

# AP388

## 10 TO 250 MHz TO-8 CASCADABLE AMPLIFIER

**Typical Values**

<b>High Gain</b> .....	<b>AP388</b> +14.0 dB
<b>High Output Power</b> .....	23.0 dBm
<b>High Third Order I.P.</b> .....	+37 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.)	10-400 MHz	10-250 MHz	10-250 MHz
Small Signal Gain (Min.)	14.0 dB	13.0 dB	12.5 dB
Gain Flatness (Max.)	< ±0.3 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	5.0 dB	5.5 dB	6.0 dB
SWR (Max.) Input/Output	<1.5:1	1.9:1	2.0:1
Power Output (Min.) @ 1dB comp.	+23.0 dBm	+22.0 dBm	+21.5 dBm
Reverse Isolation	20.0 dB	—	—
DC Current (Max.)	65.0 mA	68.0 mA	75.0 mA

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

### INTERMODULATION PERFORMANCE

**Typical @ 25 °C**

<b>Second Order Harmonic Intercept Point</b> .....	<b>AP388</b> +51 dBm
<b>Second Order Two Tone Intercept Point</b> .....	+45 dBm
<b>Third Order Two Tone Intercept Point</b> .....	+37 dBm

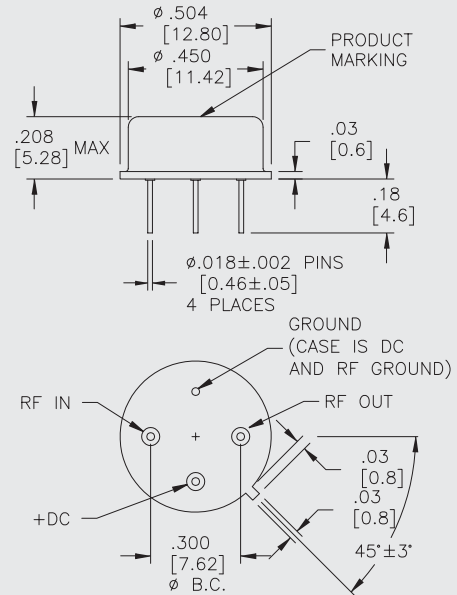
### ABSOLUTE MAXIMUM RATINGS

<b>Storage Temperature</b> .....	-62 to +125 °C
<b>Maximum Case Temperature</b> .....	+125 °C
<b>Maximum DC Voltage</b> .....	+17 Volts
<b>Maximum Continuous RF Input Power</b> .....	+17 dBm
<b>Maximum Short Term Input Power (1 Minute Max.)</b> .....	100 Milliwatts
<b>Maximum Peak Power (3 μsec Max.)</b> .....	0.5 Watt
<b>Burn-in Temperature</b> .....	+85 °C
<b>Thermal Resistance<sup>1</sup> (θ<sub>jc</sub>)</b> .....	+56 °C/Watt
<b>Junction Temperature Rise Above Case (T<sub>jc</sub>)</b> .....	+57.0 °C

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

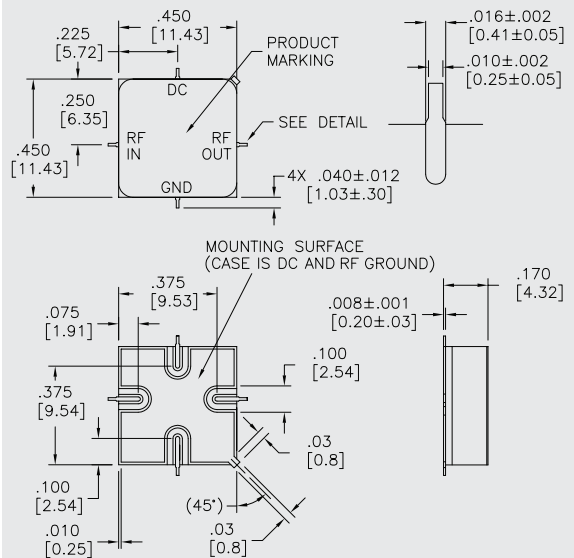
### AP388

#### TO-8 Package for Amplifiers



### APS388

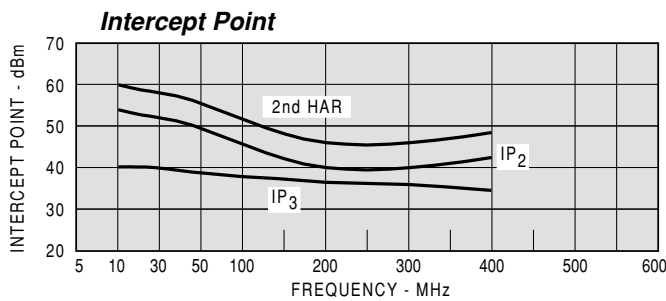
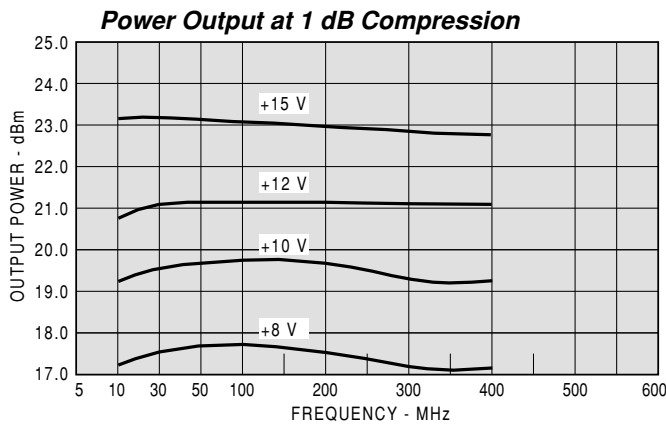
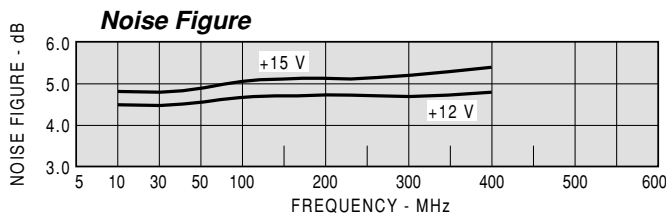
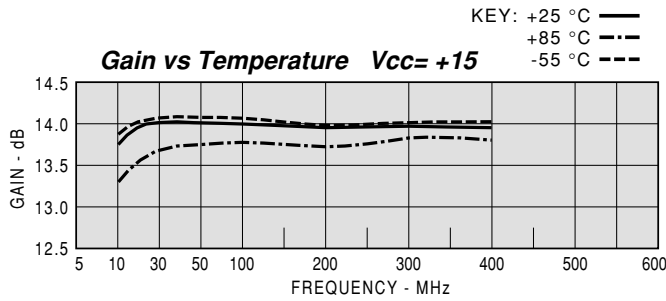
#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AP388 Vcc=+15V Icc=64.99

FREQ. MHz	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
10	1.53	1.62	14.0		-21.6
20	1.33	1.33	14.3		-21.0
50	1.24	1.16	14.5	1.262	-20.7
100	1.26	1.27	14.5	0.902	-20.5
150	1.32	1.38	14.4	0.803	-20.3
200	1.43	1.50	14.5	0.785	-20.0
250	1.57	1.62	14.5	0.789	-19.4
300	1.73	1.76	14.6	0.831	-19.0

Model: AP388 Vcc=+15V Icc=64.99

LINEAR S-PARAMETERS

FREQ. MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.21	-49.1	5.00	-168.1	0.083	12.0	0.24	133.6
20	0.14	-47.3	5.21	-177.4	0.089	6.0	0.14	133.8
50	0.11	-50.5	5.33	168.9	0.093	-1.0	0.08	170.1
100	0.11	-65.4	5.30	152.9	0.094	-7.0	0.12	-164.9
150	0.14	-87.0	5.26	138.6	0.096	-11.0	0.16	-170.6
200	0.18	-104.9	5.28	124.1	0.100	-16.0	0.20	179.1
250	0.22	-122.2	5.31	109.9	0.107	-23.0	0.24	166.2
300	0.27	-140.6	5.37	94.9	0.112	-30.0	0.28	150.8
350	0.32	-155.6	5.40	78.5	0.119	-39.0	0.32	132.9
400	0.37	-172.6	5.39	61.8	0.126	-49.0	0.38	111.3

Model: AP388 Vcc=+12V Icc=51.33

FREQ. MHz	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
10	1.51	1.60	14.0		-21.3
20	1.34	1.31	14.3		-20.8
50	1.25	1.16	14.5	1.272	-20.3
100	1.28	1.29	14.4	0.917	-20.3
150	1.36	1.44	14.3	0.826	-20.0
200	1.48	1.58	14.3	0.819	-19.6
250	1.62	1.74	14.4	0.811	-19.0
300	1.81	1.92	14.4	0.868	-18.5

Model: AP388 Vcc=+12V Icc=51.33

LINEAR S-PARAMETERS

FREQ. MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.20	-49.4	5.00	-168.7	0.086	12.0	0.23	132.6
20	0.14	-47.4	5.19	-177.9	0.091	6.0	0.13	133.2
50	0.11	-52.3	5.30	168.3	0.096	-1.0	0.07	176.9
100	0.12	-69.7	5.26	151.8	0.097	-6.0	0.13	-160.1
150	0.15	-90.3	5.21	136.8	0.100	-11.0	0.18	-167.8
200	0.19	-108.7	5.21	122.1	0.105	-15.0	0.22	-179.4
250	0.24	-126.6	5.22	107.3	0.112	-22.0	0.27	166.7
300	0.29	-144.6	5.24	91.8	0.119	-30.0	0.32	150.0
350	0.34	-160.3	5.21	75.0	0.128	-40.0	0.36	131.0
400	0.40	-176.1	5.15	58.0	0.132	-50.0	0.42	109.0