



**TYPICAL CHARACTERISTICS  
ON  
DLVA-218-45-100MV-CW**

**PMI MODEL NUMBER DLVA-218-45-100MV-CW IS A CW IMMUNE DLVA (DETECTOR LOG VIDEO AMPLIFIER). THIS UNIT OPERATES FROM 2.0 TO 18.0 GHz. IT HAS THE ABILITY TO INTERFACE WITH A LONG CABLE (65 FT), WHILE MAINTAINING HIGH SPEED AND FLATNESS.**



**March 23, 2018**

**DESIGNED BY: John Merriner**

**TESTED AND REPORTED BY: Randy Combs**



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# TYPICAL CHARACTERISTICS ON DLVA-218-45-100MV-CW

## PRODUCT FEATURE

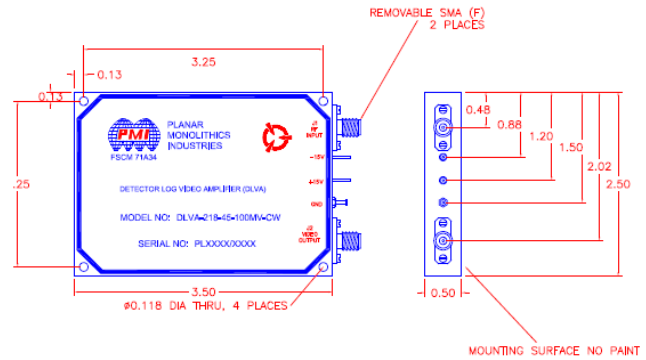
### DESCRIPTION:

PMI MODEL NO. DLVA-218-45-100MV-CW IS A CW IMMUNE DLVA (DETECTOR LOG VIDEO AMPLIFIER), THIS UNIT OPERATES FROM 2.0 TO 18.0 GHz. IT HAS THE ABILITY TO INTERFACE WITH A LONG CABLE (65 FT), WHILE MAINTAINING HIGH SPEED AND FLATNESS.

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	1	ORIGINAL RELEASE	9-22-17	

### SPECIFICATIONS:

- FREQUENCY: 2.0 GHz TO 18.0 GHz
- FREQUENCY FLATNESS:  $\pm 2.0$ dB TYP
- SIGNAL CAPABILITY: PULSE (100ns - 300 $\mu$ s)
- TSS FROM -20°C TO +85°C: -45dBm TYPICAL
- LOG DYNAMIC RANGE: -40dBm TO +5dBm
- LOG SLOPE: -100mV/dB NOMINAL
- LOG LINEARITY:  $\pm 1.5$ dB MAX
- DC OFFSET:  $\pm 150$ mV TYP
- OUTPUT RISE TIME: 25ns MAX
- SETTLING TIME: 55ns MAX, 90% OUTPUT TO  $\pm 0.5$ dB OF FINAL VALUE
- RECOVERY TIME: 500ns MAX
- INPUT VSWR: 2.5:1 TYP
- MAX INPUT LEVEL: +20dBm CW
- VIDEO OUTPUT DRIVE: THROUGH 65 Feet, RG180 CABLE, INTO 93 $\Omega$  LOAD
- POWER SUPPLY: +15VDC @ 150mA MAX  
-15VDC @ 150mA MAX
- SIZE: (L) 3.5" X (W) 2.5" X (H) 0.5"  
(L) 88.9mm X (W) 63.5mm X (H) 12.7mm
- FINISH: MIL-SPEC EPOXY PAINT - BLUE  
MOUNTING SURFACE FREE OF PAINT
- COOLING: CONDUCTION COOLING AT MOUNTING SURFACE



PMI CONFIDENTIAL AND PROPRIETARY

### ENVIRONMENTAL RATINGS:

- TEMPERATURE: -20°C TO +85°C (OPERATING)  
-65°C TO +125°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 107 COND. A
- NOTE: THE ABOVE SPECIFICATIONS ARE SUBJECT TO CHANGE OR REVISION

ALL DIMENSIONS ARE IN INCHES  
TOLERANCES:  
XXX  $\pm 0.010$   
XXXX  $\pm 0.005$

### PLANAR MONOLITHICS INDUSTRIES, INC.

4921 ROBERT J. MATHEWS PKWY #1  
EL DORADO HILLS, CA 95762 USA  
TEL: 916-542-1401 FAX: 916-265-2597  
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	
DRAWN	<i>JOJEM</i>	9-22-17	PRODUCT FEATURE DLVA-218-45-100MV-CW	
CHECKED			SIZE FSCW NO.	DWG NO.
ISSUED			A 71A34	27033821
			SCALE N:S	SHEET 1 OF 1



**TYPICAL CHARACTERISTICS  
ON  
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**SUMMARY TEST DATA**

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS	QA QC
1	Frequency Range	2GHz to 18GHz	2GHz to 18GHz	
2	Frequency Flatness	±2.0dB TYP.	±0.6dB (See Plots)	
3	Signal Capability	Pulse (100ns – 300µs)	(100ns – 300µs) (See Plots)	
4	TSS from -20°C to +85°C	-45dBm TYP.	-45 dBm TYP. (See Plots)	
5	Log Dynamic Range	-40dBm to +5dBm	-40dBm to +5dBm (See Plots)	
6	Log Slope	100mV/dB Nominal	99.2mV/dB (See Plots)	
7	Log Linearity	±1.5dB Max	+1.08 / -0.86 dB (See Plots)	
8	DC Offset	±150mV TYP.	-12mV to +91mV	
9	Rise Time	25ns Max	24.8ns (See Plots)	
10	Settling Time	55ns Max, 90% Output to ±0.5dB of Final Value	28ns (See Plots)	
11	Recovery Time	500ns Max	260ns (See Plots)	
12	Input VSWR	2.5:1 TYP.	2.3:1 (See Plots)	
13	Max Input Level	+20dBm CW	+20dBm CW	
14	Power Supply	+15VDC @ 150mA Max to -15VDC @ 150mA Max	+15VDC @ 63mA to -15VDC @ 61 mA	

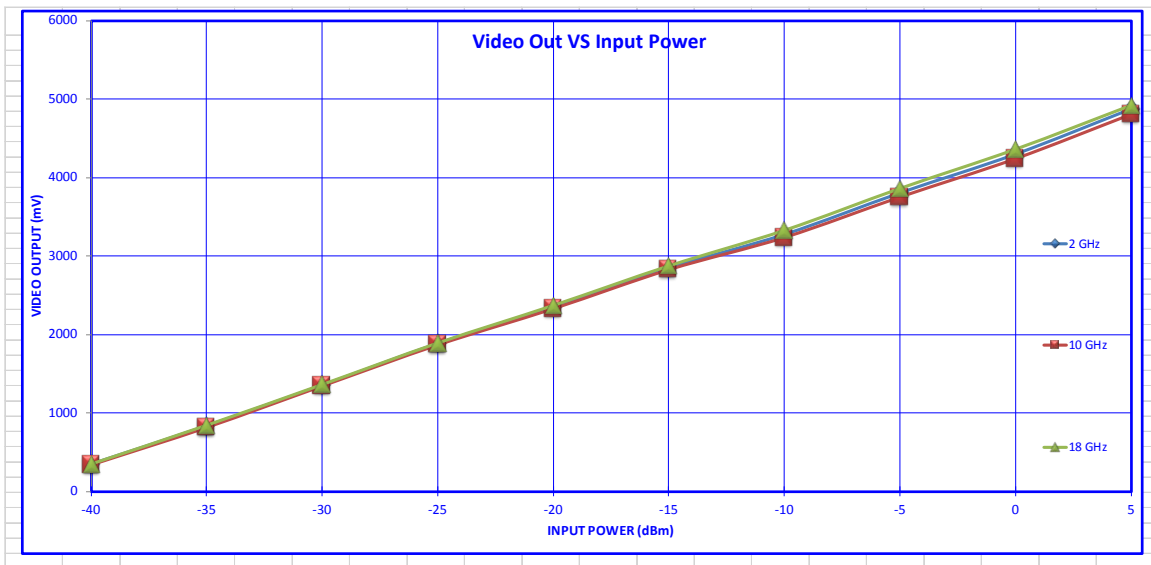


**TYPICAL CHARACTERISTICS  
ON  
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**FREQUENCY FLATNESS, LOG DYNAMIC RANGE, LOG SLOPE**

**25 DEGREES C**

LOG TRANSFER VS FREQUENCY @ 25°C    Saturday, March 24, 2018													
MODEL: DLVA-218-45-100MV-CW    OPTION :    1:38 PM													
TESTED BY: RCombs													
SERIAL No. : PL22354													
Frequency			-40	-35	-30	-25	-20	-15	-10	-5	0	5	RF Input Power (dBm)
2 GHz	INTERCEPT (mV)	4327	348	836	1354	1886	2349	2850	3278	3807	4302	4879	Measured Value (mV)
	SLOPE (mV/dB)	99.3	-8	-16	5	41	8	12	-57	-24	-25	55	Error (mV)
			-0.08	-0.16	0.05	0.41	0.08	0.13	-0.57	-0.24	-0.25	0.56	LINEARITY ERROR (dB)
10 GHz	INTERCEPT (mV)	4265	336	813	1341	1865	2326	2823	3234	3748	4237	4803	Measured Value (mV)
	SLOPE (mV/dB)	97.7	-20	-31	8	43	16	24	-54	-28	-28	49	Error (mV)
			-0.20	-0.32	0.09	0.44	0.16	0.25	-0.55	-0.29	-0.28	0.50	LINEARITY ERROR (dB)
18 GHz	INTERCEPT (mV)	4378	351	845	1364	1893	2372	2875	3328	3862	4362	4921	Measured Value (mV)
	SLOPE (mV/dB)	101	-2	-11	5	30	6	6	-44	-14	-17	39	Error (mV)
			-0.02	-0.11	0.05	0.30	0.06	0.06	-0.44	-0.13	-0.17	0.39	LINEARITY ERROR (dB)
Average Slope		99.2											
Flatness ± dB			0.1	0.2	0.1	0.1	0.2	0.3	0.5	0.6	0.6	0.6	

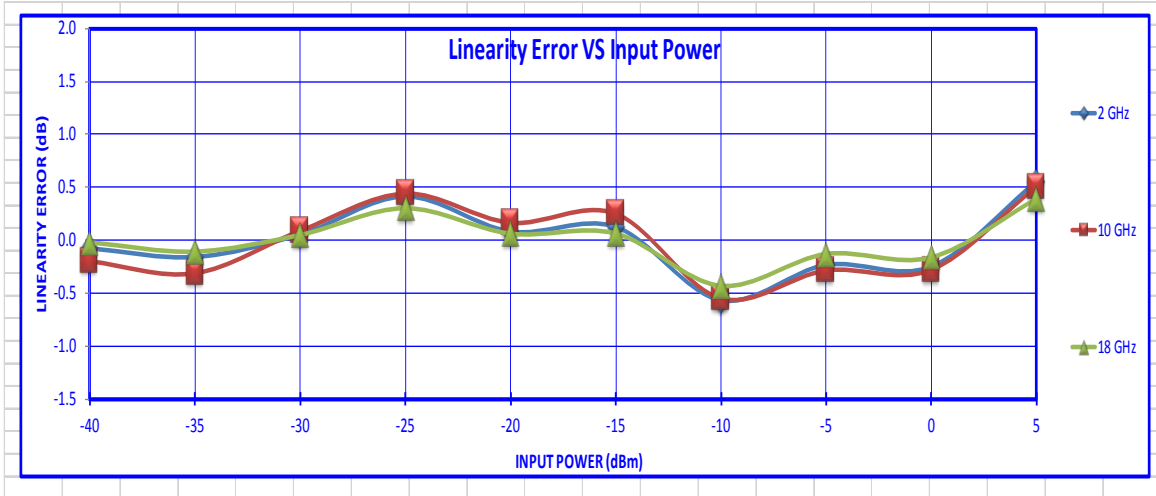




**TYPICAL CHARACTERISTICS  
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**LOG LINEARITY**

**25 DEGREES C**




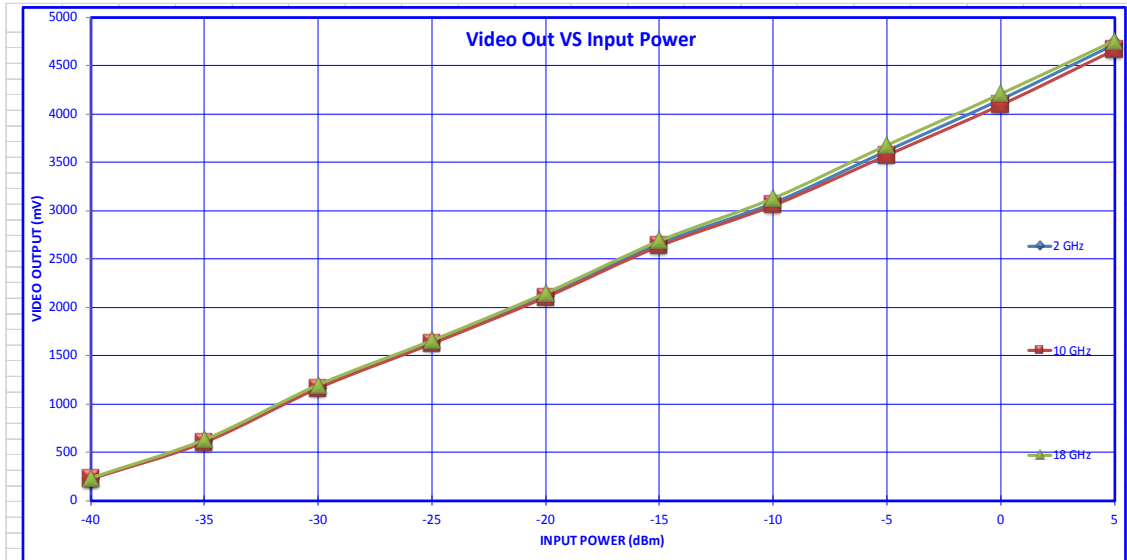


**TYPICAL CHARACTERISTICS  
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**FREQUENCY FLATNESS, LOG DYNAMIC RANGE, LOG SLOPE**

**85 DEGREES C**

		LOG TRANSFER VS FREQUENCY @ 85°C Saturday, March 24, 2018												
		MODEL: DLVA-218-45-100MV-CW OPTION :										1:48 PM		
		TESTED BY: RCombs												
		SERIAL No. : PL22354												
														
Frequency												RF Input Power (dBm)		
		-40	-35	-30	-25	-20	-15	-10	-5	0	5			
2 GHz	INTERCEPT (mV)	4156	227	614	1170	1640	2120	2660	3080	3620	4150	4720	Measured Value (mV)	
	SLOPE (mV/dB)	101	109	-9	43	8	-17	18	-66	-31	-6	60	Error (mV)	
			1.08	-0.09	0.42	0.08	-0.17	0.18	-0.66	-0.31	-0.06	0.59	LINEARITY ERROR (dB)	
10 GHz	INTERCEPT (mV)	4103	220	600	1160	1620	2100	2630	3050	3570	4090	4660	Measured Value (mV)	
	SLOPE (mV/dB)	99.6	101	-17	45	7	-11	21	-57	-35	-13	59	Error (mV)	
			1.02	-0.17	0.45	0.07	-0.11	0.21	-0.57	-0.35	-0.13	0.59	LINEARITY ERROR (dB)	
18 GHz	INTERCEPT (mV)	4207	237	634	1200	1660	2150	2690	3130	3680	4210	4760	Measured Value (mV)	
	SLOPE (mV/dB)	102	104	-8	48	-1	-20	11	-59	-18	3	44	Error (mV)	
			1.02	-0.08	0.47	-0.01	-0.20	0.10	-0.58	-0.17	0.03	0.43	LINEARITY ERROR (dB)	
Average Slope		100.8												
Flatness ± dB			0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.5	0.6	0.5		

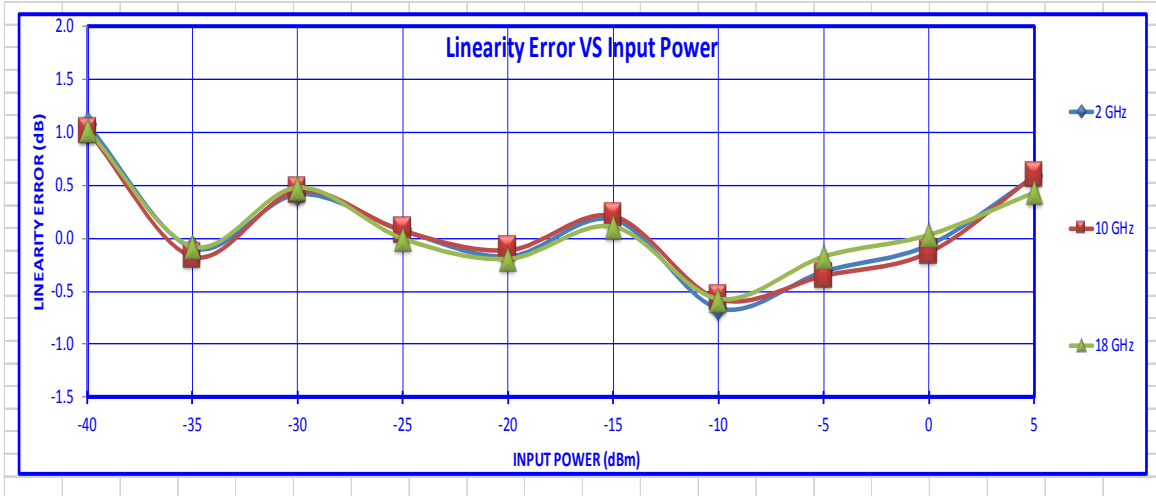




**TYPICAL CHARACTERISTICS  
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**LOG LINEARITY**

**85 DEGREES C**





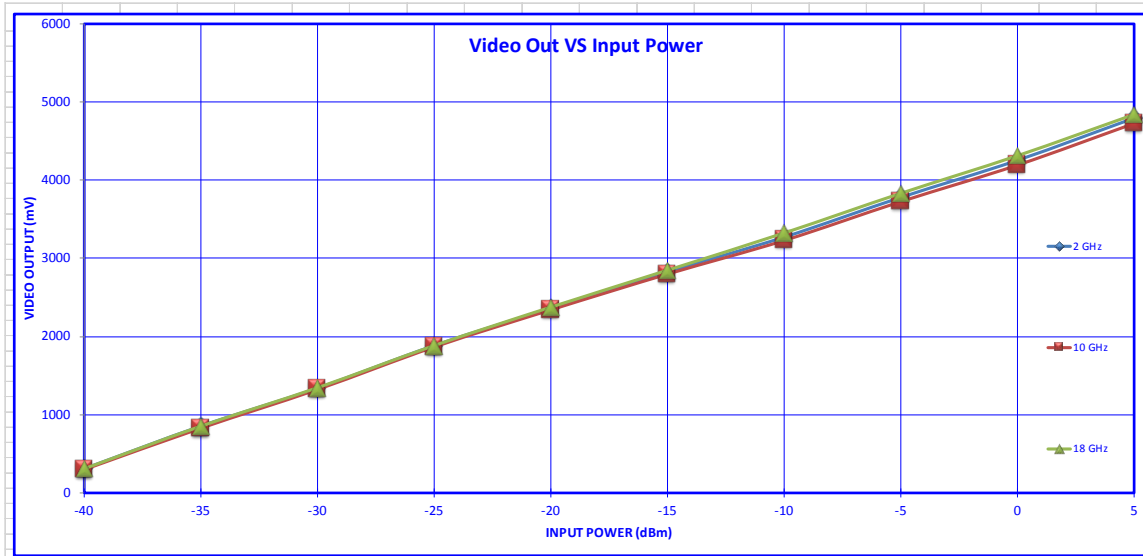


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**FREQUENCY FLATNESS, LOG DYNAMIC RANGE, LOG SLOPE**

**-20 DEGREES C**

LOG TRANSFER VS FREQUENCY @ -20°C Saturday, March 24, 2018													
MODEL: DLVA-218-45-100MV-CW OPTION : 1:59 PM													
TESTED BY: RCombs													
SERIAL No. : PL22354													
Frequency			-40	-35	-30	-25	-20	-15	-10	-5	0	5	RF Input Power (dBm)
2 GHz	INTERCEPT (mV)	4279	310	855	1340	1885	2363	2828	3272	3780	4255	4795	Measured Value (mV)
	SLOPE (mV/dB)	97.3	-76	-17	-19	39	31	9	-34	-13	-24	29	Error (mV)
			-0.78	-0.18	-0.20	0.40	0.31	0.09	-0.35	-0.13	-0.25	0.30	LINEARITY ERROR (dB)
10 GHz	INTERCEPT (mV)	4223	300	830	1325	1868	2343	2800	3230	3727	4194	4727	Measured Value (mV)
	SLOPE (mV/dB)	96	-83	-33	-18	45	40	17	-33	-16	-29	24	Error (mV)
			-0.86	-0.34	-0.18	0.47	0.42	0.18	-0.34	-0.16	-0.30	0.25	LINEARITY ERROR (dB)
18 GHz	INTERCEPT (mV)	4333	305	850	1343	1883	2375	2848	3325	3833	4315	4843	Measured Value (mV)
	SLOPE (mV/dB)	99.1	-63	-14	-16	28	25	2	-17	-4	-18	14	Error (mV)
			-0.63	-0.14	-0.16	0.28	0.25	0.02	-0.17	-0.04	-0.18	0.14	LINEARITY ERROR (dB)
Average Slope		97.5											
Flatness ± dB			0.1	0.1	0.1	0.1	0.2	0.2	0.5	0.5	0.6	0.6	

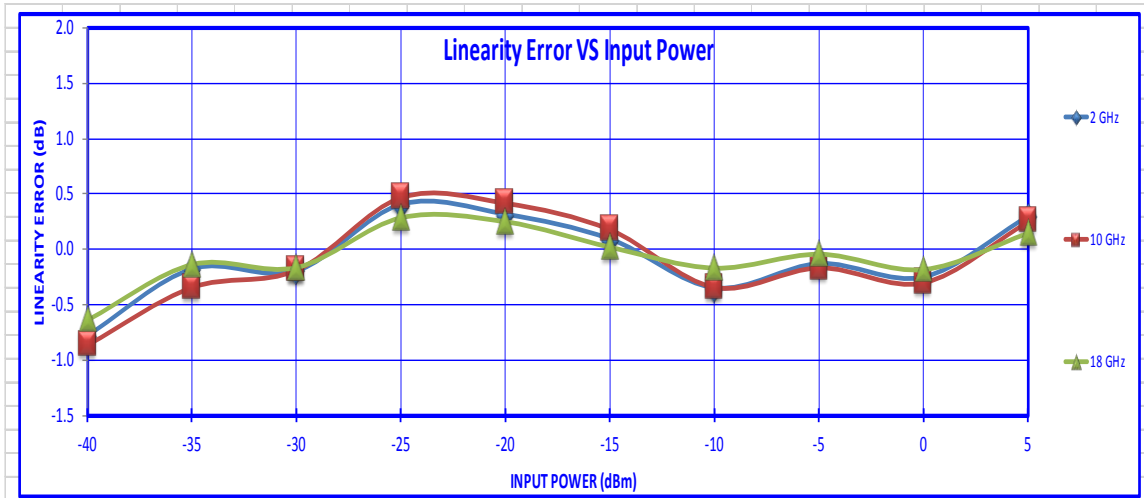




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**LOG LINEARITY**

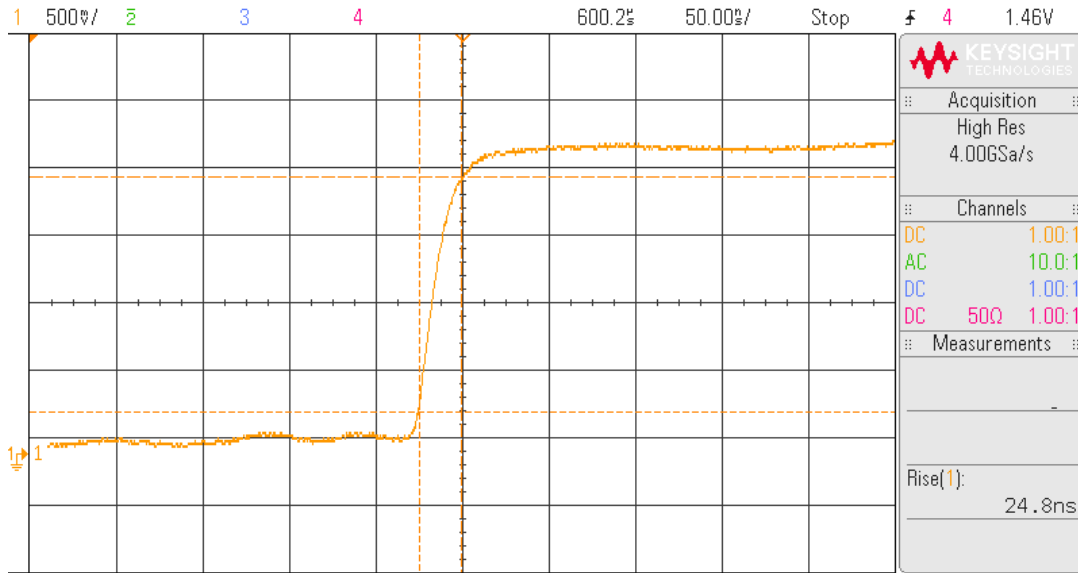
**-20 DEGREES C**



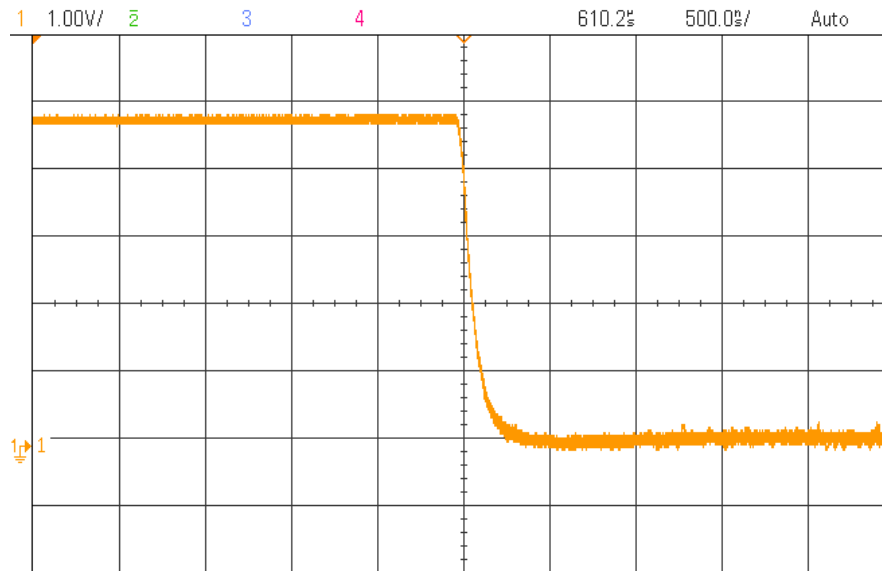


**TYPICAL CHARACTERISTICS  
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**OUTPUT RISE TIME AND SETTLING TIME**



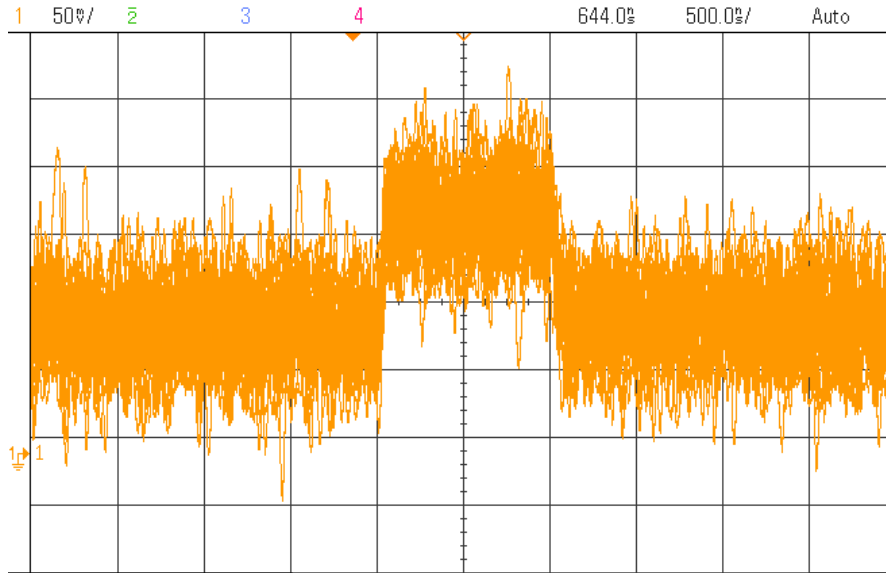
**OUTPUT RECOVERY TIME**



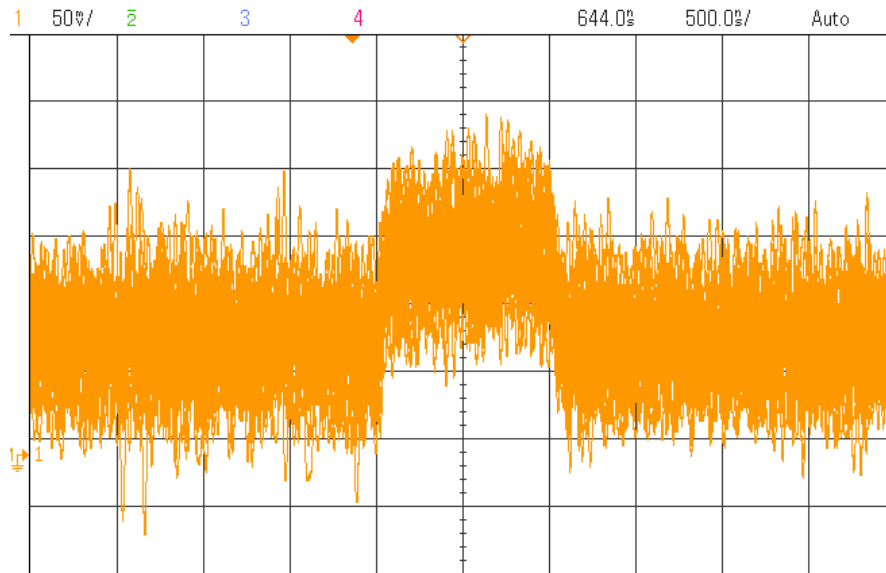


**TYPICAL CHARACTERISTICS  
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**TSS -45DBM AT 25 DEGREES C**



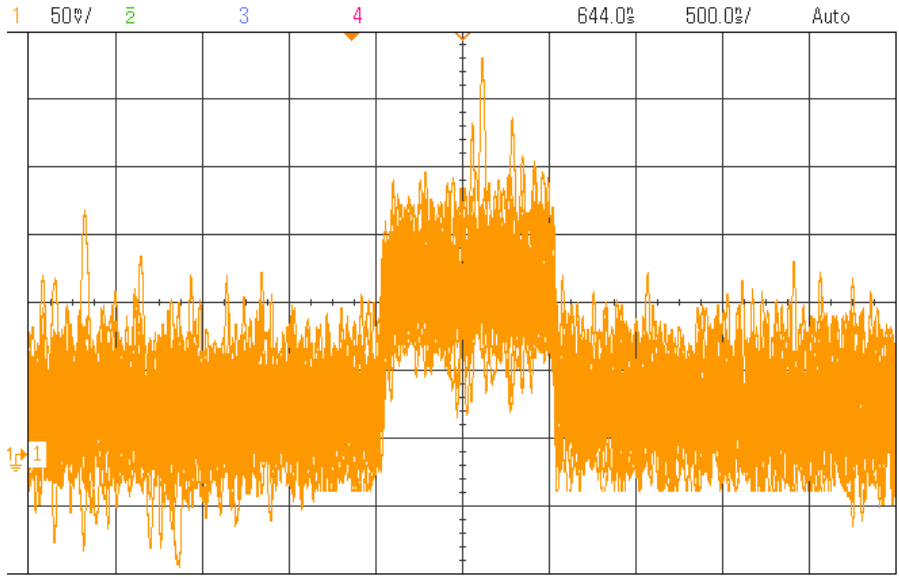
**TSS -45 DBM AT 85 DEGREES C**





**TYPICAL CHARACTERISTICS  
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**TSS -45DBM AT -20 DEGREES**

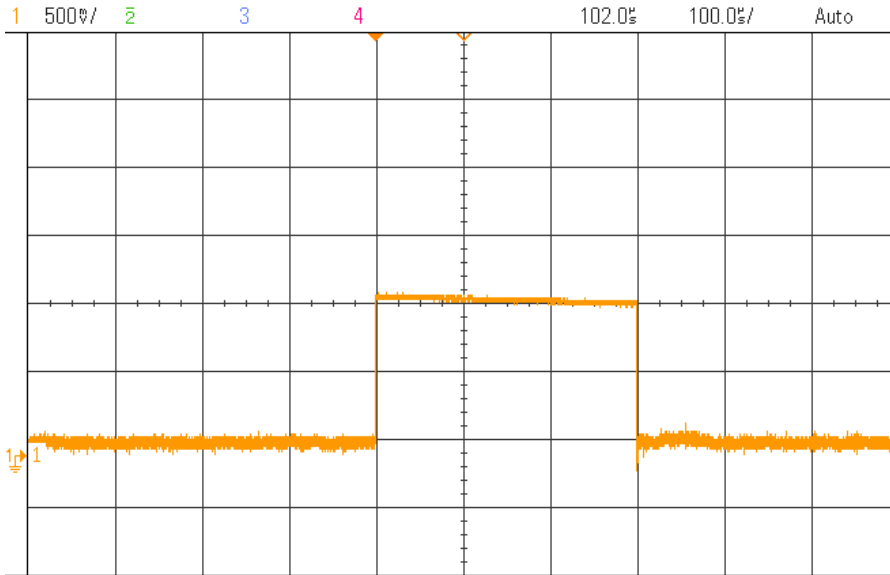




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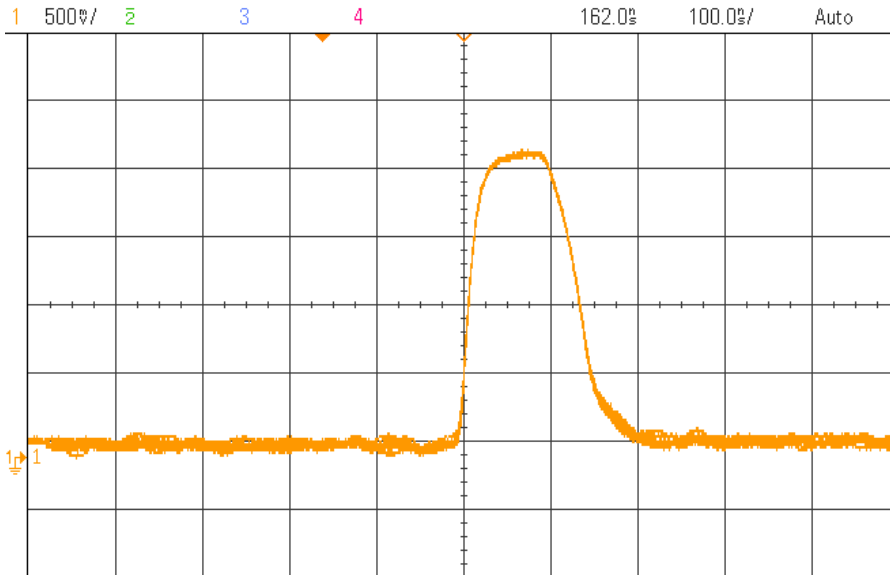
**SIGNAL CAPABILITY**

**300uS PULSE WIDTH**



**SIGNAL CAPABILITY**

**100nS PULSE WIDTH**





**TYPICAL CHARACTERISTICS  
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**VSWR**

