

AP1309 10 TO 1300 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

Low Noise Figure	<2.5 dB
High Output Power	+23.0 dBm
High Third Order I.P.	+36 dBm
High Performance Thin Film	
Standard Size TO-8	

AP1309

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50° C	-55 to +85° C
Frequency (Min.)	10-1400 MHz	10-1300 MHz	10-1300 MHz
Small Signal Gain (Min.)	12.5 dB	12.0 dB	11.5 dB
Gain Flatness (Max.)	±0.2 dB	±0.4 dB	±0.5 dB
Noise Figure (Max.) 50-1200 MHz	<2.5 dB	3.0 dB	3.5 dB
SWR (Max.)	Input <1.5:1 Output <1.7:1	1.7:1^ 1.9:1	1.9:1^ 2.0:1
Power Output (Min.) @ 1dB comp.	+23.0 dBm	+22.0 dBm	+21.5 dBm
DC Current (Max.)	100 mA	105.0 mA	110.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.

^ 0.3 higher at 10 MHz.

INTERMODULATION PERFORMANCE

<i>Typical @ 25° C; 500 MHz</i>	+12 Volts	+15 Volts
Second Order Harmonic Intercept Point	+57 dBm	+54 dBm
Second Order Two Tone Intercept Point. . . .	+51 dBm	+49 dBm
Third Order Two Tone Intercept Point.	+35 dBm	+36 dBm

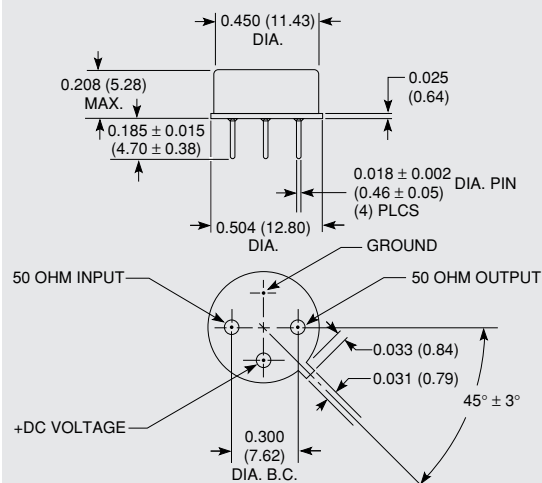
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to 125° C
Maximum Case Temperature	+125° C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+20 dBm
Maximum Short Term Input Power (1 Minute Max.)	250 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+105° C
Thermal Resistance¹ (θjc)	+14° C/Watt
Junction Temperature Rise Above Case (Tic)	+22.4° C

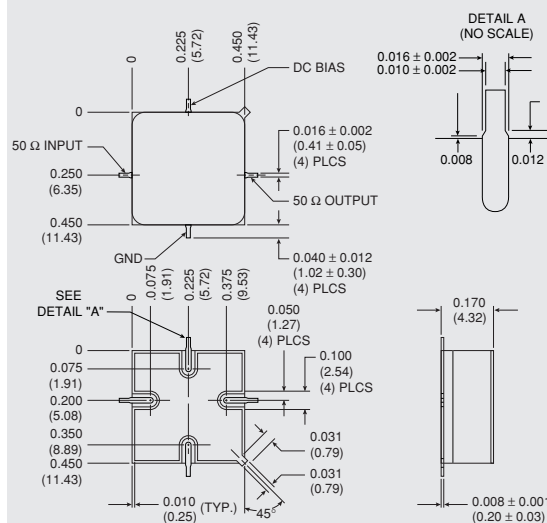
¹ Thermal resistance is based on total power dissipation.

AP1309

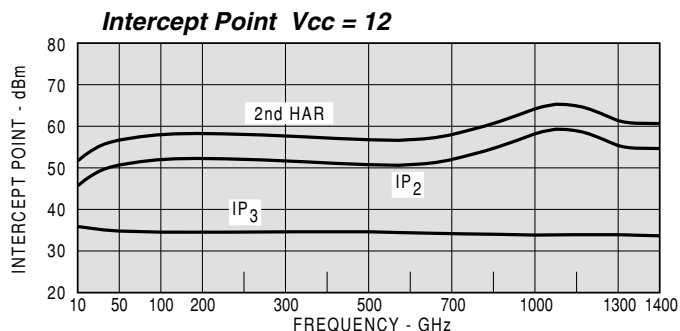
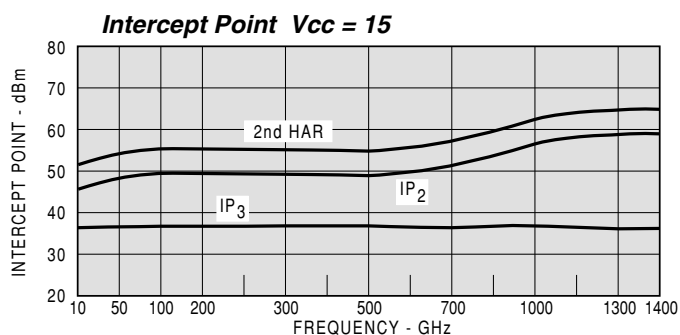
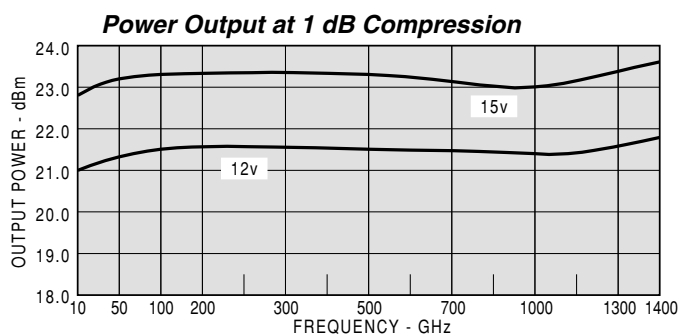
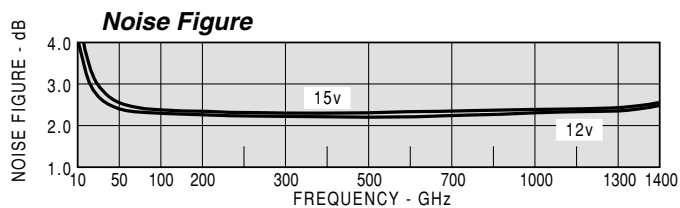
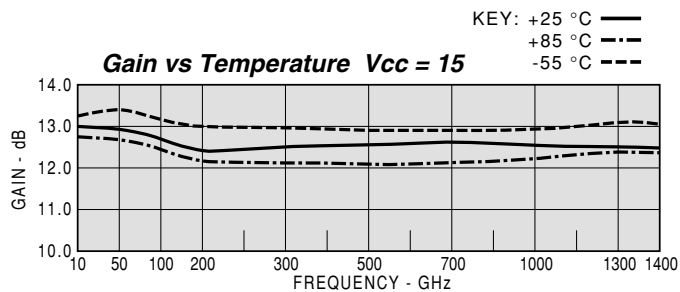
TO-8 Package for Amplifiers

**APS1309**

SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES (MILLIMETERS)

AP1309**COUGAR COMPONENTS****TYPICAL PERFORMANCE****TYPICAL AUTOMATIC TEST DATA**

Model: AP1309				Vcc= +15V			Icc=100.89	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO		
MHZ	IN	OUT	DB	DEG	NSEC	DB		
10	1.82	1.64	12.99	-153		-20.8		
30	1.40	1.67	13.05	-176		-21.0		
50	1.38	1.67	12.99	177	0.84	-21.1		
100	1.39	1.61	12.78	167	0.51	-20.8		
300	1.41	1.50	12.52	141	0.36	-20.4		
500	1.36	1.52	12.56	114	0.38	-20.2		
700	1.31	1.53	12.55	86	0.38	-19.8		
900	1.27	1.55	12.55	58	0.40	-19.3		
1000	1.27	1.56	12.57	44	0.39	-19.1		
1100	1.29	1.62	12.57	30	0.41	-18.9		
1200	1.34	1.71	12.56	14	0.43	-18.5		
1300	1.43	1.83	12.55	-1	0.42	-18.3		
1400	1.58	2.01	12.54	-18	0.47	-18.1		

Model: AP1309				Vcc=+15V				Icc= 100.89	
FREQ	S11		S21		S12		S22		
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
10	0.29	-50.0	4.46	-152.9	0.091	15.6	0.24	-177.0	
30	0.17	-25.5	4.49	-175.9	0.089	3.6	0.25	178.9	
50	0.16	-17.1	4.46	177.3	0.088	0.9	0.25	173.2	
100	0.16	-11.4	4.35	166.7	0.091	-1.8	0.23	161.1	
300	0.17	-39.3	4.22	140.9	0.096	-17.8	0.20	151.8	
500	0.15	-63.0	4.25	113.7	0.097	-30.8	0.21	131.5	
700	0.13	-90.5	4.24	86.3	0.102	-44.9	0.21	110.8	
900	0.12	-129.5	4.24	58.3	0.108	-60.5	0.22	88.3	
1000	0.12	-153.1	4.25	44.4	0.111	-68.8	0.22	74.6	
1100	0.13	-179.5	4.25	29.5	0.114	-77.9	0.24	60.0	
1200	0.14	153.3	4.25	14.1	0.120	-88	0.26	45.9	
1300	0.18	127.6	4.24	-1.1	0.122	-99.1	0.29	31.4	
1400	0.23	100.6	4.24	-18	0.125	-111.4	0.34	15.6	
1500	0.30	76.1	4.16	-35.6	0.127	-124.6	0.38	-0.5	

Model: AP1309				Vcc= +12V			Icc=88.0	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO		
MHZ	IN	OUT	DB	DEG	NSEC	DB		
10	1.82	1.68	12.75	-153		-20.9		
30	1.44	1.71	12.80	-176		-21.1		
50	1.42	1.72	12.75	177	0.82	-21.2		
100	1.44	1.65	12.55	167	0.50	-20.9		
300	1.45	1.54	12.32	141	0.36	-20.5		
500	1.40	1.57	12.34	114	0.38	-20.2		
700	1.35	1.59	12.34	86	0.38	-19.7		
900	1.31	1.61	12.36	58	0.40	-19.1		
1000	1.31	1.62	12.39	44	0.39	-18.8		
1100	1.33	1.69	12.39	29	0.42	-18.4		
1200	1.39	1.79	12.39	14	0.43	-18.1		
1300	1.48	1.91	12.37	-2	0.43	-17.9		
1400	1.64	2.10	12.37	-19	0.47	-17.6		

Model: AP1309				Vcc=+12V				Icc= 88.0	
FREQ	S11		S21		S12		S22		
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.52	-48.4	3.99	-121.8	0.091	34.9	0.32	-176.7	
10	0.29	-46.9	4.34	-153.5	0.09	14.9	0.25	-174.9	
30	0.18	-22.8	4.37	-176	0.088	3.4	0.26	179.5	
50	0.17	-15.8	4.34	177.3	0.087	1.4	0.26	174.0	
100	0.18	-11.9	4.24	166.7	0.09	-1.8	0.25	162.4	
300	0.19	-39.3	4.13	141	0.095	-16.9	0.21	153.3	
500	0.17	-63.6	4.14	113.7	0.097	-29.2	0.22	133.7	
700	0.15	-91.3	4.14	86.3	0.103	-42.9	0.23	113.8	
900	0.13	-129.2	4.15	58.2	0.111	-58.3	0.23	92.1	
1000	0.13	-152.4	4.16	44.3	0.114	-66.6	0.24	79.3	
1100	0.14	-177.5	4.17	29.3	0.12	-76.2	0.26	64.7	
1200	0.16	156.4	4.16	13.9	0.124	-86.7	0.28	50.7	
1300	0.19	130.4	4.16	-1.6	0.128	-97.8	0.31	36.3	
1400	0.24	103.5	4.16	-18.5	0.132	-110.1	0.36	20.5	
1500	0.32	77.9	4.07	-36.3	0.135	-123.7	0.40	3.7	