

AP294

10 TO 200 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

Low Noise Figure	AP294 3.5 dB
High Output Power	+22.5 dBm
High Gain	+29.3 dB
High Reverse Isolation	36 dB
High Performance Thin Film	
Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	10-300 MHz	10-200 MHz	10-200 MHz
Small Signal Gain (Min.)	29.3 dB	28.5 dB	28.0 dB
Gain Flatness (Max.)	±0.2 dB	±0.4 dB	±0.5 dB
Noise Figure (Max.)	<3.5 dB	4.0 dB	4.5 dB
SWR (Max.)	Input <1.5:1 Output <1.5:1	1.7:1 1.9:1	1.8:1 2.0:1
Power Output (Min.) @ 1dB comp.	+22.5 dBm	+21.5 dBm	+21.0 dBm
Reverse Isolation	36.0 dB	—	—
DC Current (Max.)	60.0 mA	65.0 mA	70.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 100 MHz

Second Order Harmonic Intercept Point	AP294 +50 dBm
Second Order Two Tone Intercept Point	+44 dBm
Third Order Two Tone Intercept Point	+32 dBm

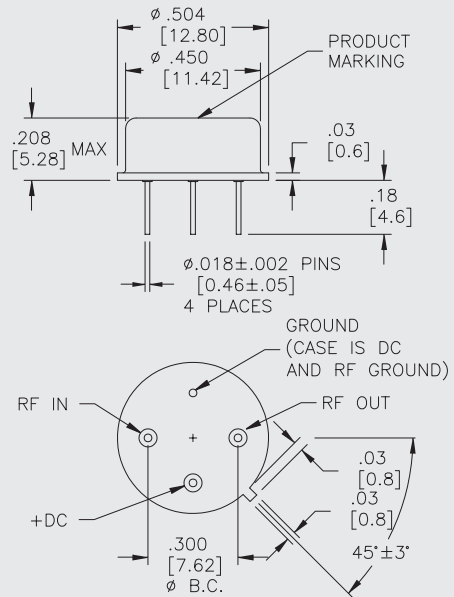
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+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 Resistance¹ (θjc)	+30 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+29.4 °C

¹ Thermal resistance is based on total power dissipation.

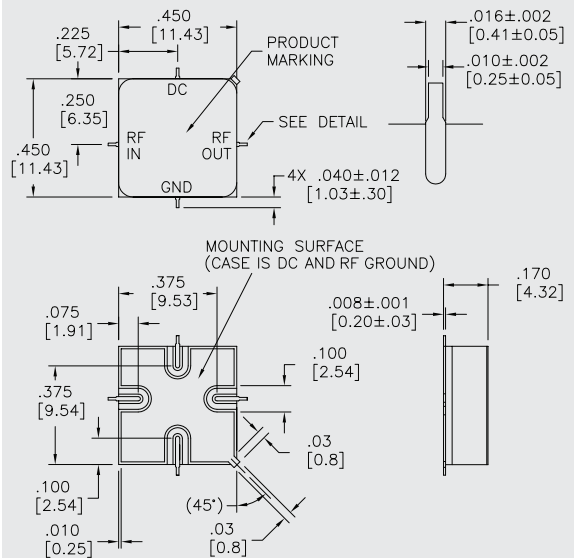
AP294

TO-8 Package for Amplifiers



APS294

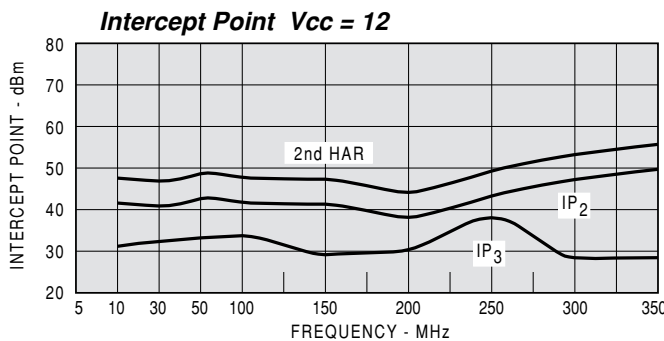
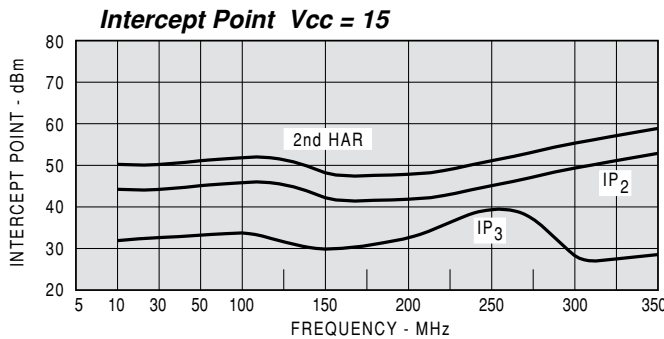
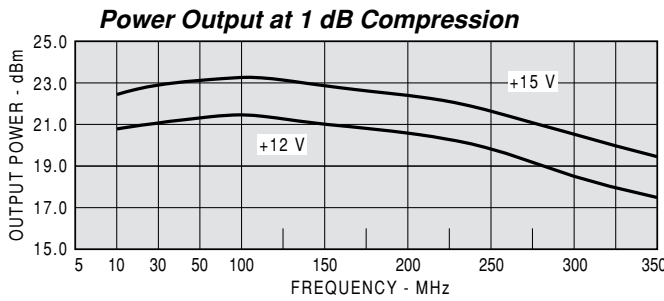
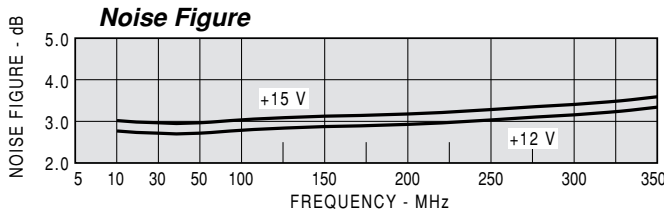
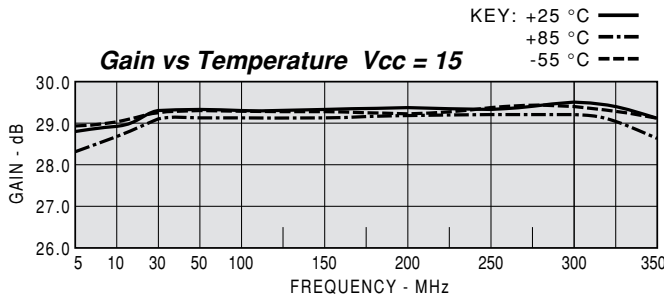
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AP294		Vcc=+15V					lcc=61.17
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.49	1.88	28.96	-160		-37.4	
10	1.24	1.43	29.12	-173		-36.5	
30	1.08	1.22	29.38	171	1.7	-36.5	
50	1.03	1.20	29.48	161	1.5	-36.2	
100	1.06	1.22	29.50	137	1.3	-36.1	
150	1.12	1.29	29.46	114	1.3	-36.6	
200	1.17	1.41	29.51	91	1.3	-36.7	
250	1.23	1.67	29.61	66	1.4	-37.6	
300	1.35	2.24	29.62	38	1.5	-38.1	
350	1.63	3.44	29.18	7	1.7	-40.2	

Model: AP294		LINEAR S-PARAMETERS						lcc=61.17	
Vcc=+15		S11		S21		S12		S22	
FREQ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.2	-69.6	28.07	-160.1	0.013	18.1	0.31	116.9	
10	0.11	-73.5	28.56	-172.6	0.015	8.5	0.18	105.7	
30	0.04	-91.4	29.44	171.5	0.015	-5.5	0.10	76.8	
50	0.01	-123.6	29.79	160.7	0.015	-15.9	0.09	56.9	
100	0.03	82.7	29.85	137.0	0.016	-28.9	0.10	19.4	
150	0.06	47.5	29.71	114.1	0.015	-47.8	0.13	-12.8	
200	0.08	15.9	29.89	90.8	0.015	-63.9	0.17	-48.1	
250	0.1	-23.8	30.22	65.9	0.013	-84.4	0.25	-82.7	
300	0.15	-71.9	30.27	38.3	0.012	-111.6	0.38	-117.6	
350	0.24	-117.6	28.77	7.0	0.010	-147.1	0.55	-152.8	
400	0.35	-157.9	24.71	-25.8	0.008	172.5	0.71	172.2	
450	0.45	168.9	18.87	-56.3	0.005	123.0	0.79	141.4	

Model: AP294		Vcc=+12V					lcc=49.11
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.46	1.81	28.76	-161		-37.0	
10	1.23	1.40	28.90	-173		-36.5	
30	1.08	1.22	29.14	171	1.6	-37.1	
50	1.03	1.21	29.24	160	1.5	-35.9	
100	1.04	1.25	29.25	136	1.3	-36.1	
150	1.09	1.33	29.22	113	1.3	-36.5	
200	1.13	1.47	29.24	89	1.3	-36.9	
250	1.19	1.76	29.30	64	1.4	-37.8	
300	1.34	2.38	29.24	36	1.6	-38.8	
350	1.65	3.68	28.67	4	1.7	-40.2	

Model: AP294		LINEAR S-PARAMETERS						lcc=49.11	
Vcc=+12		S11		S21		S12		S22	
FREQ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.19	-68.1	27.42	-161.3	0.014	15.3	0.29	113.2	
10	0.10	-69.5	27.85	-173.2	0.015	6.1	0.17	100.1	
30	0.04	-82.8	28.64	171.1	0.014	-2.5	0.10	66.9	
50	0.02	-98.1	28.97	160.3	0.016	-16.7	0.10	45.4	
100	0.02	74.4	29.02	136.3	0.016	-30.3	0.11	10.1	
150	0.04	36.2	28.90	113.2	0.015	-46.9	0.14	-20.5	
200	0.06	3.1	28.97	89.4	0.014	-65.8	0.19	-53.4	
250	0.09	-41.7	29.16	64.1	0.013	-88.4	0.27	-87.1	
300	0.14	-89.3	28.97	36.0	0.013	-116.9	0.41	-121.2	
350	0.25	-130.3	27.14	4.5	0.010	-155.9	0.57	-155.9	
400	0.36	-166.8	22.96	-28.1	0.008	168.3	0.72	169.8	
450	0.46	162.8	17.44	-57.9	0.005	119.3	0.8	139.8	

