

AP1296

30 TO 1200 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

Low Noise Figure	AP1296 1.6 dB
High Output Level	+26.5 dBm
Medium Gain	17.5 dB
High Performance Thin Film Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	10-1400 MHz	30-1200 MHz	30-1200 MHz
Small Signal Gain (Min.)	17.5 dB	16.5 dB	15.5 dB
Gain Flatness (Max.)	±0.4 dB	±0.7 dB	±0.8 dB
Noise Figure (Max.) 200-1200 MHz	1.6 dB	2.0 dB	2.5 dB
SWR (Max.)	Input 1.4:1 Output 1.4:1^	1.7:1 1.7:1^	1.8:1 1.8:1^
Power Output (Min.) @ 1dB comp.	+26.5 dBm	+25.0 dBm	+24.5 dBm
Reverse Isolation	22.5 dB	—	—
DC Current (Max.)	195 mA	200 mA	205 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 0.2 higher below 500 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 500 MHz

Second Order Harmonic Intercept Point	AP1296 +64 dBm
Second Order Two Tone Intercept Point	+58 dBm
Third Order Two Tone Intercept Point	+38 dBm

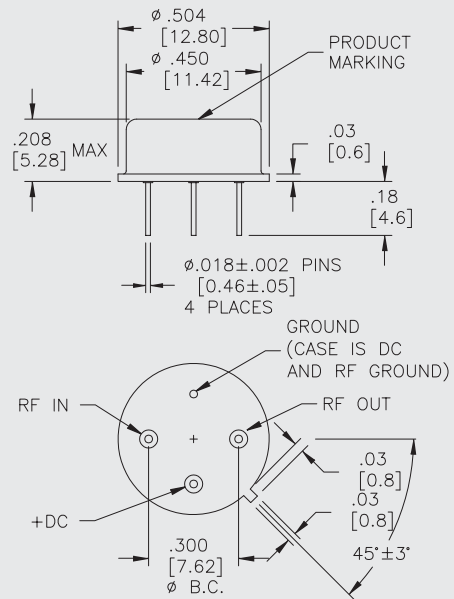
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 Volts
Maximum Continuous RF Input Power	+22 dBm
Maximum Short Term Input Power (1 Minute Max.)	+25 dBm
Maximum Peak Power (3 μsec Max.)	+28 dBm
Burn-in Temperature	+125 °C
Thermal Resistance¹ (θjc)	+18.6 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+54.4 °C

¹ Thermal resistance is based on total power dissipation.

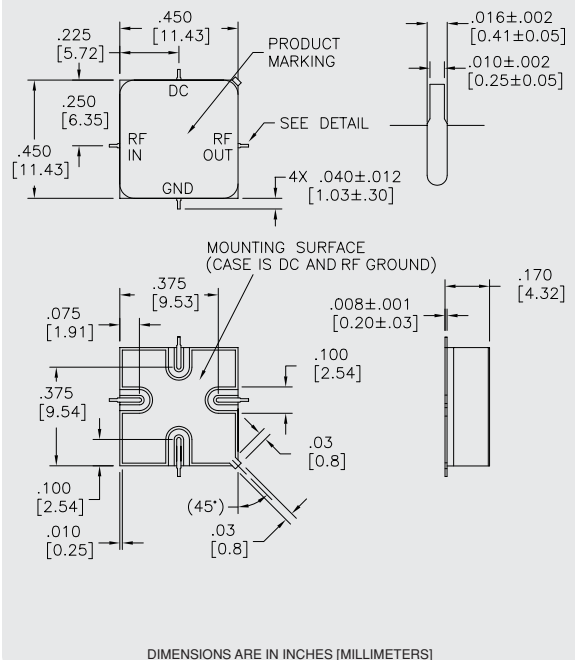
AP1296

TO-8 Package for Amplifiers



APS1296

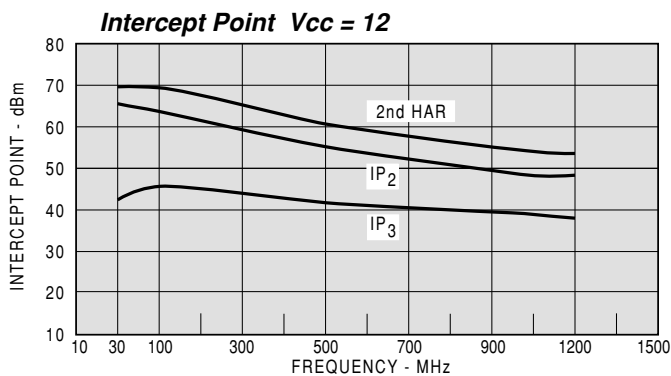
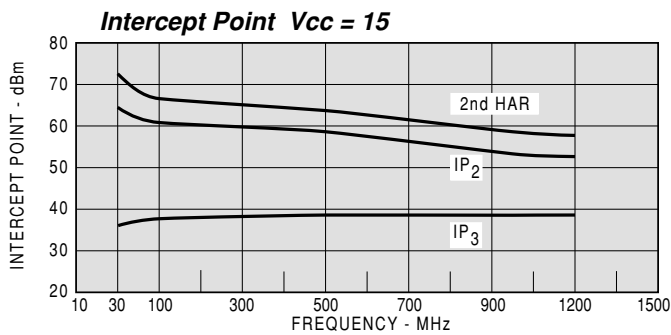
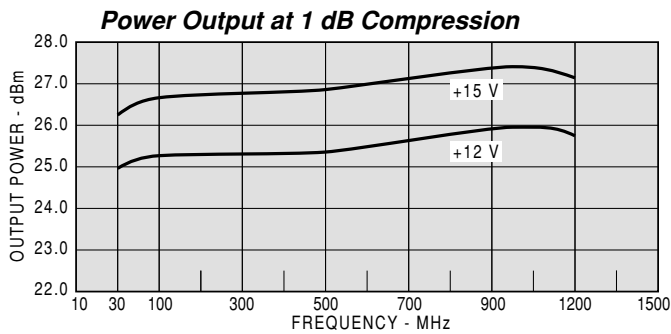
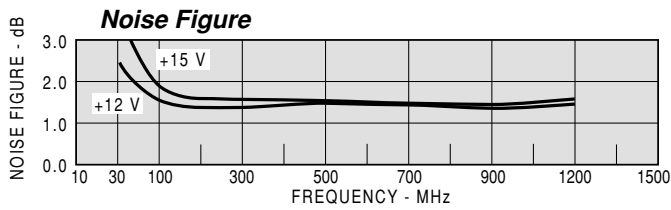
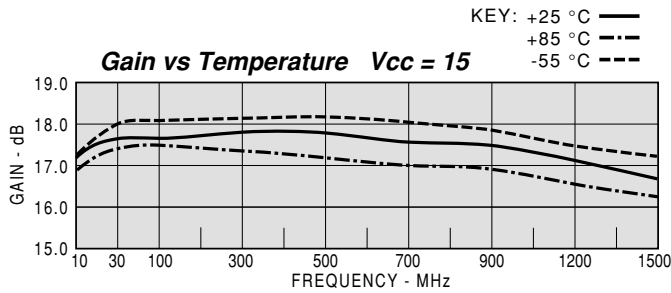
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AP1296			Vcc=+15V			Icc=195.85	
FREQ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO	DB
10	1.88	1.80	16.92	-146.0			-22.30
30	1.19	1.47	17.45	-173.0	1.90		-22.30
50	1.11	1.47	17.43	-180.0	0.77		-22.30
100	1.11	1.45	17.53	173.0	0.41		-22.20
200	1.06	1.52	17.59	161.0	0.33		-22.50
300	1.04	1.53	17.72	149.0	0.35		-22.60
400	1.07	1.51	17.77	136.0	0.34		-22.60
500	1.11	1.47	17.73	124.0	0.34		-22.60
600	1.15	1.41	17.59	112.0	0.33		-22.50
700	1.20	1.29	17.52	101.0	0.30		-22.50
800	1.21	1.21	17.48	90.0	0.31		-22.30
900	1.22	1.15	17.45	78.0	0.34		-22.00
1000	1.22	1.09	17.34	66.0	0.33		-21.80
1100	1.23	1.05	17.22	54.0	0.33		-21.60
1200	1.23	1.08	17.08	42.0	0.33		-21.50
1300	1.23	1.15	16.93	30.0	0.32		-21.30
1400	1.24	1.23	16.76	19.0	0.33		-21.20
1500	1.25	1.34	16.65	7.0	0.31		-21.10

Model: AP1296			Vcc=+15V						Icc=195.85	
FREQ.	S11		S21		S12		S22		MAG	ANG
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.30	-72.10	7.02	-146.30	0.08	34.00	0.29	178.10		
30	0.09	-71.20	7.45	-172.80	0.08	7.90	0.19	-177.00		
50	0.05	-50.20	7.40	-179.60	0.08	3.40	0.19	179.80		
100	0.05	-30.30	7.31	172.90	0.08	-2.30	0.18	-179.60		
200	0.03	-37.50	7.57	161.10	0.08	-9.40	0.21	175.80		
300	0.02	6.40	7.69	148.60	0.07	-14.00	0.21	167.00		
400	0.03	36.10	7.73	136.30	0.07	-18.90	0.20	157.20		
500	0.05	36.80	7.70	123.90	0.07	-23.10	0.19	147.00		
600	0.07	29.20	7.58	111.90	0.08	-28.30	0.17	135.20		
700	0.09	12.40	7.43	101.00	0.08	-31.40	0.13	122.50		
800	0.10	-6.40	7.48	89.80	0.08	-36.00	0.09	119.50		
900	0.10	-19.80	7.46	77.70	0.08	-42.00	0.07	110.30		
1000	0.10	-34.30	7.36	65.80	0.08	-47.70	0.04	90.90		
1100	0.10	-50.60	7.26	53.90	0.08	-53.70	0.02	36.90		
1200	0.10	-67.60	7.14	42.10	0.08	-60.30	0.04	-25.30		
1300	0.10	-87.40	7.02	30.40	0.09	-67.20	0.07	-47.20		
1400	0.11	-108.80	6.89	18.60	0.09	-73.60	0.10	-57.10		
1500	0.11	-129.40	6.80	7.40	0.09	-81.20	0.14	-62.40		

Model: AP1296			Vcc=+12V			Icc=189.37	
FREQ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO	DB
10	1.92	1.91	16.71	-145.0	5.20		-22.90
30	1.25	1.64	17.46	-171.0	1.90		-22.80
50	1.14	1.69	17.61	-178.0	0.82		-23.10
100	1.05	1.70	17.67	172.0	0.54		-23.10
200	1.03	1.66	17.63	159.0	0.37		-23.00
300	1.07	1.62	17.61	147.0	0.33		-23.00
400	1.10	1.57	17.59	135.0	0.32		-22.80
500	1.14	1.53	17.55	124.0	0.33		-22.70
600	1.18	1.47	17.44	112.0	0.32		-22.60
700	1.21	1.36	17.40	101.0	0.29		-22.40
800	1.22	1.30	17.48	90.0	0.33		-22.10
900	1.23	1.24	17.47	78.0	0.34		-21.90
1000	1.23	1.19	17.37	66.0	0.33		-21.60
1100	1.24	1.14	17.29	54.0	0.33		-21.40
1200	1.24	1.12	17.19	42.0	0.33		-21.20
1300	1.24	1.15	17.07	30.0	0.33		-20.90
1400	1.25	1.21	16.95	17.0	0.34		-20.70
1500	1.26	1.32	16.82	6.0	0.33		-20.40