



AP108

1 TO 150 MHz TO-8 CASCADABLE AMPLIFIER

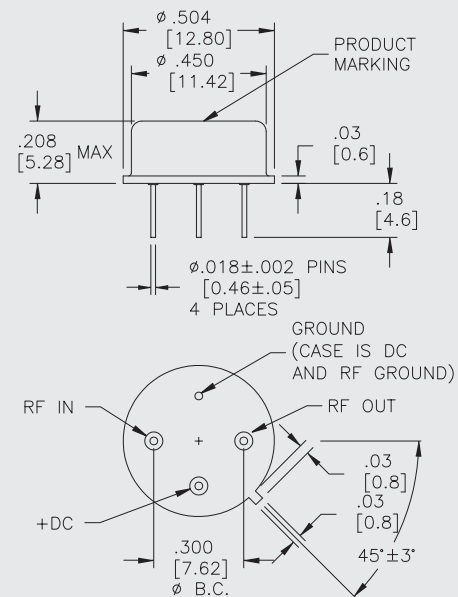
Typical Values

High Output Power	+25.0 dBm
High Third Order I.P.	+43 dBm
Medium Gain	15.0 dB
Low Noise Figure	3.3 dB
High Performance Thin Film	
Standard Size TO-8 Package	
Available in Surface Mount	

AP108

AP108

TO-8 Package for Amplifiers



SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	1-250 MHz	1-150 MHz	1-150 MHz
Small Signal Gain (Min.)	15.0 dB	14.5 dB	14.0 dB
Gain Flatness (Max.)	±0.3 dB	±0.4 dB	±0.5 dB
Noise Figure (Max.)			
10-150 MHz	3.3 dB	4.0 dB	4.5 dB
SWR (Max.)	Input/Output	1.9:1	2.0:1
Power Output (Min.)			
@ 1 dB comp.	+25.0^ dBm	+24.0^ dBm	+23.5^ dBm
Reverse Isolation	28.0 dB	—	—
DC Current (Max.)	109.0 mA	112.0 mA	115.0 mA

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

^ 1.0 dBm lower below 2 MHz

INTERMODULATION PERFORMANCE

Typical @ 25 °C	+12 volts	+15 volts
Second Order Harmonic Intercept Point	+66 dBm	+66 dBm
Second Order Two Tone Intercept Point	+60 dBm	+60 dBm
Third Order Two Tone Intercept Point	+40 dBm	+43 dBm

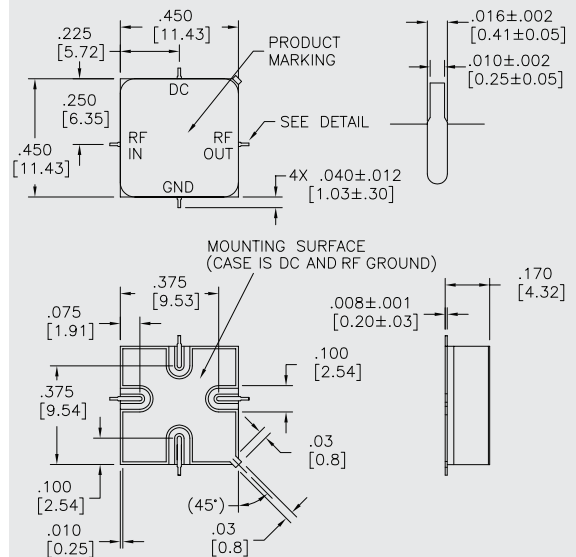
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+17 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+100 °C
Thermal Resistance ¹ (θjc)	+25 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+43 °C

¹ Thermal resistance is based on total power dissipation.

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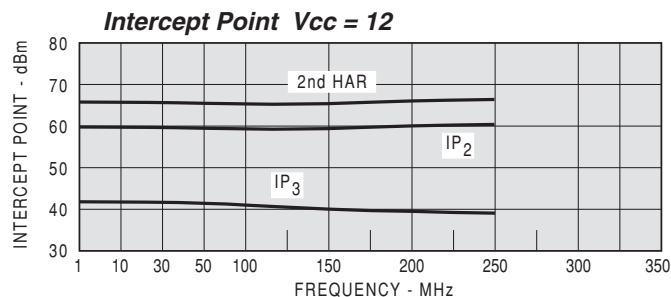
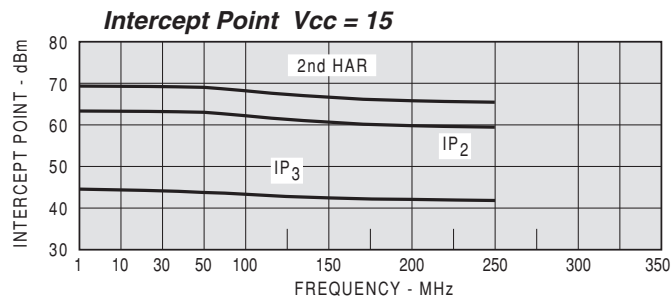
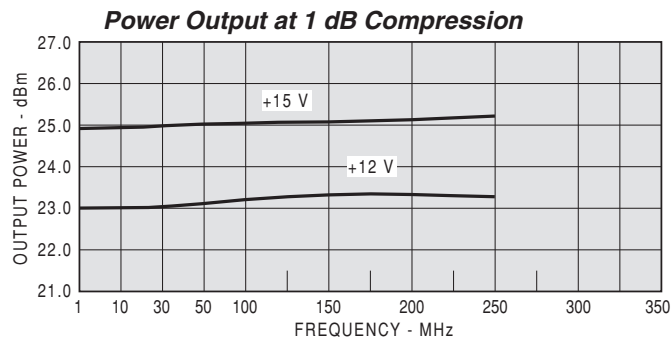
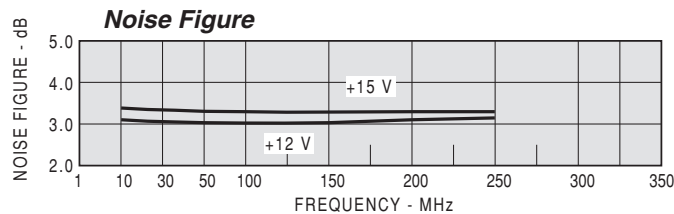
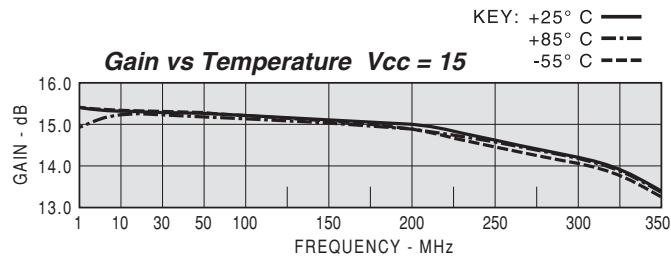
SMT0-8 Package for Amplifiers



If DC is present on RF input/output, this model requires additional external blocking capacitors.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

Model: AP108		Vcc=+15V				Icc=108.59	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	DB
MHZ	IN	OUT	DB	DEG	NSEC		
1	1.24	1.44	15.43	-161			-25.0
2	1.10	1.19	15.32	-171			-28.1
3	1.06	1.13	15.31	-175			-29.0
4	1.05	1.11	15.33	-176			-29.4
5	1.04	1.10	15.34	-178			-29.5
10	1.04	1.07	15.34	179	1.8		-29.7
20	1.06	1.07	15.33	176	1.0		-29.8
50	1.16	1.10	15.28	167	0.78		-29.6
100	1.36	1.16	15.22	154	0.74		-29.2
150	1.60	1.26	15.11	140	0.75		-28.5
200	1.91	1.40	14.94	126	0.78		-28.1
250	2.31	1.59	14.63	112	0.79		-27.6
300	2.76	1.84	14.13	97	0.81		-27.1
350	3.26	2.17	13.38	83	0.81		-27.2

LINEAR S-PARAMETERS									
Model: AP108		Vcc=+15V						Icc=108.59	
FREQ.		S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
1	0.11	-92.7	5.91	-161.2	0.056	145.9	0.18	114.9	
2	0.05	-107.9	5.83	-171.3	0.039	154.5	0.08	84.9	
3	0.03	-113.9	5.83	-174.6	0.035	160.4	0.06	68.9	
4	0.02	-116.4	5.84	-176.3	0.034	164.2	0.05	56.0	
5	0.02	-116.9	5.85	-177.6	0.034	166.7	0.05	46.9	
10	0.02	-111.6	5.85	179.2	0.033	169.0	0.04	16.4	
20	0.03	-104.1	5.84	175.5	0.032	167.1	0.04	-11.9	
50	0.07	-103.9	5.81	167.0	0.033	153.3	0.05	-56.0	
100	0.15	-112.6	5.77	153.7	0.035	131.2	0.08	-97.1	
150	0.23	-122.9	5.70	140.1	0.038	110.7	0.12	-125.3	
200	0.31	-133.6	5.59	126.1	0.039	88.8	0.17	-147.4	
250	0.40	-145.6	5.39	111.8	0.042	70.8	0.23	-166.7	
300	0.47	-157.9	5.09	97.2	0.044	53.6	0.30	175.8	
350	0.53	-169.8	4.66	82.6	0.043	39.5	0.37	159.6	

Model: AP108		Vcc=+12V				Icc=86.43	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	DB
MHZ	IN	OUT	DB	DEG	NSEC		
1	1.18	1.34	15.39	-163			-25.7
2	1.08	1.16	15.27	-172			-28.4
3	1.05	1.12	15.27	-175			-29.2
4	1.04	1.11	15.28	-177			-29.5
5	1.04	1.10	15.29	-178			-29.7
10	1.04	1.09	15.29	179	1.7		-29.7
20	1.06	1.09	15.29	175	1.0		-29.9
50	1.16	1.11	15.25	167	0.79		-29.9
100	1.37	1.16	15.17	153	0.75		-29.2
150	1.61	1.26	15.06	140	0.76		-28.5
200	1.93	1.39	14.88	126	0.78		-28.0
250	2.33	1.58	14.55	111	0.79		-27.5
300	2.80	1.82	14.06	97	0.81		-27.0
350	3.30	2.15	13.28	82	0.81		-27.4

LINEAR S-PARAMETERS									
Model: AP108		Vcc=+12V						Icc=86.43	
FREQ.		S11		S21		S12		S22	
MHz		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1		0.08	-97.4	5.88	-163.4	0.052	146.8	0.14	107.0
2		0.04	-111.0	5.80	-172.1	0.038	157.1	0.07	75.7
3		0.02	-116.0	5.80	-175.1	0.034	162.0	0.06	57.5
4		0.02	-117.5	5.81	-176.7	0.033	165.7	0.05	45.4
5		0.02	-116.6	5.82	-177.9	0.033	167.0	0.05	35.7
10		0.02	-105.7	5.82	179.0	0.033	169.4	0.04	11.0
20		0.03	-100.4	5.81	175.4	0.032	167.3	0.04	-11.8
50		0.08	-102.2	5.79	166.9	0.032	153.3	0.05	-50.9
100		0.15	-112.1	5.74	153.5	0.035	130.9	0.08	-93.0
150		0.23	-122.9	5.66	139.8	0.038	109.2	0.12	-122.4
200		0.32	-133.8	5.55	125.7	0.040	88.7	0.16	-145.5
250		0.40	-145.8	5.34	111.4	0.042	68.9	0.22	-165.6
300		0.47	-158.2	5.04	96.8	0.044	53.2	0.29	176.5
350		0.53	-170.1	4.61	82.2	0.043	38.7	0.37	160.0