

# AP348

## 10 TO 250 MHz TO-8 CASCADABLE AMPLIFIERS

### Typical Values

Medium Gain .....	<b>AP348</b> 13.5 dB
High Output Power .....	+25.0 dBm
High Third Order I.P. ....	+42 dBm
Low Noise Figure .....	3.2 dB
High Performance Thin Film Standard Size TO-8 Package	

## SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to 85 °C
Frequency (Min.)	10-350 MHz	10-250 MHz	10-250 MHz
Small Signal Gain (Min.)	13.5 dB	12.5 dB	12.0 dB
Gain Flatness (Max.)	±0.2 dB	±0.4 dB	±0.6 dB
Noise Figure (Max.)	3.2 dB	4.0 dB	4.5 dB
SWR (Max.) Input/Output	< 1.5:1	1.7:1	1.8:1
Power Output (Min.) @ 1dB comp.	+25.0 dBm	+24.0 dBm	+23.5 dBm
Reverse Isolation	17.0 dB	—	—
DC Current (Max.)	108 mA	111 mA	114 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 .....	<b>AP348</b> +63 dBm
Second Order Two Tone Intercept Point .....	+57 dBm
Third Order Two Tone Intercept Point .....	+42 dBm

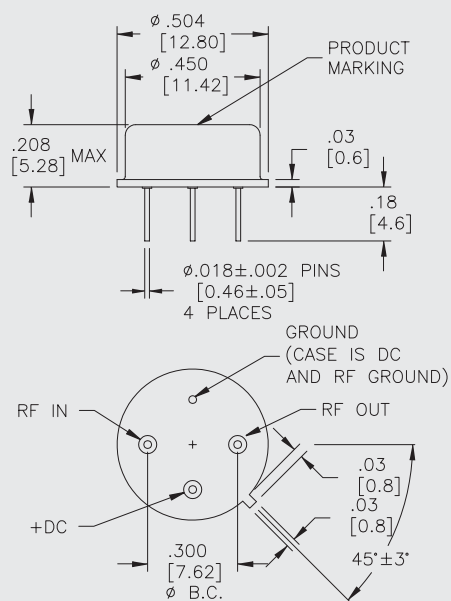
## ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-62 to +125 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+17 Volts
Maximum Continuous RF Input Power .....	+15 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	50 Milliwatts
Maximum Peak Power (3 µsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+100 °C
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ) .....	+24.0 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ) .....	+39.2 °C

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

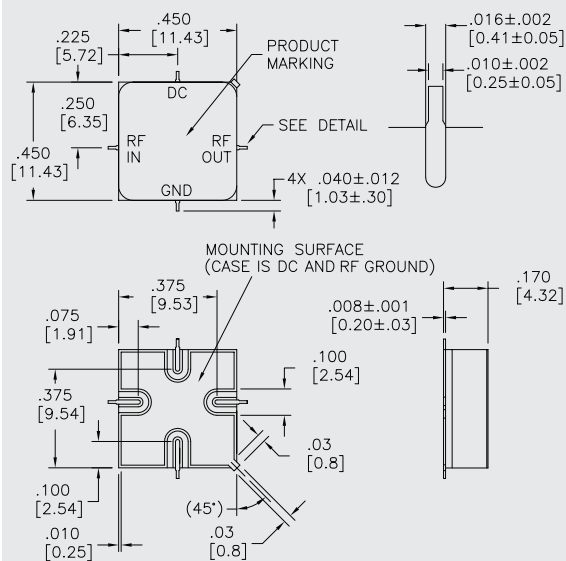
### AP348

#### TO-8 Package for Amplifiers



### APS348

#### SMTO-8 Package for Amplifiers

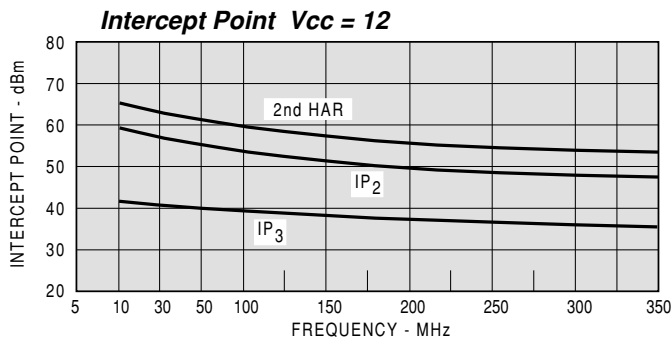
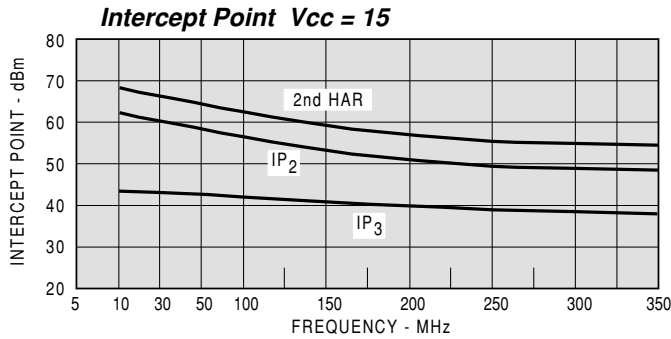
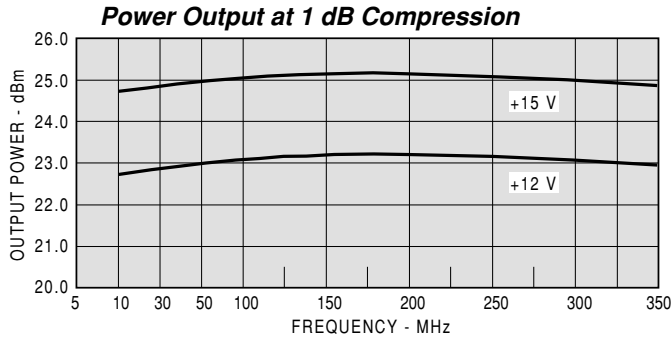
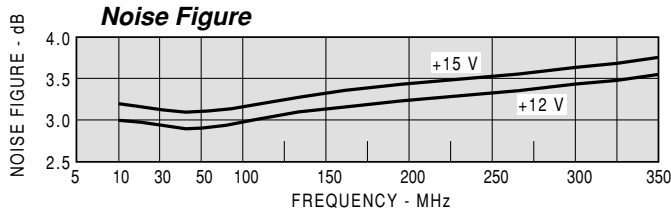
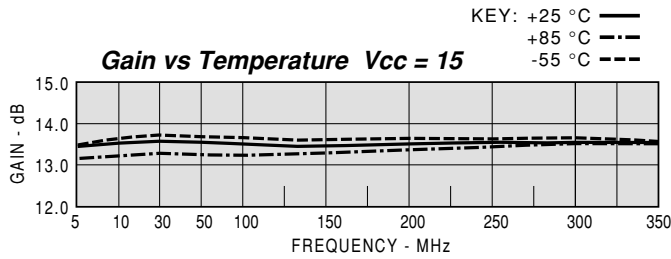


If DC is present on RF input/output, this model requires additional external blocking capacitors.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AP348			Vcc=+15V		lcc=110.06	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	
MHZ	IN	OUT	DB	NSEC	DB	
5	1.42	1.23	13.3		-18.8	
10	1.27	1.16	13.5		-17.8	
20	1.22	1.15	13.5		-17.6	
50	1.21	1.14	13.4	0.826	-17.5	
100	1.22	1.14	13.4	0.626	-17.5	
150	1.26	1.13	13.4	0.592	-17.6	
200	1.32	1.11	13.4	0.588	-17.6	
250	1.42	1.08	13.4	0.600	-17.6	
300	1.55	1.07	13.4	0.626	-17.6	

Model: AP348			LINEAR S-PARAMETERS				Vcc=+15V		lcc=110.06	
FREQ	S11		S21		S12		S22		MAG	ANG
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.17	-106.7	4.65	-164.3	0.115	-170.0	0.10	-72.8		
10	0.12	-133.8	4.71	-173.8	0.129	-176.0	0.07	-128.2		
20	0.10	-154.3	4.72	179.8	0.132	179.0	0.07	-160.6		
50	0.09	-166.6	4.70	170.9	0.133	171.0	0.07	171.1		
100	0.10	-168.6	4.67	159.6	0.133	160.0	0.06	147.1		
150	0.11	-167.5	4.67	149.0	0.132	150.0	0.06	128.8		
200	0.14	-167.3	4.66	138.4	0.132	139.0	0.05	115.8		
250	0.17	-170.2	4.67	127.6	0.132	129.0	0.04	114.4		
300	0.22	-175.9	4.66	116.3	0.132	119.0	0.03	132.2		
350	0.27	176.7	4.64	104.9	0.131	108.0	0.04	163.7		
400	0.33	167.3	4.60	93.1	0.130	98.0	0.08	172.4		

Model: AP348			Vcc=+12V		lcc=87.18	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	
MHZ	IN	OUT	DB	NSEC	DB	
5	1.39	1.23	13.3		-18.7	
10	1.26	1.16	13.4		-17.8	
20	1.22	1.14	13.4		-17.6	
50	1.21	1.13	13.4	0.826	-17.5	
100	1.22	1.13	13.4	0.628	-17.5	
150	1.26	1.12	13.4	0.594	-17.6	
200	1.32	1.10	13.3	0.592	-17.6	
250	1.43	1.08	13.4	0.603	-17.6	
300	1.56	1.07	13.3	0.629	-17.6	

Model: AP348			LINEAR S-PARAMETERS				Vcc=+12V		lcc=87.18	
FREQ	S11		S21		S12		S22		MAG	ANG
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.16	-106.2	4.60	-164.7	0.117	-170.0	0.10	-76.8		
10	0.11	-134.1	4.69	-173.9	0.129	-176.0	0.07	-127.5		
20	0.10	-154.1	4.70	179.7	0.133	179.0	0.07	-159.5		
50	0.09	-166.4	4.69	170.8	0.133	171.0	0.06	171.7		
100	0.10	-167.8	4.66	159.5	0.133	160.0	0.06	147.6		
150	0.11	-166.9	4.66	148.8	0.133	149.0	0.06	129.6		
200	0.14	-167.0	4.65	138.2	0.132	139.0	0.05	117.6		
250	0.18	-169.9	4.65	127.3	0.132	129.0	0.04	119.8		
300	0.22	-175.7	4.64	116.0	0.132	119.0	0.03	143.5		
350	0.27	176.6	4.61	104.5	0.131	108.0	0.05	170.8		
400	0.34	167.0	4.57	92.7	0.130	98.0	0.08	175.0		