

# AP2008 10 TO 2000 MHz TO-8 CASCADABLE AMPLIFIER

**Typical Values**

<b>Low Noise Figure</b> .....	<b>AP2008</b> 3.0 dB
<b>High Output Level</b> .....	+24.5 dBm
<b>High Third Order I.P.</b> .....	40 dBm
<b>High Second Order I.P.</b> .....	60 dBm
<b>High Performance Thin Film</b>	
<b>Standard Size TO-8 Package</b>	

## SPECIFICATIONS

Parameter	Typical	Guaranteed*	
		0 to 50° C	-55 to +85° C
Frequency (Min.)	10-2100 MHz	10-2000 MHz	10-2000 MHz
Small Signal Gain (Min.)	11.5 dB	11.0 dB	10.5 dB
Gain Flatness (Max.)	±0.4 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)			
	100-200 MHz	3.6 dB	4.2 dB
	200-2000 MHz	3.0 dB	4.0 dB
SWR (Max.)	Input	<1.2:1 <sup>^</sup>	1.6:1 <sup>^</sup>
	Output	<1.5:1 <sup>^</sup>	1.8:1 <sup>^</sup>
Power Output (Min.) @ 1dB comp.			
		+24.5† dBm	+24.0† dBm
DC Current (Max.)			
		165 mA	185 mA

\* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.  
<sup>^</sup> 0.2 higher below 100 MHz. † 1.0 dBm lower above 1800 MHz.

## INTERMODULATION PERFORMANCE

Typical @ 25° C	+12 Volts	+15 Volts
Second Order Harmonic Intercept Point .....	+51 dBm	+66 dBm
Second Order Two Tone Intercept Point .....	+45 dBm	+60 dBm
Third Order Two Tone Intercept Point .....	+34 dBm	+40 dBm

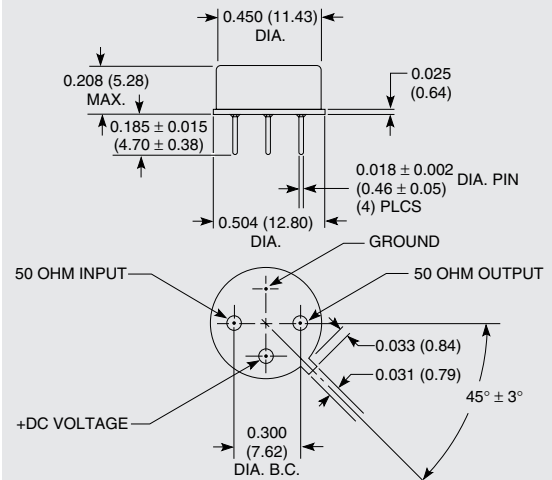
## ABSOLUTE MAXIMUM RATINGS

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.) .....	50 Milliwatts
Maximum Peak Power (3 µsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+85° C
Thermal Resistance <sup>1</sup> (θjc) .....	+14° C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+35.6° C

<sup>1</sup> Thermal resistance is based on total power dissipation.

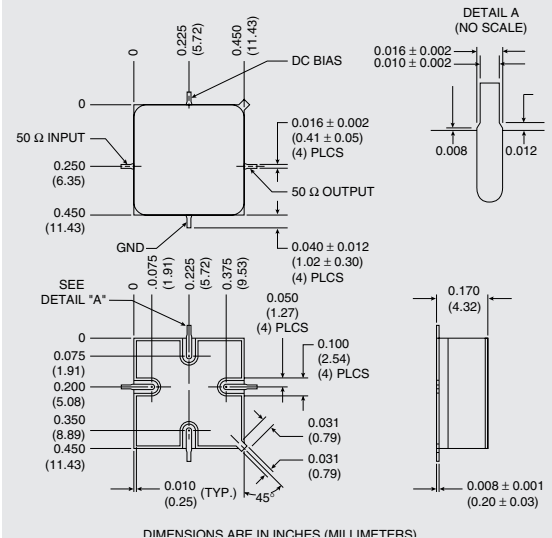
## AP2008

### TO-8 Package for Amplifiers



## APS2008

### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES (MILLIMETERS)

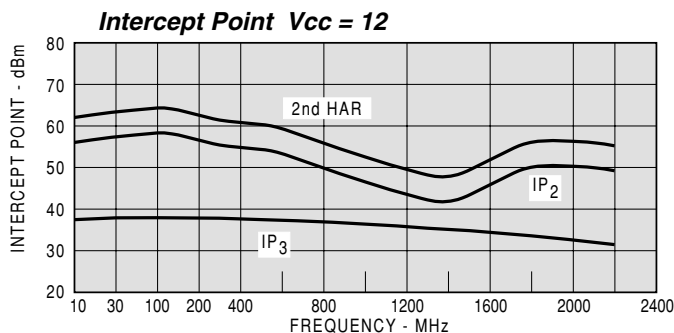
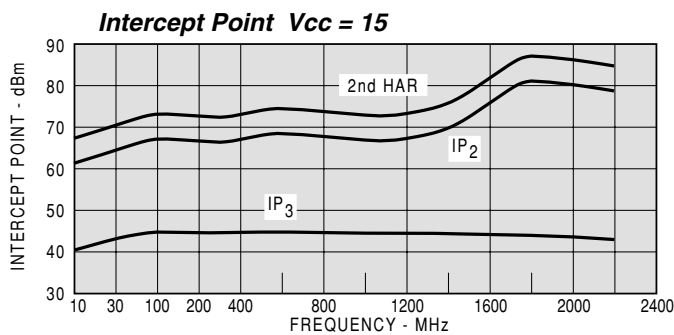
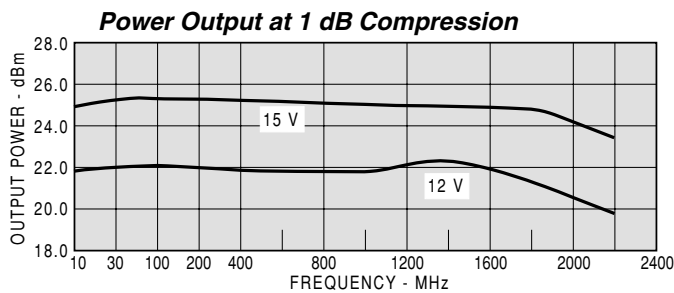
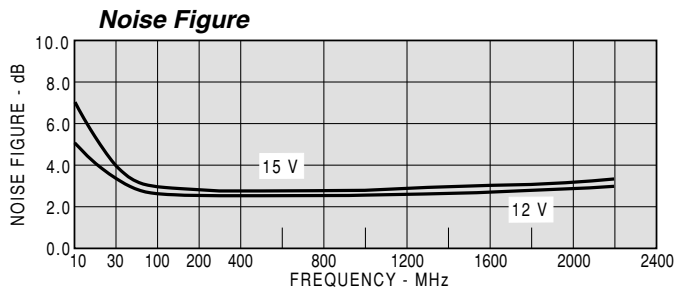
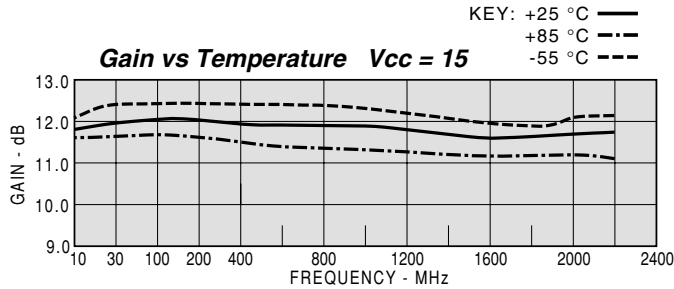
DIMENSIONS ARE IN INCHES (MILLIMETERS)

# AP2008



## TYPICAL PERFORMANCE

## TYPICAL AUTOMATIC TEST DATA



Model: AP2008		Vcc= +15V				Icc= 167.52	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
10	1.69	1.53	11.79	-153		-18.7	
30	1.25	1.47	11.96	-174		-18.9	
50	1.20	1.49	11.98	-179	0.57	-18.9	
100	1.17	1.49	12.04	174	0.37	-19.1	
200	1.14	1.49	12.01	163	0.29	-19.1	
400	1.13	1.46	11.93	144	0.26	-19.2	
600	1.10	1.45	11.91	125	0.26	-19.2	
800	1.06	1.46	11.90	107	0.25	-19.2	
1000	1.04	1.48	11.96	89	0.25	-19.4	
1200	1.06	1.49	11.98	69	0.28	-19.5	
1400	1.11	1.52	11.93	50	0.27	-19.6	
1600	1.13	1.55	11.87	30	0.27	-19.6	
1800	1.12	1.62	11.80	10	0.28	-19.5	
2000	1.13	1.75	11.80	-12	0.32	-19.3	
2200	1.19	1.95	11.64	-34	0.32	-19.4	

Model: AP2008		LINEAR S-PARAMETERS								Icc=167.52	
		Vcc= +15V									
FREQ		S11		S21		S12		S22		MAG	ANG
MHZ		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		
10		0.26	-62.3	3.89	-152.9	0.116	19.8	0.21	171.5		
30		0.11	-45.3	3.96	-173.7	0.113	3.8	0.19	-179.6		
50		0.09	-36.4	3.97	-178.9	0.113	0.3	0.20	-178.5		
100		0.08	-27.1	4.00	173.6	0.111	-3.8	0.20	171.7		
200		0.06	-23.3	3.99	162.8	0.112	-9.2	0.20	162.0		
400		0.06	-26.3	3.95	143.6	0.110	-20.5	0.19	145.6		
600		0.05	-33.0	3.94	125.3	0.110	-31.2	0.19	129.7		
800		0.03	-39.2	3.94	107.2	0.110	-42.2	0.19	112.6		
1000		0.02	-14.2	3.96	88.7	0.108	-52.4	0.19	94.5		
1200		0.03	26.9	3.97	69.0	0.106	-63.5	0.20	71.2		
1400		0.05	30.0	3.95	49.8	0.105	-74.1	0.20	45.9		
1600		0.06	19.1	3.92	30.0	0.105	-86.1	0.22	19.2		
1800		0.06	20.8	3.89	9.6	0.106	-99.5	0.24	-6.0		
2000		0.06	16.2	3.89	-11.9	0.109	-115.2	0.27	-30.6		
2200		0.09	33.7	3.82	-33.7	0.108	-132.6	0.32	-53.0		
2300		0.13	40.9	3.69	-46.8	0.108	-143.1	0.35	-64.7		

Model: AP2008		Vcc= +12V				Icc= 140.76	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
10	1.67	1.61	11.63	-153		-19.2	
30	1.24	1.61	11.80	-174		-19.5	
50	1.19	1.65	11.85	-179	0.57	-19.5	
100	1.15	1.65	11.90	174	0.35	-19.6	
200	1.12	1.66	11.89	163	0.28	-19.7	
400	1.10	1.64	11.83	144	0.26	-19.7	
600	1.07	1.64	11.85	125	0.26	-19.6	
800	1.03	1.65	11.85	107	0.25	-19.6	
1000	1.04	1.68	11.89	88	0.25	-19.6	
1200	1.07	1.68	11.91	68	0.28	-19.5	
1400	1.13	1.68	11.86	48	0.27	-19.3	
1600	1.14	1.68	11.79	28	0.27	-19.1	
1800	1.15	1.71	11.74	7	0.30	-18.7	
2000	1.20	1.80	11.77	-14	0.33	-18.5	
2200	1.35	1.96	11.54	-37	0.31	-18.4	

Model: AP2008		LINEAR S-PARAMETERS								Icc=140.76	
		Vcc= +12V									
FREQ		S11		S21		S12		S22		MAG	ANG
MHZ		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		
10		0.25	-63.6	3.81	-153.3	0.110	17.5	0.23	-178.1		
30		0.11	-48.7	3.89	-173.6	0.106	3.2	0.23	-176.1		
50		0.09	-40.0	3.91	-178.8	0.106	0.1	0.24	-178.9		
100		0.07	-29.8	3.94	173.7	0.104	-3.3	0.25	174.7		
200		0.06	-25.1	3.93	162.9	0.104	-8.2	0.25	165.8		
400		0.05	-27.7	3.90	143.5	0.104	-18.5	0.24	152.2		
600		0.03	-31.3	3.91	125.1	0.104	-27.6	0.24	138.4		
800		0.01	-22.3	3.91	106.6	0.105	-36.6	0.25	123.1		
1000		0.02	43.2	3.93	87.8	0.105	-46.8	0.25	106.8		
1200		0.04	55.4	3.94	67.9	0.106	-56.1	0.25	87.4		
1400		0.06	46.6	3.92	48.3	0.108	-66.2	0.25	66.2		
1600		0.07	39.3	3.88	28.3	0.111	-78.0	0.25	42.8		
1800		0.07	46.3	3.86	7.4	0.116	-91.0	0.26	20.1		
2000		0.09	45.6	3.88	-14.4	0.119	-106.1	0.29	-4.3		
2200		0.15	48.4	3.77	-37.1	0.120	-124.2	0.32	-27.4		
2300		0.20	46.1	3.68	-51	0.122	-133.8	0.35	-39.9		