

LA3CP5001 4 TO 200 MHz LIMITING AMPLIFIER

Typical Values	LA3CP5001
Low Noise Figure	2.1 dB
High Gain	52 dB
Wide Input Limiting Range	-35 to +10 dBm
Output Range	+14 to +16 dBm
High Performance Thin Film Standard Three-stage CougarPak™ Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	2-250 MHz	4-200 MHz	4-200 MHz
Small Signal Gain (Min)	52.0 dB	51.0 dB	49.0 dB
Gain Flatness (Max)	1.0 dB	1.4 dB	2.0 dB
Noise Figure (Max)	2.1 dB	2.5 dB	3.0 dB
SWR (Max) Input/Output	1.2:1	1.5:1	1.6:1
Power Output (Min) @ 1dB comp.	13.0 dBm	12.0 dBm	11.0 dBm
Output Limiting Level (Max) P _{in} = -35 to +10 dBm	15.0 dBm	16.0 dBm	17.0 dBm

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 2.0 dBm higher above 800 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	Linear Region Only	LA3CP5001
Second Order Harmonic Intercept Point		+48 dBm
Second Order Two Tone Intercept Point		+42 dBm
Third Order Two Tone Intercept Point		+28 dBm

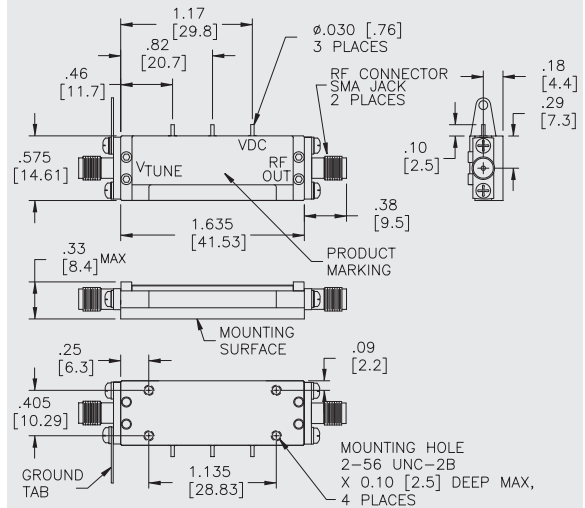
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+12 dBm
Burn-in Temperature	+100 °C
Thermal Resistance ¹ (θ _{jc})	+39.4 °C/Watt
Junction Temperature Rise Above Case (T _{jc})	+17.7 °C

¹ Thermal resistance is based on total power dissipation.

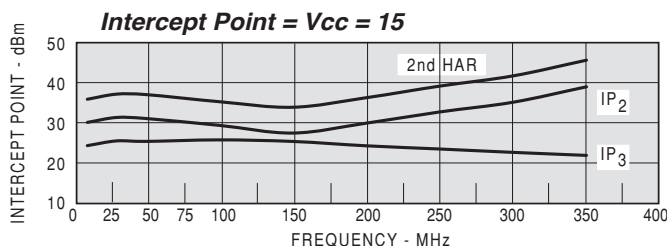
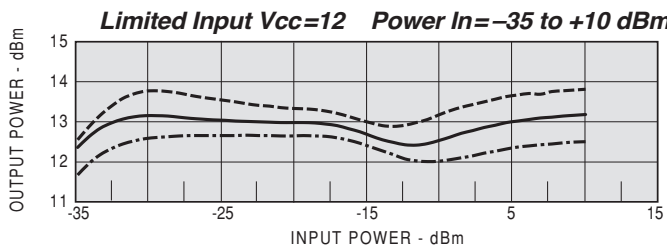
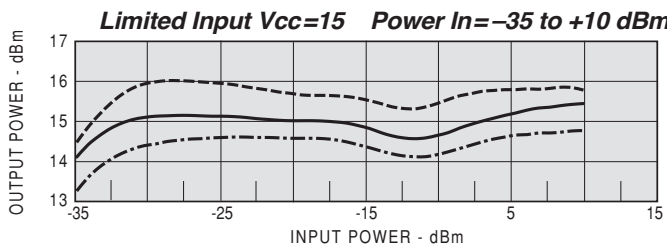
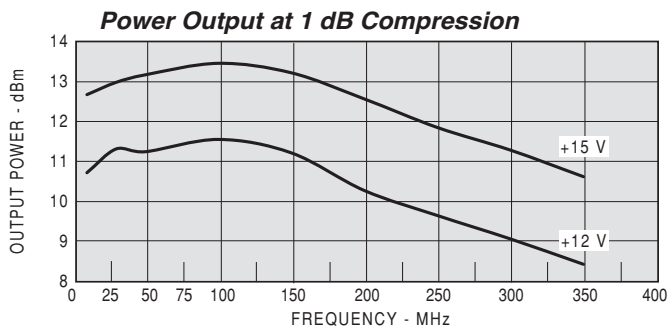
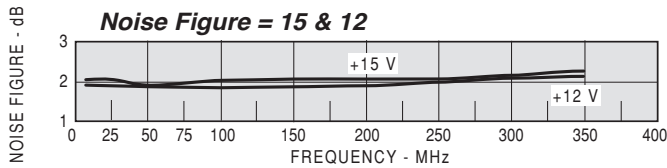
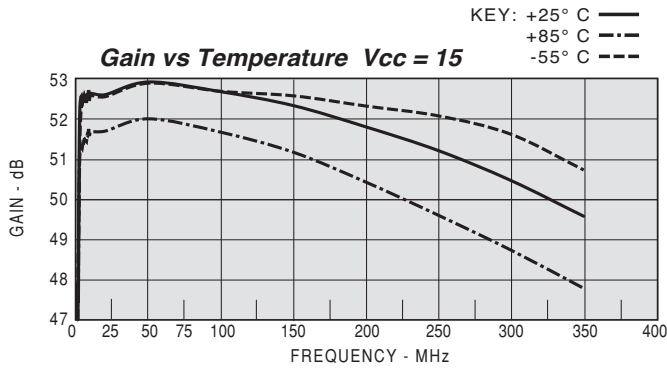
LA3CP5001

CougarPak™ Package for Limiters



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

Model: LA3CP5001		Vcc=+15V				Icc=63.43	
FREQ	SWR	GAIN	PHASE	DELAY	REV/ISO	DB	
MHZ	IN	OUT	DB	DEG	NSEC		
1.0	3.37	1.57	41.54	148.13	185.15	-66.46	
1.5	2.60	1.43	47.89	114.80	185.15	-66.07	
2.0	1.87	1.31	50.98	87.42	152.11	-73.28	
2.5	1.46	1.22	52.13	66.78	114.64	-73.44	
3.0	1.27	1.16	52.31	52.19	81.05	-72.84	
3.5	1.18	1.13	52.39	42.94	51.41	-69.56	
4.0	1.12	1.12	52.26	36.71	34.63	-74.47	
4.5	1.11	1.10	52.35	31.46	29.14	-73.01	
5.0	1.10	1.09	52.35	28.14	18.49	-74.83	
5.5	1.09	1.08	52.42	24.60	19.66	-78.31	
6.0	1.09	1.07	52.36	21.69	16.16	-77.89	
6.5	1.08	1.07	52.39	19.19	13.91	-84.09	
7.0	1.10	1.07	52.27	17.10	11.61	-68.64	
7.5	1.11	1.06	52.42	15.25	10.26	-69.47	
8.0	1.09	1.06	52.39	13.26	11.03	-67.47	
8.5	1.09	1.06	52.54	12.34	5.12	-72.37	
9.0	1.10	1.06	52.33	11.00	7.47	-64.59	
10.0	1.10	1.06	52.46	7.47	9.80	-76.33	
20.0	1.10	1.06	52.43	-7.48	4.15	-75.17	
50.0	1.15	1.09	52.74	-39.48	2.96	-60.49	
100.0	1.24	1.13	52.5	-83.69	2.46	-65.18	
150.0	1.24	1.19	52.16	-127.86	2.45	-67.76	
200.0	1.36	1.22	51.64	-170.01	2.34	-59.45	
250.0	1.38	1.20	51.06	146.92	2.39	-70.04	
300.0	1.47	1.16	50.33	101.10	2.55	-73.29	
350.0	1.57	1.19	49.46	55.16	2.55	-67.49	

Model: LA3CP5001		Vcc=+15V						Icc=63.65	
FREQ.	S11	ANG	S21	ANG	S12	ANG	S22	MAG	ANG.
MHZ	MAG		MAG		MAG		MAG		
1.0	0.54	-49.06	119.76	148.08	0.000	-172.29	0.22	178.03	
1.5	0.44	-71.59	248.80	114.70	0.000	-179.89	0.18	146.54	
2.0	0.31	-91.29	354.62	87.28	0.000	-118.28	0.13	123.91	
2.5	0.19	-102.95	404.02	66.69	0.000	30.21	0.10	110.74	
3.0	0.12	-102.47	412.75	52.09	0.000	65.4	0.08	106.86	
3.5	0.09	-103.76	416.41	42.82	0.000	28.33	0.06	104.12	
4.0	0.06	-79.75	410.08	36.62	0.000	-44.45	0.05	104.28	
4.5	0.06	-76.01	414.25	31.42	0.000	-161.08	0.05	105.23	
5.0	0.05	-63.52	414.30	28.08	0.000	-97.49	0.04	104.73	
5.5	0.04	-53.84	417.71	24.56	0.000	-6.84	0.04	100.89	
6.0	0.04	-43.15	414.85	21.63	0.000	-64.89	0.04	101.89	
6.5	0.04	-48.63	416.47	19.15	0.000	84.99	0.04	103.49	
7.0	0.04	-50.68	410.93	17.04	0.000	-9.83	0.03	104.92	
7.5	0.05	-20.92	417.79	15.20	0.000	-2.68	0.03	102.54	
8.0	0.04	-43.61	416.25	13.24	0.000	-34.54	0.03	104.46	
8.5	0.05	-25.56	423.92	12.32	0.000	-104.25	0.03	104.80	
9.0	0.04	-21.99	413.53	11.01	0.000	42.07	0.03	100.39	
10.0	0.04	-22.91	419.46	7.50	0.000	-60.95	0.03	104.18	
20.0	0.05	-43.11	418.13	-7.54	0.000	-16.22	0.02	90.89	
50.0	0.07	-45.94	433.80	-39.50	0.000	-83.46	0.04	75.88	
100.0	0.08	-59.59	421.21	-83.73	0.000	74.08	0.06	59.98	
150.0	0.10	-61.08	405.63	-127.84	0.000	-153.27	0.09	33.26	
200.0	0.13	-90.09	381.96	-169.97	0.000	-142.59	0.10	-1.70	
250.0	0.15	-92.04	357.37	146.94	0.000	10.67	0.09	-35.67	
300.0	0.20	-89.43	328.23	101.15	0.000	-66.96	0.07	-102.17	
350.0	0.21	-108.02	297.10	55.19	0.000	163.25	0.08	158.83	