

# AP1060

## 10 TO 1000 MHz TO-8 CASCADABLE AMPLIFIER

**Typical Values**

High Output Level .....	<b>AP1060</b> <b>+24.0 dBm</b>
High Third Order I.P. ....	<b>+38 dBm</b>
High Performance Thin Film Standard Size TO-8 Package	

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	
Frequency (Min.)	10-1200 MHz	10-1000 MHz	10-1000 MHz	
Small Signal Gain (Min.)	13.1 dB	12.3 dB	11.8 dB	
Gain Flatness (Max.)	±0.2 dB	±0.4 dB	±0.5 dB	
Noise Figure (Max.)	<4.2 dB	4.7 dB	5.2 dB	
SWR (Max.)      Input/Output	<1.5:1	1.9:1	2.0:1	
Power Output (Min.) @ 1dB comp.	+ 24.0 dBm	+ 23.0 dBm	+ 22.5 dBm	
Reverse Isolation	18.0 dB	—	—	
DC Current (Max.)	125 mA	135 mA	145 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>AP1060</b> <b>+49 dBm</b>
Second Order Two Tone Intercept Point .....	<b>+43 dBm</b>
Third Order Two Tone Intercept Point .....	<b>+38 dBm</b>

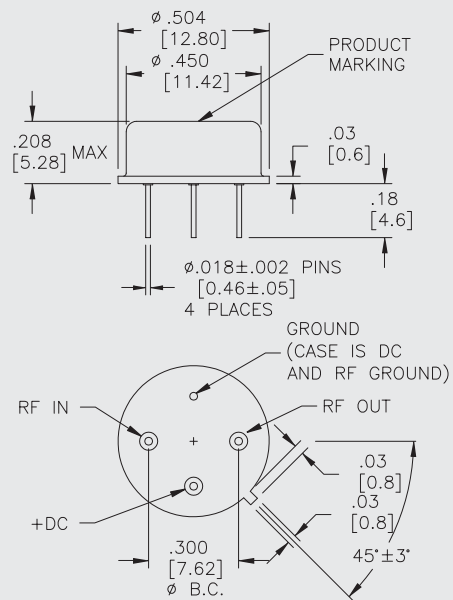
### ABSOLUTE MAXIMUM RATINGS

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 Resistance <sup>1</sup> (θ <sub>jc</sub> ) .....	+18 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ) .....	+34.2 °C

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

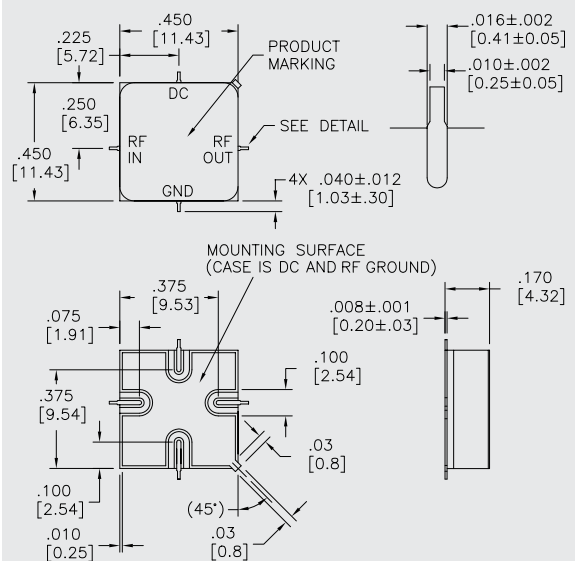
### AP1060

#### TO-8 Package for Amplifiers



### APS1060

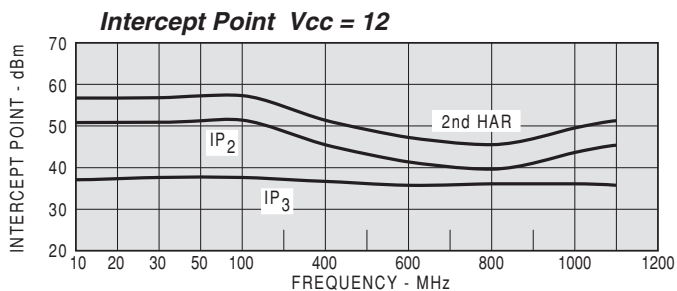
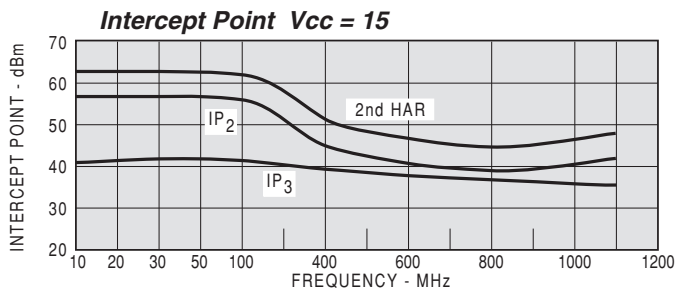
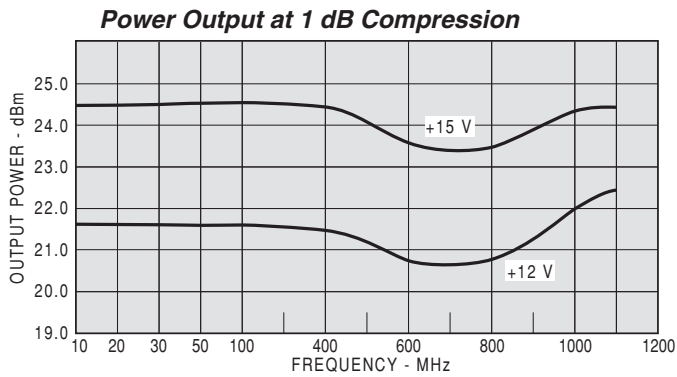
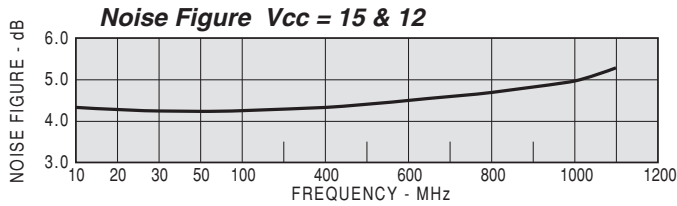
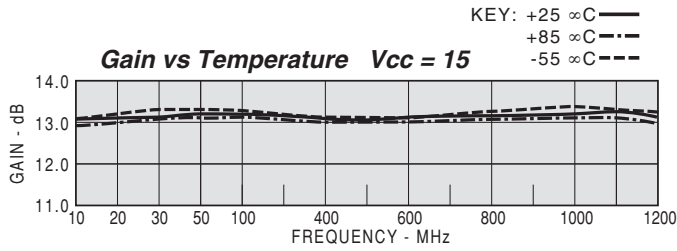
#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AP1060			Vcc= +15V			lcc= 126.60	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
10	1.37	1.42	14.02	-167		-18.9	
20	1.28	1.36	14.10	-176		-18.7	
30	1.27	1.34	14.19	-180	1.0	-18.7	
50	1.27	1.33	14.24	175	0.64	-18.7	
100	1.26	1.32	14.22	165	0.57	-18.6	
200	1.26	1.29	14.15	147	0.48	-18.7	
300	1.27	1.24	14.08	131	0.46	-18.6	
400	1.30	1.19	14.06	114	0.46	-18.4	
500	1.29	1.13	14.05	98	0.45	-18.2	
600	1.27	1.04	14.10	81	0.47	-18.1	
700	1.24	1.01	14.12	64	0.47	-17.8	
800	1.20	1.10	14.17	46	0.49	-17.5	
900	1.10	1.25	14.22	28	0.52	-17.2	
1000	1.10	1.36	14.24	8	0.53	-16.9	
1100	1.27	1.47	14.26	-12	0.58	-16.6	
1200	1.56	1.68	14.17	-34	0.64	-16.5	

Model: AP1060			LINEAR S-PARAMETERS						lcc= 126.60	
			Vcc +15V						S22	
FREQ	S11		S21		S12				MAG	ANG
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.16	-124.6	5.02	-167.1	0.114	15.7	0.18	-178.5		
20	0.12	-143.8	5.07	-175.7	0.116	6.8	0.15	174.8		
30	0.12	-153.5	5.12	-179.8	0.116	3.1	0.15	173.6		
50	0.12	-162.9	5.15	174.8	0.116	-0.8	0.14	170.7		
100	0.12	-170.9	5.14	164.6	0.117	-6.0	0.14	164.3		
200	0.12	-172.7	5.10	147.2	0.117	-14.3	0.13	153.6		
300	0.12	-174.6	5.06	130.6	0.118	-22.0	0.11	138.5		
400	0.13	-176.9	5.05	114.2	0.120	-30.0	0.09	119.9		
500	0.13	179.4	5.04	97.7	0.123	-38.2	0.06	108.7		
600	0.12	173.4	5.07	80.8	0.125	-46.7	0.02	100.2		
700	0.11	160.8	5.08	63.7	0.129	-55.5	0.01	-126.8		
800	0.09	148.5	5.11	45.9	0.133	-65.5	0.05	-161.3		
900	0.05	132.4	5.14	27.6	0.138	-76.1	0.11	-166.4		
1000	0.05	27.80	5.15	8.40	0.143	-87.5	0.15	176.8		
1100	0.12	-4.800	5.17	-12.0	0.147	-101.0	0.19	146.6		
1200	0.22	-28.90	5.11	-34.4	0.150	-115.3	0.25	114.4		
1300	0.36	-49.10	4.83	-58.0	0.151	-131.4	0.34	79.50		

Model: AP1060			Vcc= +12V			lcc= 98.65	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
10	1.35	1.39	14.00	-168		-18.8	
20	1.27	1.33	14.08	-176		-18.6	
30	1.26	1.32	14.15	180	0.98	-18.7	
50	1.26	1.31	14.21	175	0.64	-18.6	
100	1.26	1.29	14.18	164	0.57	-18.5	
150	1.26	1.29	14.14	155	0.49	-18.6	
200	1.27	1.27	14.09	147	0.48	-18.5	
300	1.29	1.22	14.01	130	0.46	-18.5	
400	1.32	1.17	13.96	114	0.46	-18.3	
500	1.33	1.11	13.96	97	0.46	-18.1	
600	1.31	1.06	13.98	80	0.47	-17.9	
750	1.27	1.11	14.00	54	0.49	-17.4	
800	1.24	1.18	14.01	45	0.49	-17.3	
900	1.13	1.35	14.09	27	0.52	-16.9	
1000	1.12	1.48	14.08	8	0.54	-16.6	
1100	1.31	1.63	14.10	-13	0.59	-16.3	
1200	1.61	1.90	13.98	-35	0.65	-16.1	
1300	2.24	2.31	13.44	-59	0.65	-16.1	

Model: AP1060			LINEAR S-PARAMETERS						lcc= 98.65	
			Vcc +12V						S22	
FREQ	S11		S21		S12				MAG	ANG
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.15	-127.1	5.01	-167.9	0.115	14.7	0.16	-175.7		
20	0.12	-145.2	5.06	-176.2	0.117	6.20	0.14	176.9		
30	0.12	-154.0	5.10	179.9	0.116	2.90	0.14	175.4		
50	0.12	-163.2	5.13	174.6	0.117	-0.80	0.13	172.0		
100	0.12	-169.4	5.12	164.4	0.118	-5.80	0.13	166.6		
200	0.12	-169.9	5.07	146.8	0.118	-14.3	0.12	157.7		
300	0.13	-171.6	5.02	130.2	0.12	-21.9	0.10	146.0		
400	0.14	-174.4	4.99	113.7	0.122	-29.6	0.08	132.3		
500	0.14	-179.3	4.99	97.1	0.124	-37.6	0.05	131.8		
600	0.13	173.0	5.0	80.2	0.127	-46.3	0.03	166.9		
700	0.12	159.7	5.0	63.0	0.132	-55.0	0.04	-163.6		
800	0.11	145.3	5.02	45.3	0.137	-64.9	0.08	-172.5		
900	0.06	123.9	5.06	27.0	0.142	-76.0	0.15	-175.8		
1000	0.06	38.0	5.06	7.70	0.148	-87.9	0.19	168.2		
1100	0.13	-0.80	5.07	-13.0	0.152	-101.3	0.24	141.3		
1200	0.23	-27.2	5.0	-35.5	0.157	-116.2	0.31	112.1		
1300	0.38	-49.1	4.7	-59.2	0.157	-132.6	0.40	79.60		