm 10\%$	<b>PASS</b>	
<b>21</b>	DC POWER SUPPLY :	+10V TO +16.5V @ 200mA MAX*  -10V TO -16.5V @ 200mA MAX	<b>126.1mA</b>  <b>113.2 mA</b>	

**\*NOTE: DO NOT SUPPLY +V WITHOUT -V SUPPLIED AS WELL AS THIS MAY DESTROY  
THE UNIT**



# TYPICAL CHARACTERISTICS ON SDLVA-0120-70-CONDOR

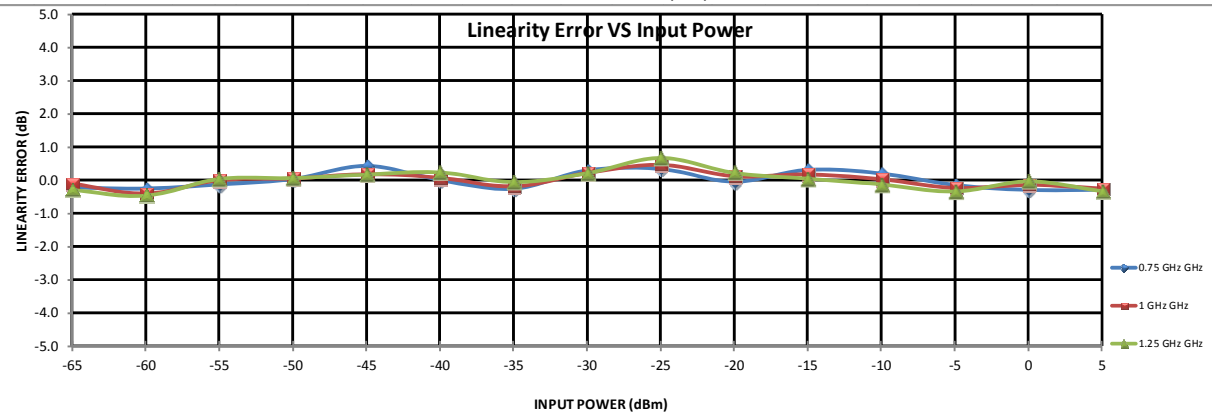
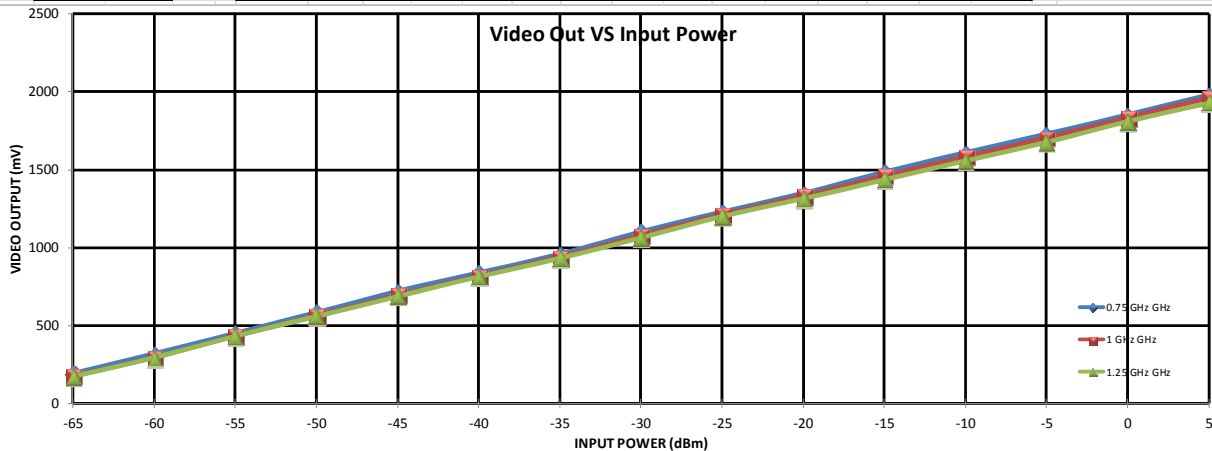
## TYPICAL TRANSFER FUNCTION @ 25°C

LOG TRANSFER WITH FREQUENCY  
 MODEL: SDLVA-0120-70-CONDOR  
 TESTED BY: S.Baughman  
 TEST DATE: 03/16/2014  
 SERIAL NO: PL16792  
 TEST TEMP: +25C



PLANAR MONOLITHICS INDUSTRIES  
 7311-F GROVE ROAD, FREDERICK, MD  
 21704 USA  
 TEL: 301-662-5019 FAX: 301-662-1731  
 URL: WWW.PMI-RF.COM

Frequency		-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	RF Input Power (dBm)
0.75 GHz	INTERCEPT (mV)	1855															Measured Value (mV)
	SLOPE (mV/dB)	25.6															Error (mV)
																	LINEARITY ERROR (dB)
1 GHz	INTERCEPT (mV)	1839															Measured Value (mV)
	SLOPE (mV/dB)	25.5															Error (mV)
																	LINEARITY ERROR (dB)
1.25 GHz	INTERCEPT (mV)	1811															Measured Value (mV)
	SLOPE (mV/dB)	25.1															Error (mV)
																	LINEARITY ERROR (dB)
Flatness +/-dB		0.3	0.4	0.2	0.4	0.5	0.4	0.4	0.6	0.5	0.5	0.8	0.9	0.9	0.7	0.9	





# TYPICAL CHARACTERISTICS ON SDLVA-0120-70-CONDOR

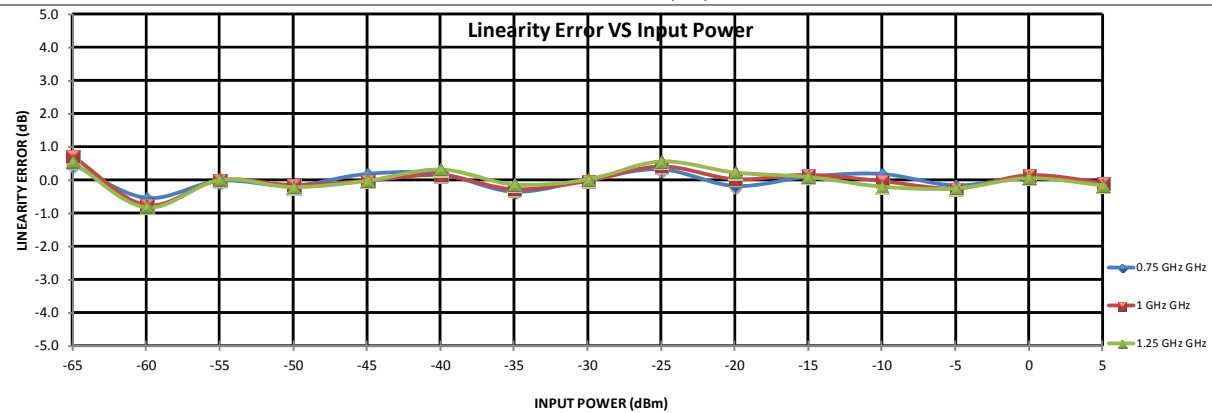
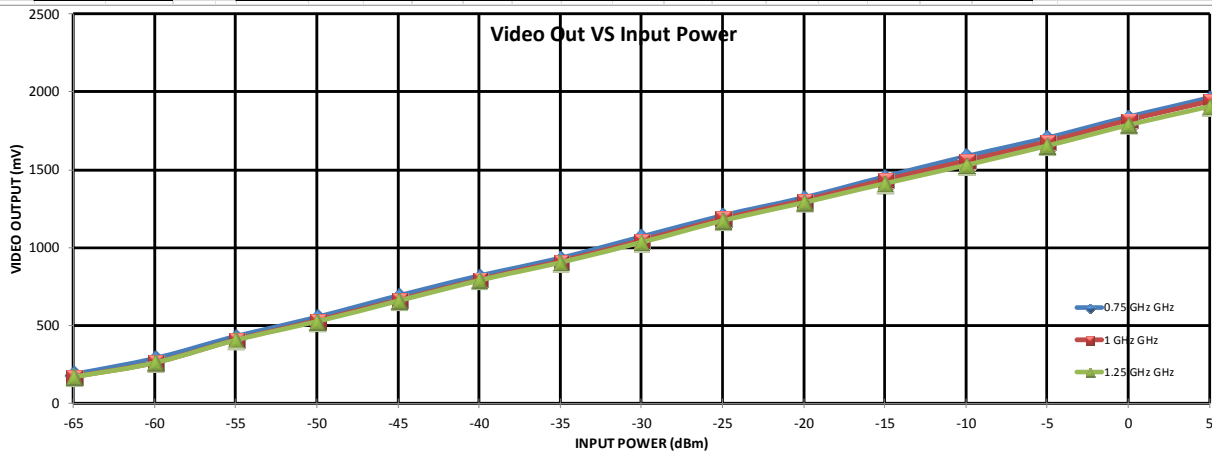
## TYPICAL TRANSFER FUNCTION @ 85°C

LOG TRANSFER WITH FREQUENCY  
 MODEL: SDLVA-0120-70-CONDOR  
 TESTED BY: S.Baughman  
 TEST DATE: 03/16/2014  
 SERIAL NO: PL16792  
 TEST TEMP: +85C



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 7311-F GROVE ROAD, FREDERICK, MD  
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Frequency		-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	RF Input Power (dBm)
0.75 GHz	INTERCEPT (mV)	181	283	424	548	685	813	927	1064	1200	1315	1450	1580	1699	1833	1956	Measured Value (mV)
	SLOPE (mV/dB)	12	-14	-1	-4	5	5	-9	0	8	-5	3	5	-4	2	-3	Error (mV)
		0.47	-0.54	-0.02	-0.17	0.18	0.19	-0.35	0.01	0.32	-0.18	0.10	0.18	-0.16	0.08	-0.11	LINEARITY ERROR (dB)
1 GHz	INTERCEPT (mV)	172	262	409	533	664	796	913	1047	1186	1304	1435	1558	1680	1818	1940	Measured Value (mV)
	SLOPE (mV/dB)	18	-19	0	-4	-1	4	-7	-1	10	1	4	-1	-7	4	-2	Error (mV)
		0.72	-0.76	0.00	-0.15	-0.02	0.14	-0.28	-0.03	0.41	0.03	0.16	-0.03	-0.26	0.15	-0.08	LINEARITY ERROR (dB)
1.25 GHz	INTERCEPT (mV)	170	261	407	527	657	791	905	1034	1173	1290	1412	1530	1654	1787	1907	Measured Value (mV)
	SLOPE (mV/dB)	14	-21	0	-5	-1	8	-3	0	14	6	2	-5	-6	1	-4	Error (mV)
		0.54	-0.82	0.00	-0.21	-0.03	0.32	-0.13	0.01	0.56	0.23	0.09	-0.20	-0.25	0.05	-0.16	LINEARITY ERROR (dB)
Flatness +/-dB		0.2	0.4	0.3	0.4	0.5	0.4	0.4	0.6	0.5	0.5	0.7	1	0.9	0.9	1	







# TYPICAL CHARACTERISTICS ON SDLVA-0120-70-CONDOR

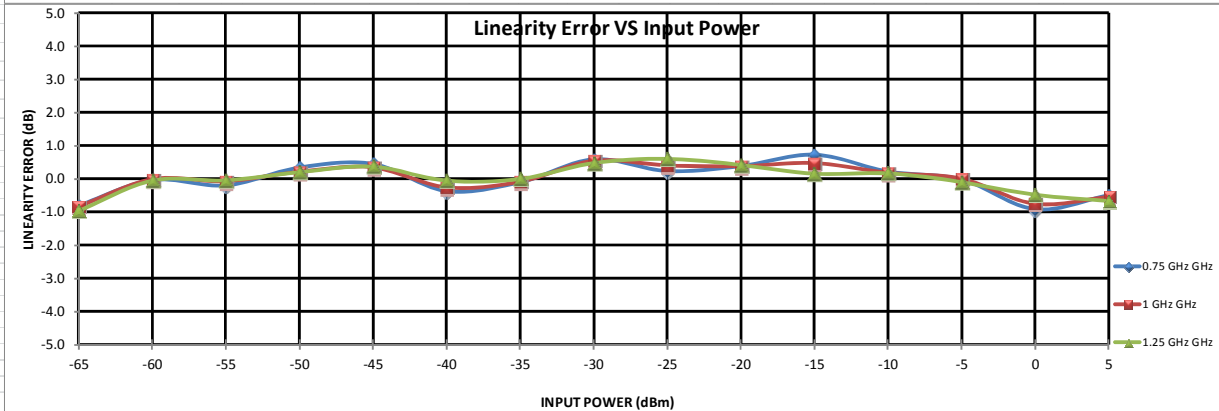
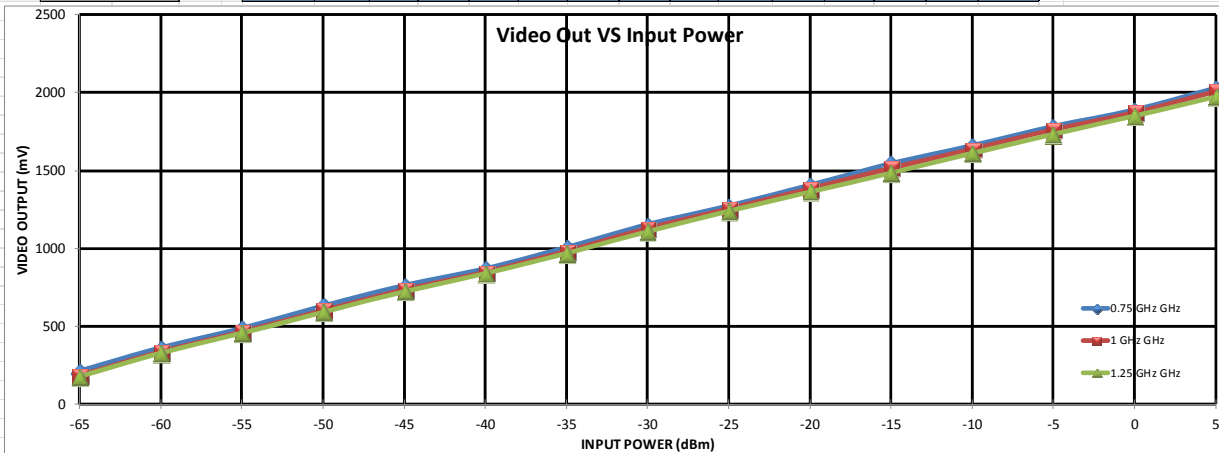
## TYPICAL TRANSFER FUNCTION @ -55°C

LOG TRANSFER WITH FREQUENCY  
MODEL: SDLVA-0120-70-CONDOR  
TESTED BY: S.Baughman  
TEST DATE: 03/16/2014  
SERIAL NO: PL16792  
TEST TEMP: -55C



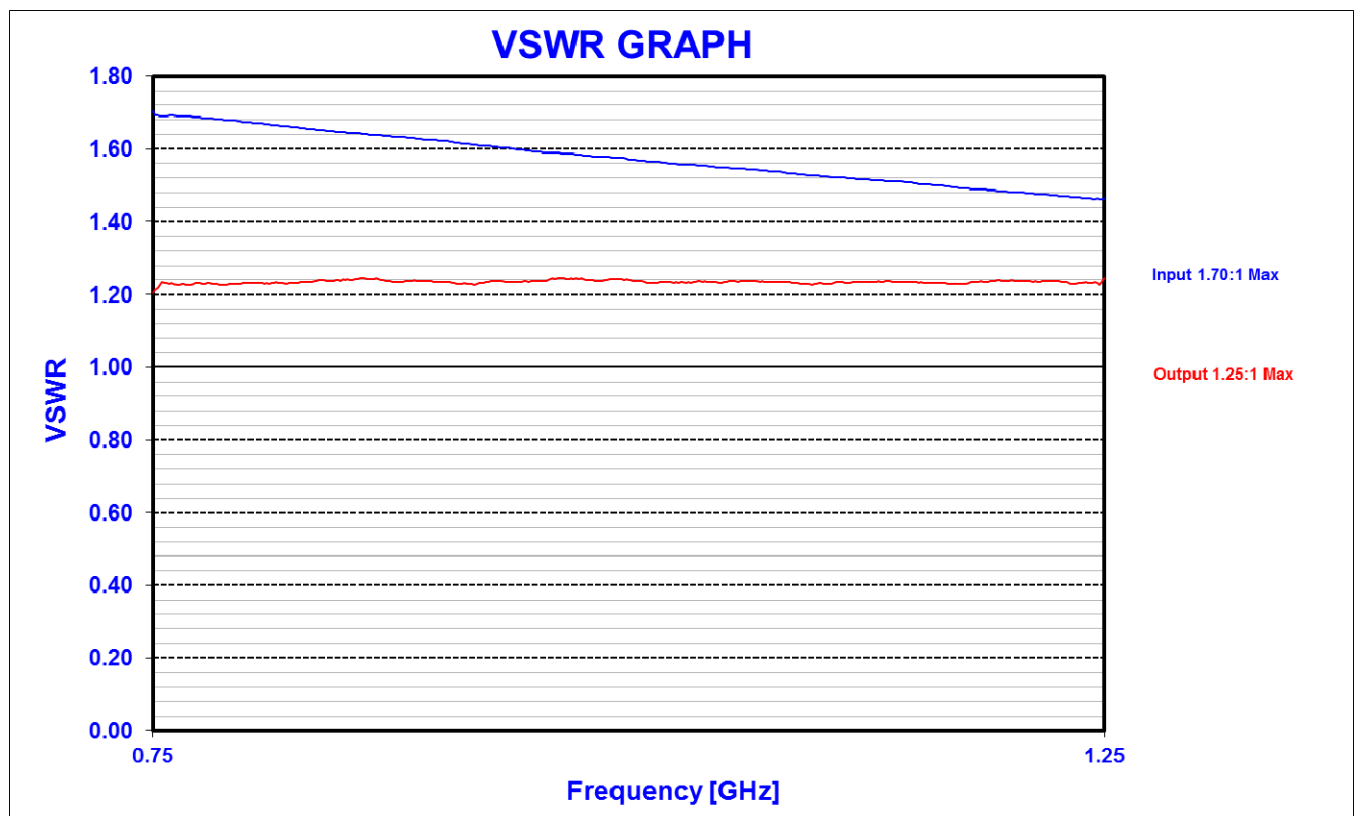
PLANAR MONOLITHICS INDUSTRIES  
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21704 USA  
TEL: 301-662-5019 FAX: 301-662-1731  
URL: WWW.PMI-RF.COM

Frequency		-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	-10	-5	0	5	RF Input Power (dBm)	
0.75 GHz	INTERCEPT (mV)	1908																Measured Value (mV)
	SLOPE (mV/dB)	25.8																Error (mV)
			-0.81	-0.04	-0.20	0.34	0.45	-0.37	-0.10	0.59	0.23	0.38	0.73	0.22	-0.02	-0.92	-0.49	LINEARITY ERROR (dB)
1 GHz	INTERCEPT (mV)	1892																Measured Value (mV)
	SLOPE (mV/dB)	25.9																Error (mV)
			-0.83	-0.01	-0.07	0.21	0.35	-0.26	-0.09	0.55	0.41	0.38	0.48	0.18	0.00	-0.75	-0.54	LINEARITY ERROR (dB)
1.25 GHz	INTERCEPT (mV)	1863																Measured Value (mV)
	SLOPE (mV/dB)	25.5																Error (mV)
			-0.97	-0.06	-0.05	0.20	0.37	-0.05	0.00	0.47	0.60	0.42	0.15	0.16	-0.10	-0.48	-0.67	LINEARITY ERROR (dB)
Flatness +/-dB		0.6	0.5	0.5	0.7	0.7	0.5	0.6	0.8	0.5	0.7	1.1	0.8	0.9	0.6	1		





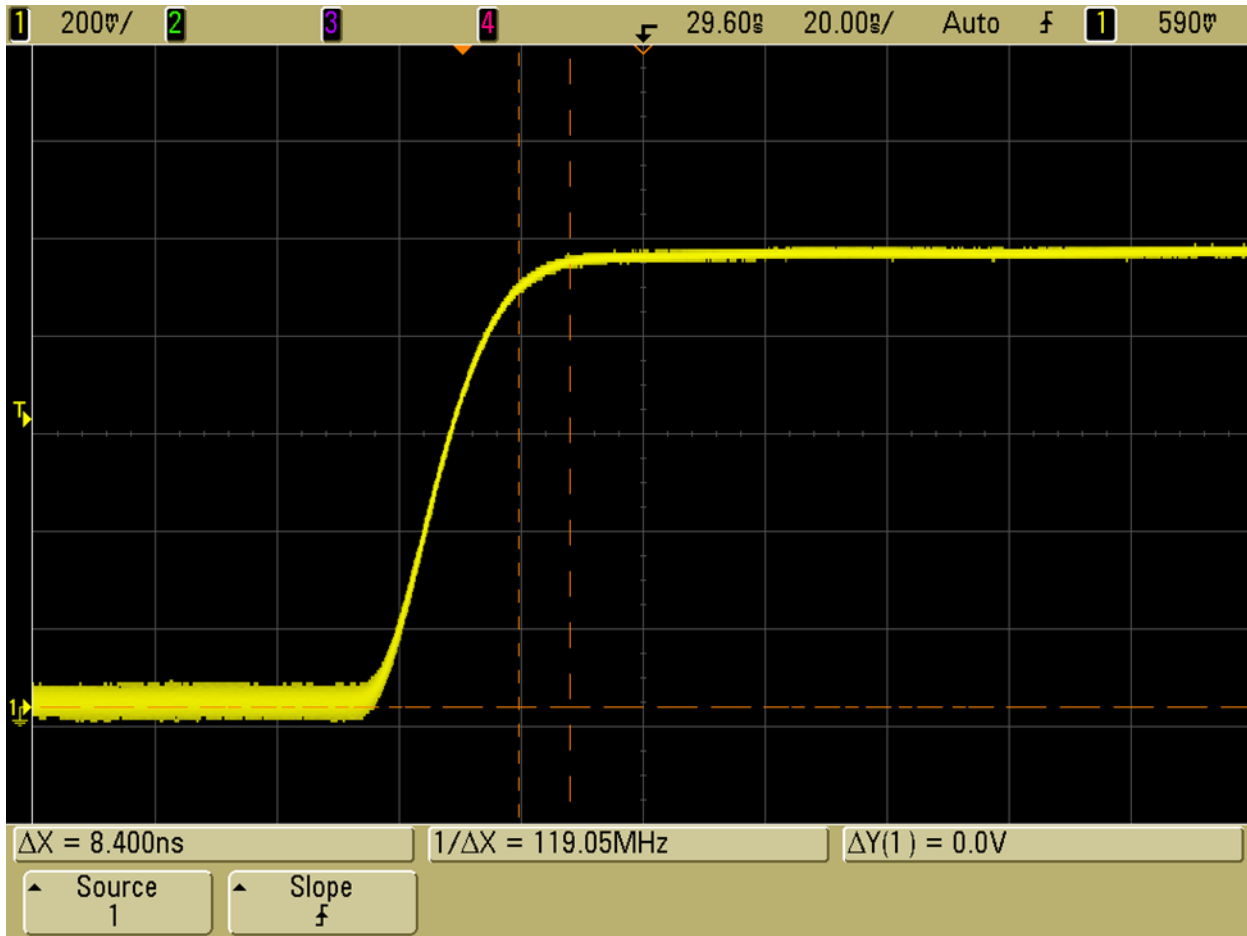
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TYPICAL CHARACTERISTICS  
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Settling Time On @ -30 dBm

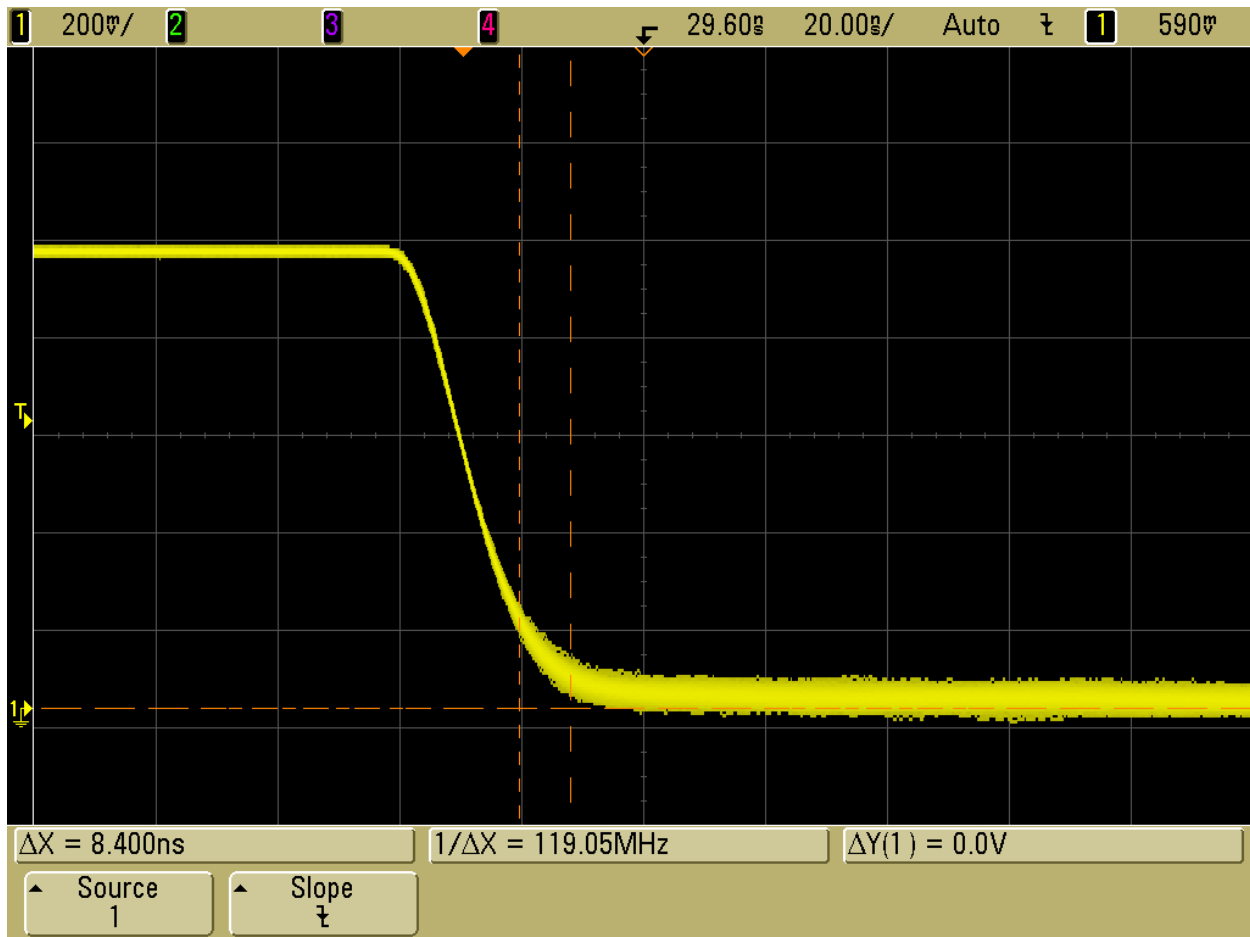


There is no overshoot on the signal, therefore the time shown is the time after the slewing rate to within 1 dB of the final value.



TYPICAL CHARACTERISTICS  
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Settling Time Off @ -30 dBm

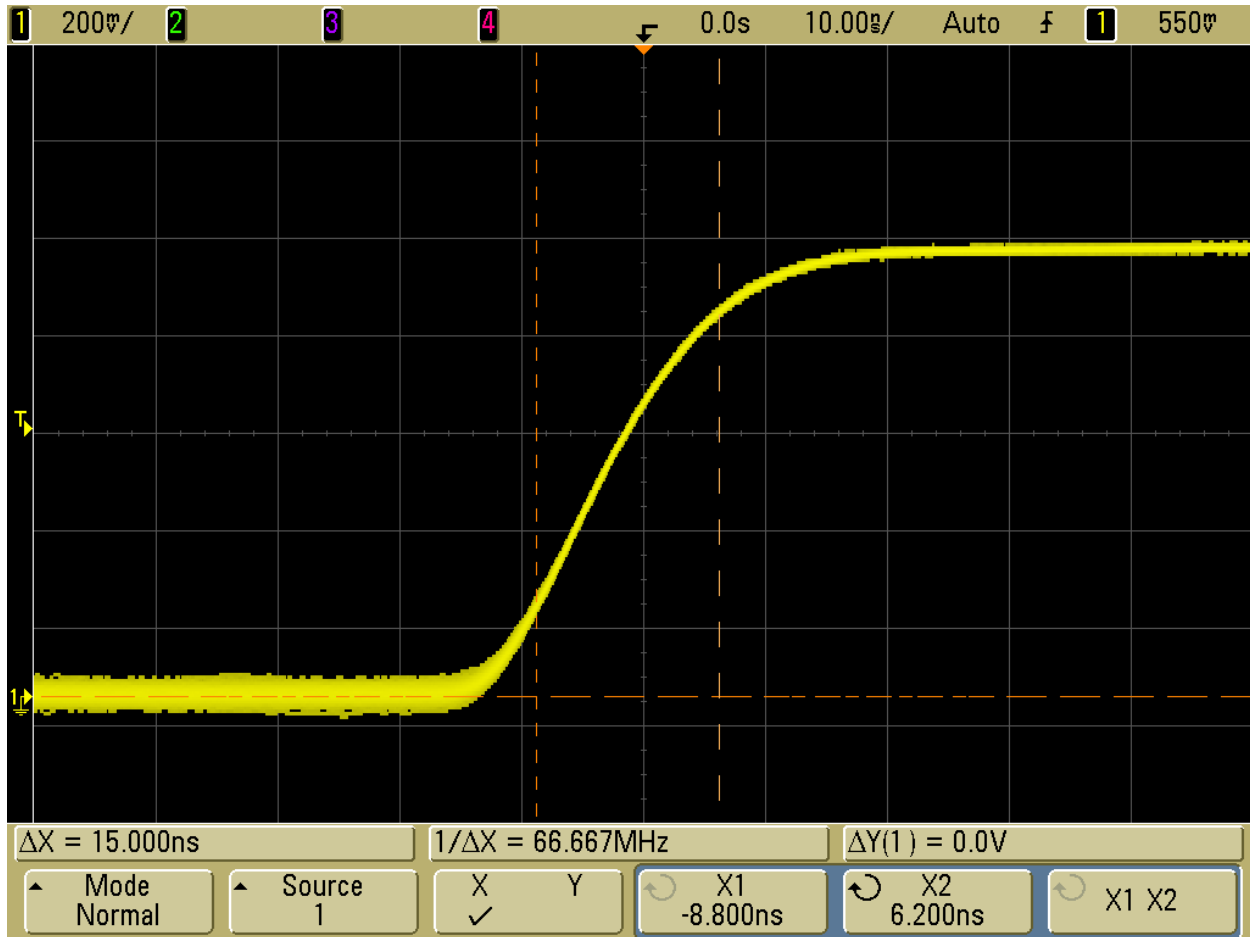


There is no overshoot on the signal, therefore the time shown is the time after the slewing rate to within 1 dB of the final value.



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SDLVA-0120-70-CONDOR

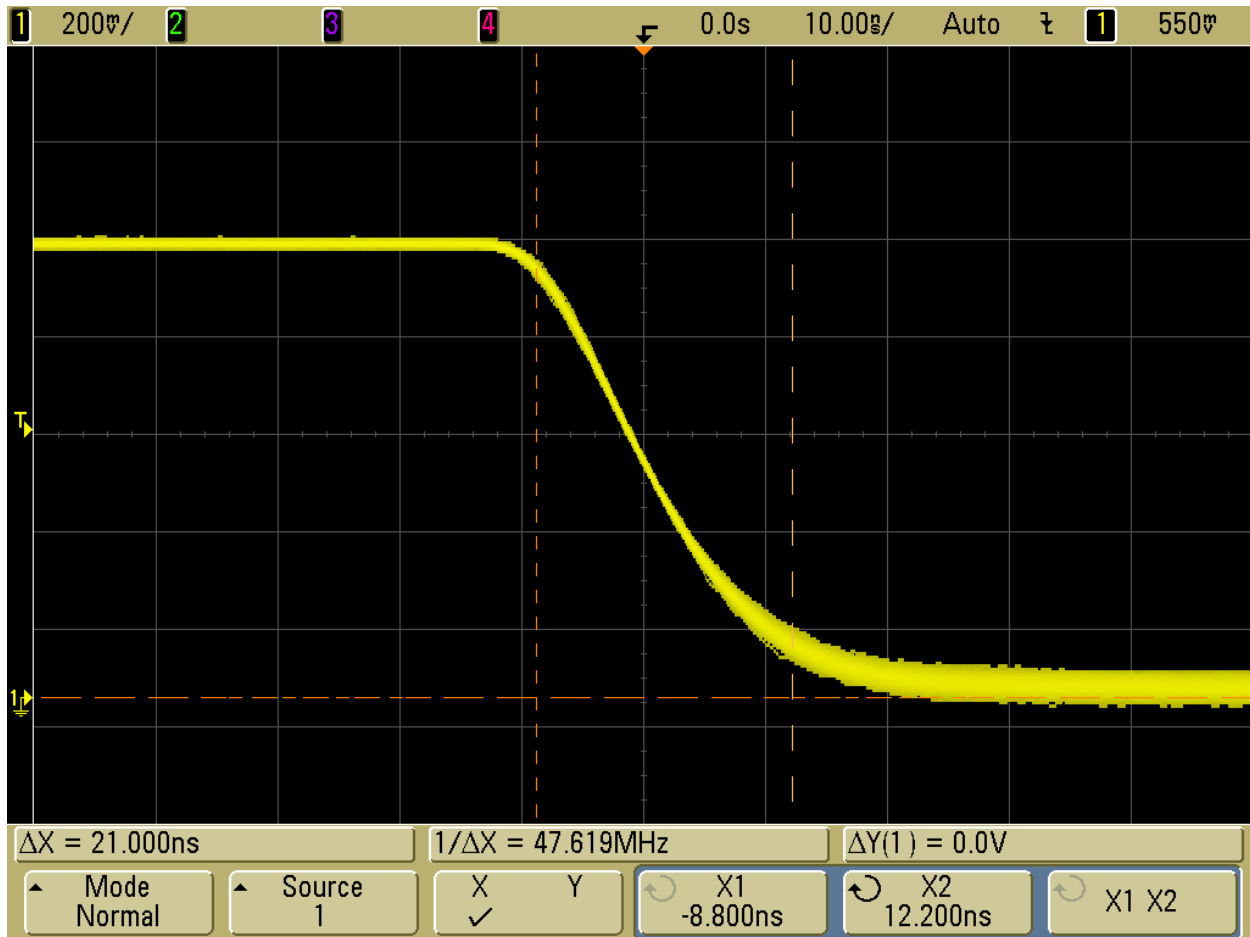
Rise Time @ -30 dBm





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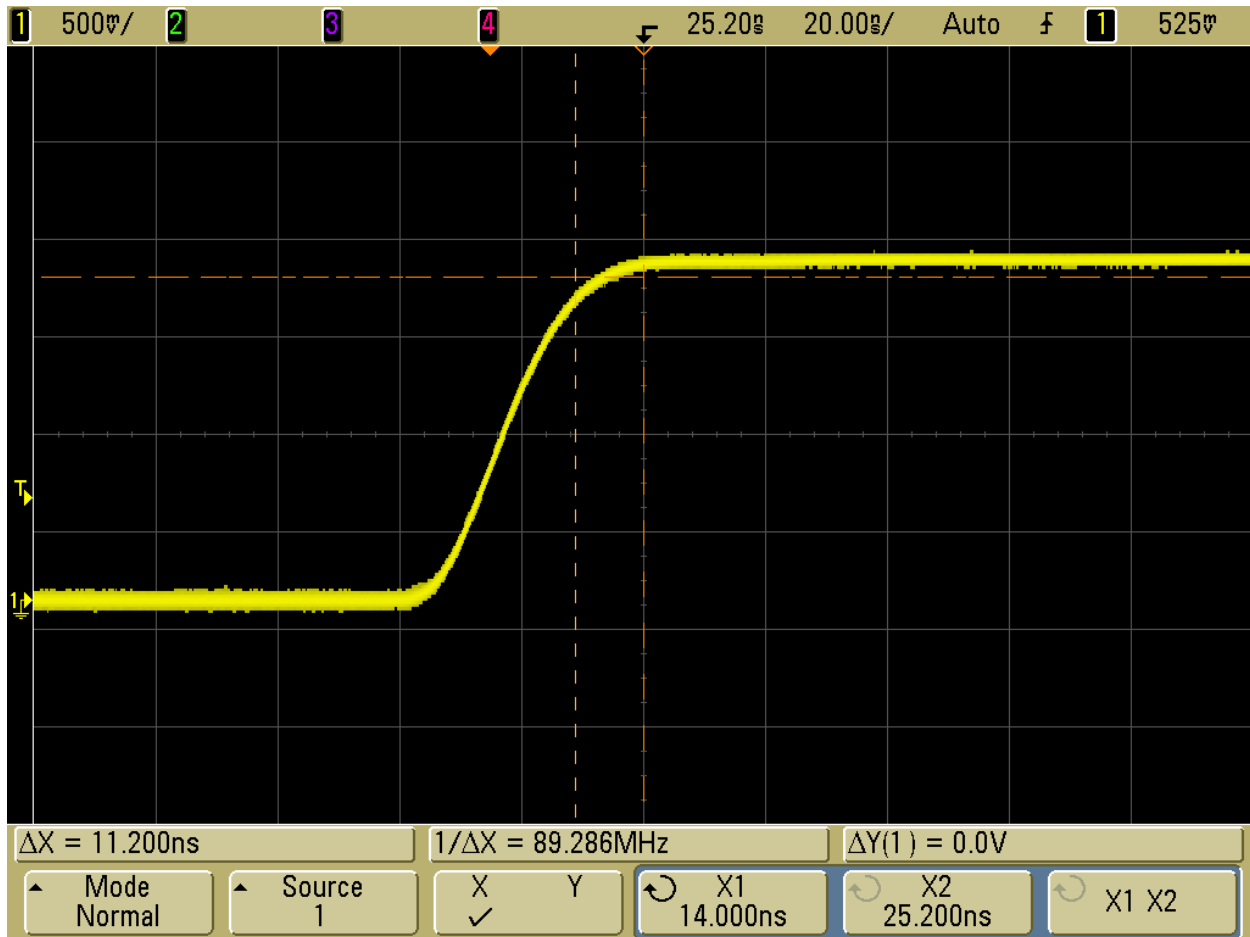
Fall Time On @ -30 dBm





TYPICAL CHARACTERISTICS  
ON  
SDLVA-0120-70-CONDOR

Settling Time On @ +5 dBm

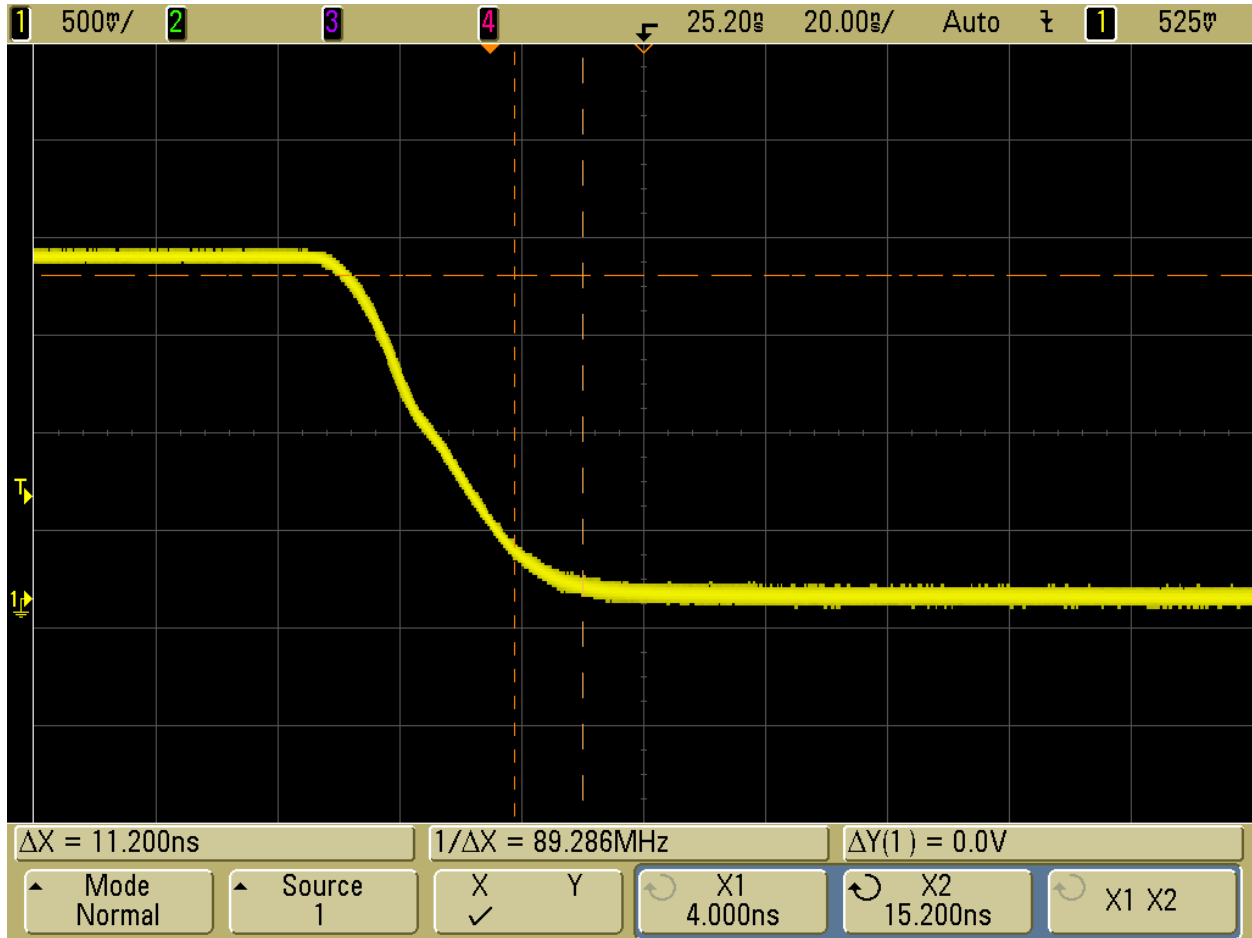


There is no overshoot on the signal; therefore the time shown is the time after the slewing rate to within 1 dB of the final value.



TYPICAL CHARACTERISTICS  
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Settling Time Off @ +5 dBm



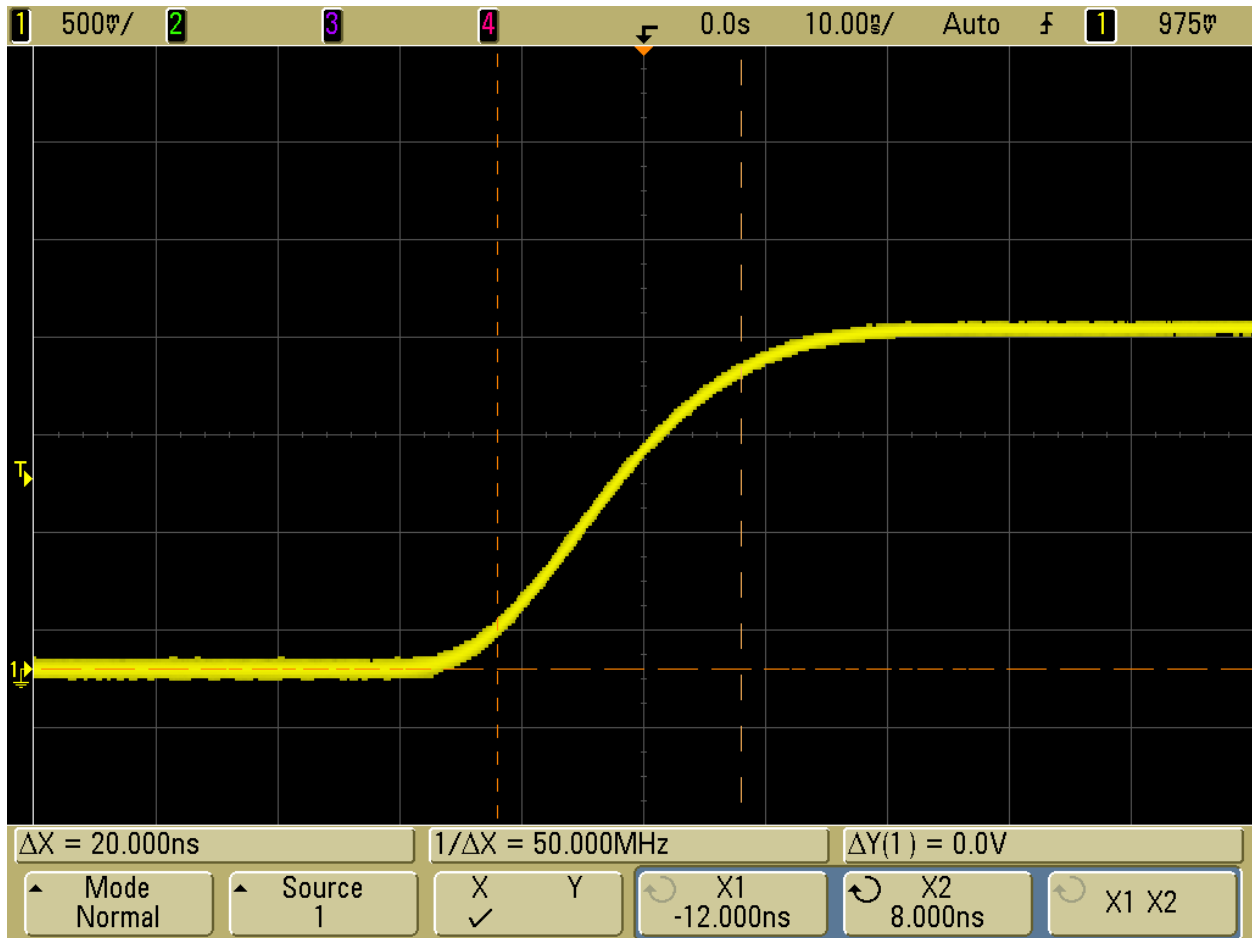
There is no overshoot on the signal, therefore the time shown is the time after the slewing rate to within 1 dB of the final value.





TYPICAL CHARACTERISTICS  
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Rise Time @ +5 dBm





TYPICAL CHARACTERISTICS  
ON  
SDLVA-0120-70-CONDOR

Fall Time @ +5 dBm

