TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AP2008

10 TO 2000 MHz
TO-8 CASCADABLE AMPLIFIER

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

SPECIFICATIONS*

Parameter	Typical	Guaranteed 0 to 50 °C	Guaranteed -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	4.7 dB
200-2000 MHz	3.0 dB	3.5 dB	4.0 dB
SWR (Max.) Input	<1.2:1^	1.6:1^	1.8:1^
Output	<1.5:1^	1.8:1^	1.9:1^
Power Output (Min.) @ 1dB comp.	+24.5† dBm	+24.0† dBm	+23.0† dBm
Reverse Isolation	19.0 dB	—	—
DC Current (Max.)	165 mA	175 mA	185 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 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	+61 dBm
Second Order Two Tone Intercept Point	+45 dBm	+55 dBm
Third Order Two Tone Intercept Point	+34 dBm	+39 dBm

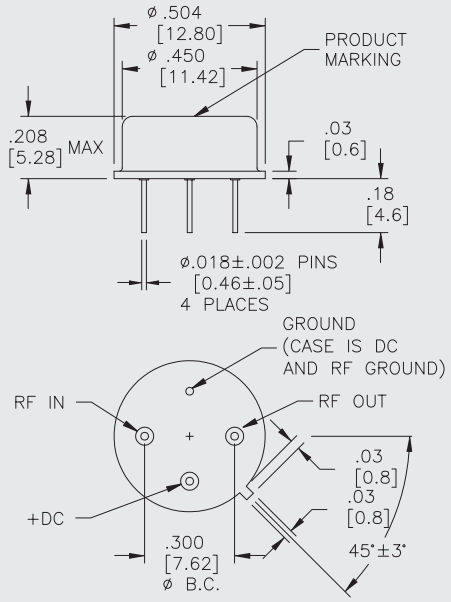
ABSOLUTE MAXIMUM RATINGS

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[1] (θjc)	+14 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+35.6 °C

[1] Thermal resistance is based on total power dissipation.

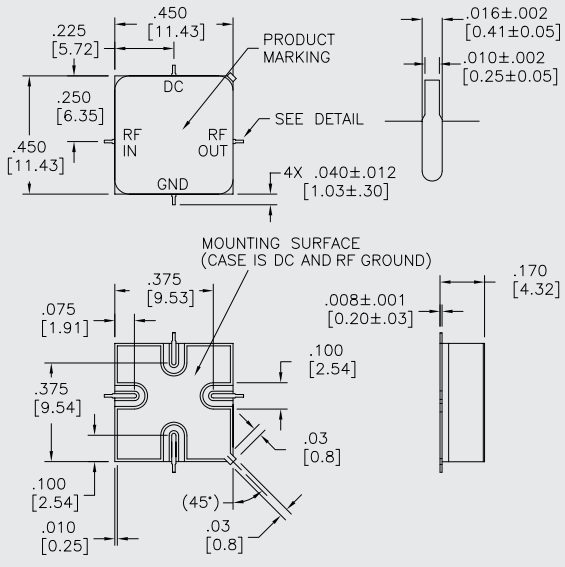
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TO-8 Package for Amplifiers



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SMTO-8 Package for Amplifiers

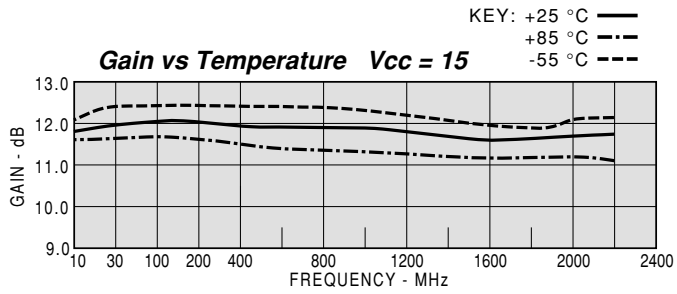


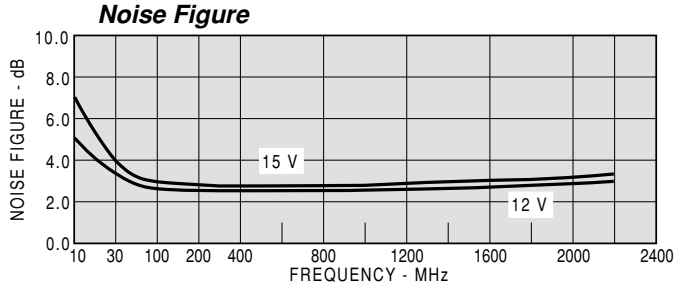
DIMENSIONS ARE IN INCHES [MILLIMETERS]

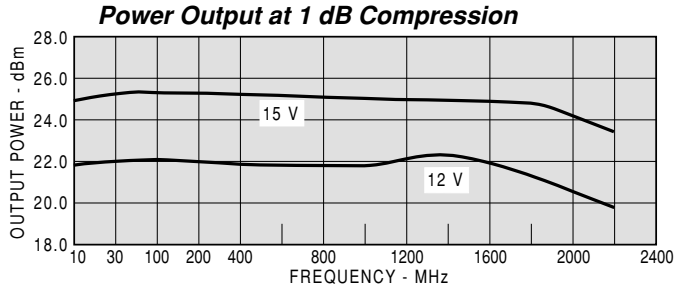
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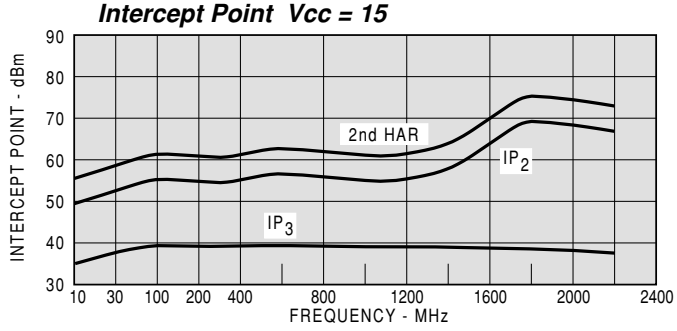
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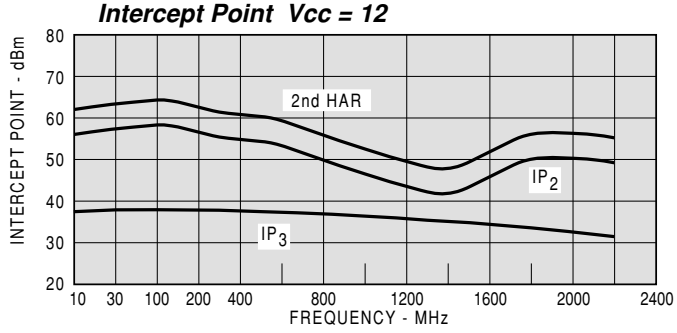
TYPICAL PERFORMANCE











TYPICAL AUTOMATIC TEST DATA

Model: AP2008 Vcc= +15V Icc= 167.52

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO 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

LINEAR S-PARAMETERS

Model: AP2008 Vcc= +15V Icc=167.52

FREQ.	S11		S21		S12		S22	
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 MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO 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

LINEAR S-PARAMETERS

Model: AP2008 Vcc= +12V Icc=140.76

FREQ.	S11		S21		S12		S22	
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