

AP448

10 TO 400 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AP448
High Output Power	+24.8 dBm
High Third Order I.P.	+42 dBm
High Performance Thin Film Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	10-500 MHz	10-400 MHz	10-400 MHz
Small Signal Gain (Min.)	10.5 dB	10.0 dB	9.5 dB
Gain Flatness (Max.)	±0.2 dB	±0.5 dB	±0.6 dB
Noise Figure (Max.)	4.3 dB	4.8 dB	5.3 dB
SWR (Max.)	Input	1.5:1	1.7:1
	Output	1.3:1	1.5:1
Power Output (Min.) @ 1dB comp.		+24.8 dBm	+24.0 dBm
			+23.5 dBm
Reverse Isolation	17.0 dB	—	—
DC Current (Max.)	110.0 mA	115.0 mA	118.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 200 MHz	AP448
Second Order Harmonic Intercept Point	+59 dBm
Second Order Two Tone Intercept Point	+53 dBm
Third Order Two Tone Intercept Point	+42 dBm

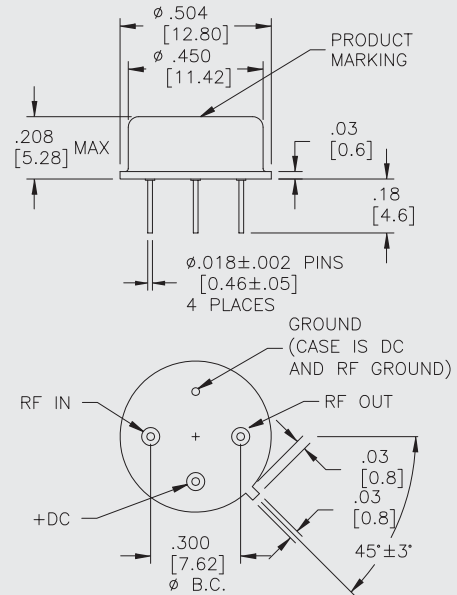
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125°C
Maximum Case Temperature	+125°C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+17 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 ¹ (θ _{jc})	+23°C/Watt
Junction Temperature Rise Above Case (T _{jc})	+39.6 °C

¹ Thermal resistance is based on total power dissipation.

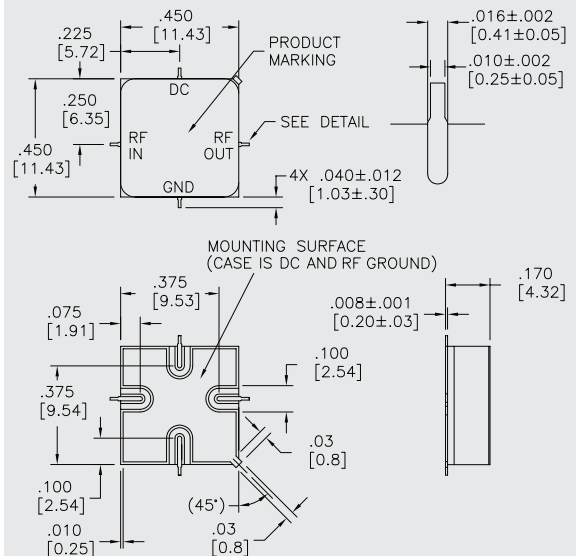
AP448

TO-8 Package for Amplifiers



APS448

SMT0-8 Package for Amplifiers

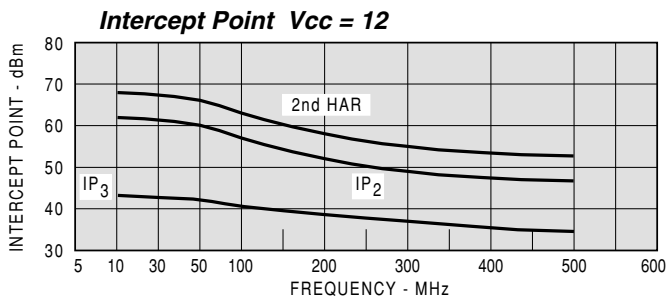
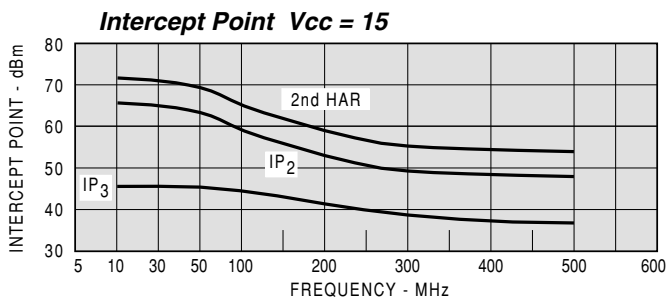
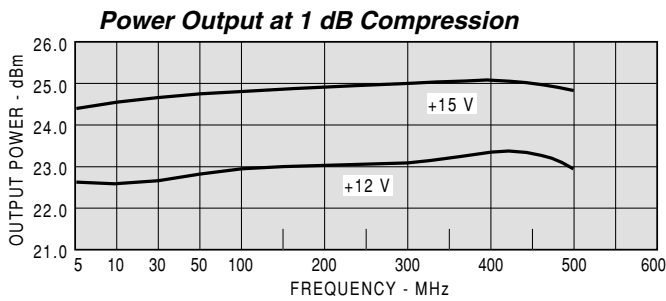
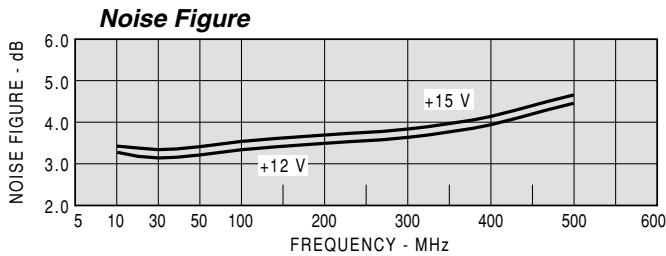
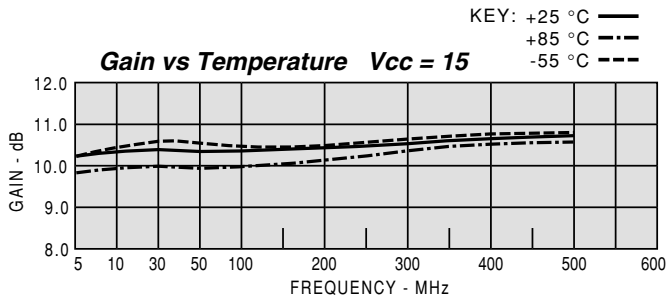


If DC is present on RF input/output, this model requires additional external blocking capacitors.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AP448				Vcc=+15V		lcc=109.94	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT	DB	NSEC			
5	1.24	1.21	10.5			-17.7	
10	1.13	1.12	10.6			-17.1	
20	1.09	1.10	10.6			-17.0	
50	1.08	1.10	10.6	0.751		-17.0	
100	1.09	1.12	10.6	0.566		-17.0	
150	1.12	1.14	10.6	0.536		-17.0	
200	1.16	1.16	10.6	0.531		-17.1	
250	1.22	1.17	10.7	0.545		-17.0	
300	1.30	1.17	10.7	0.561		-17.0	
350	1.41	1.17	10.8	0.577		-17.0	
400	1.56	1.18	10.9	0.599		-17.0	
450	1.75	1.21	10.9	0.632		-17.1	
500	2.00	1.27	10.8	0.656		-17.2	
550	2.30	1.38	10.6	0.675		-17.4	

Model: AP448				LINEAR S-PARAMETERS				Vcc=+15V		lcc=109.94	
FREQ	S11		S21		S12		S22		MAG	ANG	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG			
5	0.11	-58.2	3.35	-165.8	0.131	-179.0	0.10	-1.1			
10	0.06	-53.3	3.39	-174.3	0.139	-180.0	0.06	-6.9			
20	0.04	-43.7	3.40	179.8	0.141	177.0	0.05	-1.8			
50	0.04	-44.9	3.40	171.7	0.141	171.0	0.05	5.9			
100	0.04	-63.7	3.38	161.6	0.141	161.0	0.06	10.4			
150	0.06	-84.0	3.39	151.9	0.141	152.0	0.07	7.5			
200	0.08	-102.4	3.40	142.3	0.140	142.0	0.07	-1.0			
250	0.10	-119.2	3.43	132.6	0.141	133.0	0.08	-13.2			
300	0.13	-135.2	3.45	122.4	0.141	123.0	0.08	-29.7			
350	0.17	-150.0	3.47	112.1	0.141	113.0	0.08	-52.0			
400	0.22	-164.2	3.50	101.3	0.141	103.0	0.08	-80.8			
450	0.27	-178.4	3.50	90.0	0.140	92.0	0.09	-112.6			
500	0.33	167.9	3.47	78.1	0.138	81.0	0.12	-142.1			
550	0.39	154.5	3.41	66.0	0.135	69.0	0.16	-166.6			
600	0.46	141.1	3.30	53.6	0.131	58.0	0.21	173.1			
650	0.51	128.2	3.15	41.4	0.125	46.0	0.26	155.8			

Model: AP448				Vcc=+12V		lcc=87.20	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	DB
MHZ	IN	OUT	DB	NSEC			
5	1.23	1.21	10.5			-17.6	
10	1.13	1.13	10.6			-17.1	
20	1.09	1.11	10.6			-17.0	
50	1.08	1.11	10.6	0.751		-17.0	
100	1.10	1.13	10.6	0.567		-17.0	
150	1.13	1.15	10.6	0.540		-17.0	
200	1.17	1.16	10.6	0.534		-17.0	
250	1.23	1.17	10.7	0.545		-17.0	
300	1.32	1.17	10.7	0.567		-17.0	
350	1.43	1.17	10.8	0.576		-17.0	
400	1.58	1.18	10.8	0.601		-17.0	
450	1.78	1.22	10.8	0.631		-17.1	
500	2.03	1.28	10.8	0.660		-17.2	
550	2.34	1.39	10.6	0.678		-17.4	

Model: AP448				LINEAR S-PARAMETERS				Vcc=+12V		lcc=87.20	
FREQ	S11		S21		S12		S22		MAG	ANG	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG			
5	0.10	-56.5	3.34	-166.2	0.132	-178.0	0.09	-3.6			
10	0.06	-51.7	3.39	-174.5	0.140	-180.0	0.06	-7.6			
20	0.04	-42.3	3.40	179.8	0.142	177.0	0.05	-2.5			
50	0.04	-44.7	3.39	171.7	0.141	171.0	0.05	4.2			
100	0.05	-64.5	3.38	161.5	0.141	161.0	0.06	7.8			
150	0.06	-84.9	3.39	151.8	0.141	152.0	0.07	4.7			
200	0.08	-103.4	3.40	142.1	0.140	142.0	0.08	-3.7			
250	0.10	-120.4	3.42	132.3	0.141	133.0	0.08	-16.1			
300	0.14	-135.9	3.44	122.2	0.141	123.0	0.08	-32.7			
350	0.18	-150.8	3.46	111.7	0.141	113.0	0.08	-55.1			
400	0.22	-165.1	3.48	100.9	0.141	102.0	0.08	-83.5			
450	0.28	-179.2	3.48	89.5	0.140	92.0	0.10	-114.6			
500	0.34	167.2	3.45	77.7	0.138	80.0	0.12	-143.3			
550	0.40	153.7	3.38	65.5	0.135	69.0	0.16	-167.3			
600	0.46	140.5	3.27	53.2	0.130	57.0	0.21	172.6			
650	0.52	127.6	3.12	41.0	0.124	46.0	0.26	155.4			