TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AP308

10 TO 250 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AP308
Low Noise Figure	<3.7 dB
High Output Level	+23.0 dBm
High Third Order I.P.	+35 dBm
High Efficiency	+8 Volts
High Performance Thin Film	
Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter		Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)		5-300 MHz	10-250 MHz	10-250 MHz
Small Signal Gain (Min.)		13.0 dB	12.5 dB	12.0 dB
Gain Flatness (Max.)		±0.25 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)		<3.7 dB	4.0 dB	4.5 dB
SWR (Max.)	Input Output	1.6:1 1.3:1	1.9:1 1.7:1	2.0:1 1.8:1
Power Output (Min.) @ 1dB comp		+23.0 dBm	+22.0 dBm	+21.5 dBm
Reverse Isolation		17.0 dB	—	—
DC Current (Max.)		93 mA	98 mA	103 mA

* Measured in a 50-ohm system at +8 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 100 MHz	AP308
Second Order Harmonic Intercept Point	+54 dBm
Second Order Two Tone Intercept Point	+48 dBm
Third Order Two Tone Intercept Point	+35 dBm

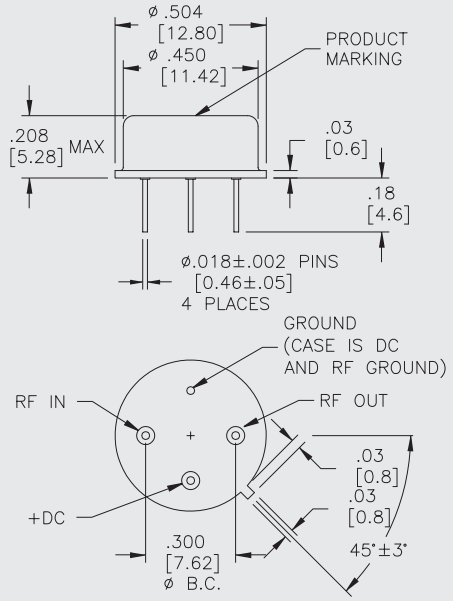
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+13 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+105 °C
Thermal Resistance[1] (θjc)	+30 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+22.2 °C

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

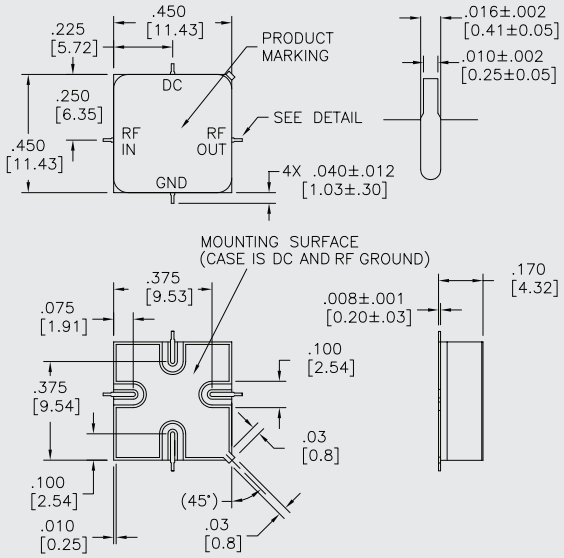
AP308

TO-8 Package for Amplifiers



AS308

SMTO-8 Package for Amplifiers



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

DIMENSIONS ARE IN INCHES [MILLIMETERS]

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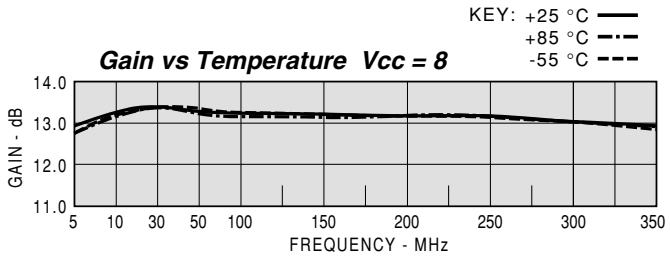
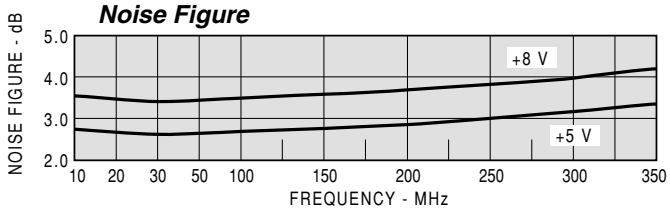
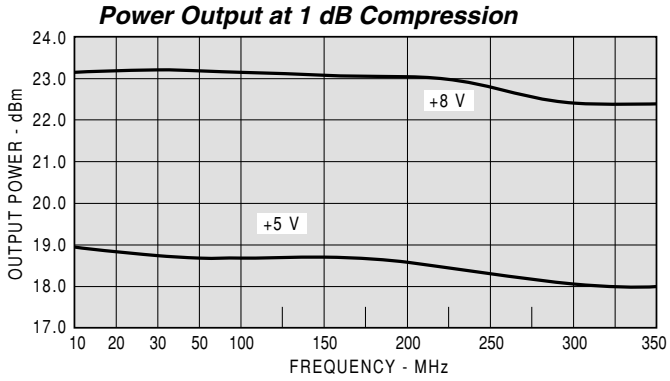
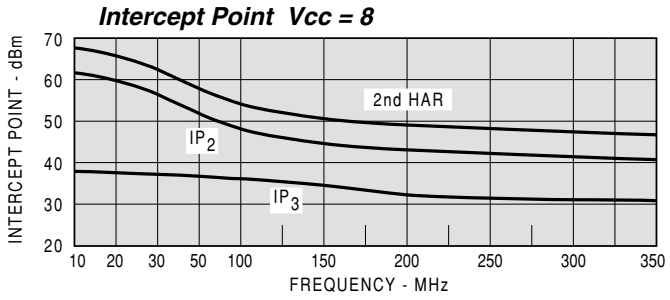
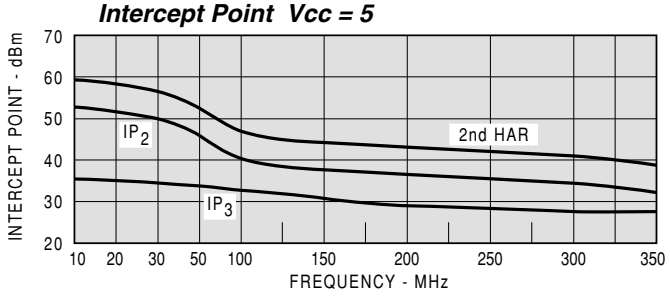
TYPICAL PERFORMANCE











TYPICAL AUTOMATIC TEST DATA

Model: AP308 Vcc=+8V Icc=92.43

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
5	1.28	1.14	12.97	-169		-18.3
10	1.23	1.11	13.25	-175		-17.6
30	1.20	1.09	13.35	175	0.99	-17.4
50	1.20	1.09	13.32	169	0.77	-17.4
100	1.19	1.09	13.24	157	0.67	-17.3
150	1.20	1.07	13.19	145	0.66	-17.2
200	1.26	1.06	13.15	133	0.66	-17.1
250	1.38	1.09	13.11	121	0.68	-16.9
300	1.56	1.16	13.03	108	0.71	-16.8
350	1.83	1.28	12.86	95	0.73	-16.7

LINEAR S-PARAMETERS

Model: AP308 Vcc=+8V Icc=92.43

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.12	-109.1	4.45	-168.9	0.122	-174.0	0.07	-67.1
10	0.10	-136.8	4.60	-175.4	0.132	-177.8	0.05	-119.2
30	0.09	-165.4	4.65	175.0	0.135	173.9	0.04	-172.0
50	0.09	-172.8	4.63	169.3	0.136	167.4	0.04	171.5
100	0.09	-174.9	4.59	157.0	0.137	153.3	0.04	146.2
150	0.09	-168.6	4.57	145.2	0.138	139.9	0.04	133.8
200	0.12	-161.4	4.54	133.4	0.140	127.1	0.03	142.0
250	0.16	-160.0	4.52	121.2	0.143	114.0	0.04	167.3
300	0.22	-164.6	4.48	108.5	0.145	101.2	0.08	177.4
350	0.29	-174.0	4.40	95.3	0.147	89.1	0.12	172.6

Model: AP308 Vcc=+5V Icc=55.20

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
5	1.27	1.17	12.73	-168		-18.5
10	1.21	1.11	13.14	-176		-17.7
30	1.19	1.08	13.26	174	1.10	-17.5
50	1.20	1.07	13.23	168	0.82	-17.5
100	1.22	1.07	13.13	155	0.71	-17.3
150	1.28	1.07	13.06	142	0.71	-17.2
200	1.40	1.11	12.97	129	0.72	-17.1
250	1.60	1.20	12.85	116	0.74	-16.9
300	1.87	1.32	12.65	102	0.76	-16.8
350	2.25	1.49	12.33	88	0.78	-16.8

LINEAR S-PARAMETERS

Model: AP308 Vcc=+5V Icc=55.20

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.12	-104.2	4.38	-169.5	0.122	-173.8	0.07	-65.3
10	0.10	-132.6	4.54	-175.7	0.130	-177.7	0.05	-108.9
30	0.09	-159.7	4.60	174.4	0.134	173.3	0.04	-159.0
50	0.09	-162.7	4.59	168.4	0.134	166.8	0.04	-172.6
100	0.10	-158.9	4.54	155.2	0.136	151.8	0.03	178.1
150	0.12	-154.4	4.50	142.4	0.137	137.6	0.04	-173.4
200	0.17	-154.5	4.45	129.4	0.139	123.7	0.05	-164.8
250	0.23	-159.6	4.39	116.1	0.142	109.6	0.09	-168.0
300	0.30	-168.5	4.29	102.4	0.144	96.0	0.14	-176.2
350	0.38	179.9	4.13	88.5	0.144	83.1	0.20	172.4