

# AP3007

## 20 TO 3000 MHz TO-8 CASCADABLE AMPLIFIER

**Typical Values**

<b>Broad Bandwidth</b> .....	<b>20-3000 MHz</b>
<b>Low Noise Figure</b> .....	<b>2.7 dB</b>
<b>High Output Power</b> .....	<b>+24.5 dBm</b>
<b>High Third Order I.P.</b> .....	<b>+35.0 dBm</b>
<b>High Performance Thin Film</b>	
<b>Standard Size TO-8 Package</b>	

**AP3007**

**20-3000 MHz**  
**2.7 dB**  
**+24.5 dBm**  
**+35.0 dBm**

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	10-3200 MHz	20-3000 MHz	20-3000 MHz
Small Signal Gain (Min.)	11.5 dB	10.5 dB	10.0 dB
Gain Flatness (Max.)	±0.4 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.) 200-3000 MHz	2.7 dB	3.3 dB	3.8 dB
SWR (Max.) Input/Output	1.6:1	1.9:1	2.0:1
Power Output (Min.) @ 1dB comp.	+24.5 dBm	+23.0 dBm	+22.0 dBm
Reverse Isolation	18.5 dB	—	—
DC Current (Max.)	126 mA	130 mA	135 mA

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

### INTERMODULATION PERFORMANCE

Typical @ 25 °C; 1000 MHz	+12 Volts	+15 Volts
Second Order Harmonic Intercept Point .....	+56 dBm	+51 dBm
Second Order Two Tone Intercept Point .....	+50 dBm	+45 dBm
Third Order Two Tone Intercept Point .....	+35 dBm	+36 dBm

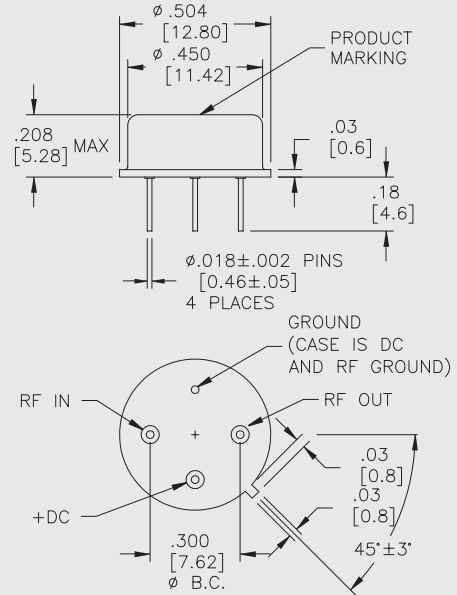
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-62 to +125 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+17 Volts
Maximum Continuous RF Input Power .....	+20 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	100 Milliwatts
Maximum Peak Power (3 μsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+100 °C
Thermal Resistance <sup>1</sup> (θjc) .....	+23.2 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+43.8 °C

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

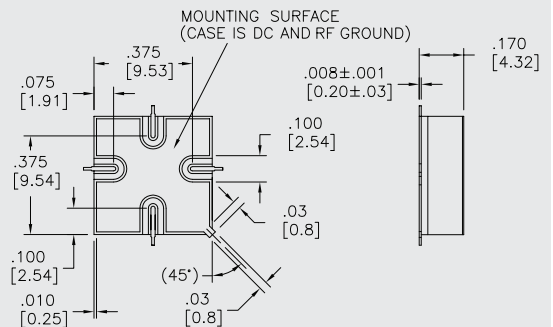
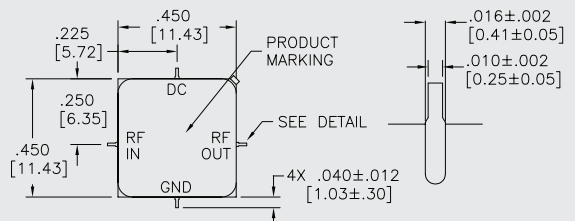
### AP3007

#### TO-8 Package for Amplifiers



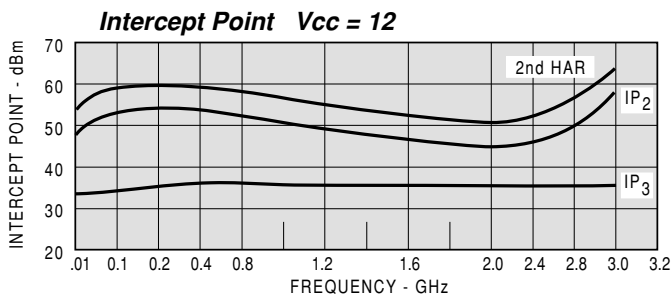
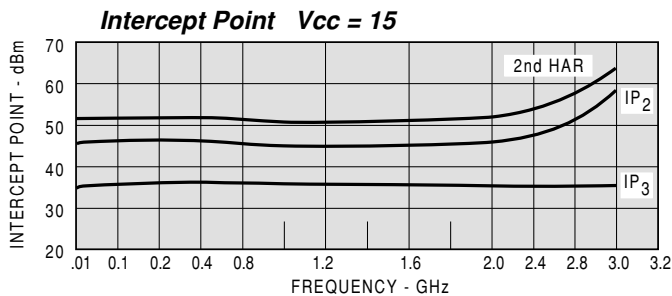
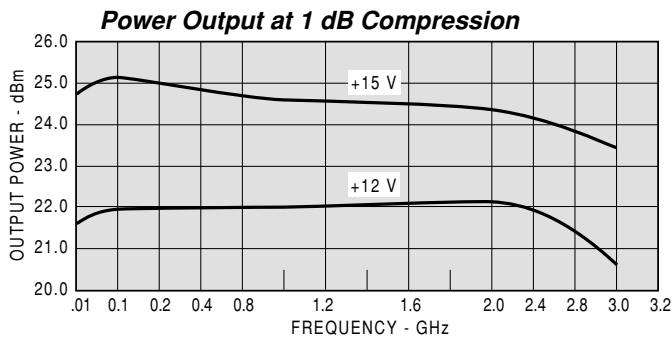
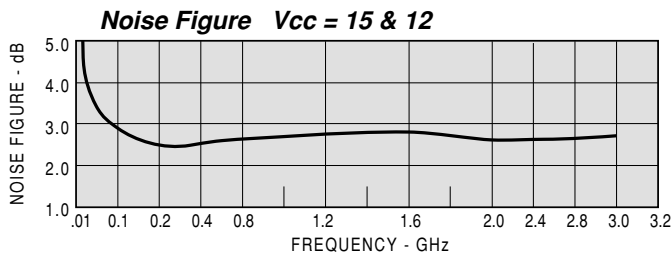
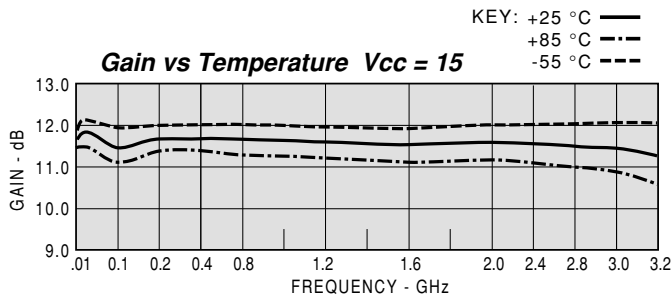
### APS3007

#### SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**



**TYPICAL AUTOMATIC TEST DATA**

Model: AP3007			Vcc=+15V			Icc=126.23	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
10	1.83	1.95	11.55	-150		-18.8	
20	1.31	1.77	11.71	-167		-18.9	
30	1.19	1.77	11.65	-173		-18.9	
40	1.15	1.77	11.63	-177	0.94	-18.9	
50	1.11	1.77	11.63	-179	0.62	-19.0	
100	1.08	1.66	11.34	173	0.44	-18.6	
200	1.11	1.69	11.58	167	0.19	-18.8	
400	1.13	1.66	11.59	149	0.24	-18.8	
600	1.18	1.62	11.56	133	0.22	-18.8	
800	1.23	1.56	11.54	118	0.22	-18.8	
1000	1.29	1.51	11.52	102	0.22	-18.8	
1200	1.35	1.46	11.48	86	0.23	-18.8	
1400	1.42	1.42	11.42	69	0.22	-18.8	
1600	1.50	1.43	11.38	54	0.21	-18.9	
1800	1.60	1.45	11.38	38	0.23	-18.9	
2000	1.67	1.50	11.44	21	0.23	-18.7	
2200	1.72	1.56	11.46	5	0.23	-18.6	
2400	1.74	1.62	11.42	-13	0.24	-18.6	
2600	1.69	1.63	11.39	-31	0.25	-18.6	
2800	1.60	1.61	11.36	-49	0.26	-18.3	
3000	1.47	1.54	11.34	-70	0.29	-18.3	
3200	1.36	1.45	11.22	-92	0.31	-18.1	

Model: AP3007			Vcc=+15V				Icc=126.23	
FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.29	-76.80	3.78	-149.60	0.12	24.60	0.32	171.70
20	0.13	-84.40	3.85	-167.40	0.11	10.10	0.28	175.80
30	0.09	-82.80	3.82	-173.20	0.11	7.00	0.28	175.30
40	0.07	-80.80	3.81	-176.60	0.11	4.50	0.28	173.90
50	0.05	-79.30	3.81	-178.80	0.11	3.70	0.28	172.20
100	0.04	-47.80	3.69	173.30	0.12	0.40	0.25	162.80
200	0.05	-86.70	3.79	166.50	0.12	-6.90	0.26	162.10
400	0.06	-99.50	3.80	149.40	0.12	-14.80	0.25	142.50
600	0.08	-105.30	3.79	133.30	0.12	-22.70	0.24	124.00
800	0.10	-110.40	3.78	117.60	0.12	-30.80	0.22	103.90
1000	0.13	-115.00	3.77	101.80	0.12	-38.90	0.20	82.60
1200	0.15	-119.00	3.75	85.50	0.12	-46.70	0.19	58.70
1400	0.17	-124.10	3.73	69.40	0.12	-55.30	0.17	32.50
1600	0.20	-126.50	3.71	54.00	0.11	-64.30	0.18	2.60
1800	0.23	-132.90	3.71	37.70	0.11	-72.60	0.18	-25.70
2000	0.25	-140.80	3.73	21.30	0.12	-81.90	0.20	-50.80
2200	0.26	-148.80	3.74	5.00	0.12	-91.00	0.22	-73.00
2400	0.27	-158.40	3.72	-12.60	0.12	-101.00	0.24	-91.90
2600	0.26	-169.70	3.71	-30.60	0.12	-110.20	0.24	-109.00
2800	0.23	175.70	3.70	-49.20	0.12	-121.10	0.23	-124.60
3000	0.19	153.00	3.69	-69.90	0.12	-132.90	0.21	-138.90
3200	0.15	112.40	3.64	-92.00	0.12	-145.70	0.18	-152.30

Model: AP3007			Vcc=+12V			Icc=118.14	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
10	1.81	2.07	11.52	-150.0		-19.30	
20	1.31	1.94	11.68	-168.0		-19.50	
30	1.19	1.95	11.62	-173.0	1.60	-19.60	
40	1.15	1.95	11.60	-177.0	0.90	-19.50	
50	1.11	1.95	11.60	-179.0	0.63	-19.60	
100	1.08	1.82	11.32	173.0	0.44	-19.20	
200	1.11	1.87	11.55	166.0	0.19	-19.40	
400	1.14	1.83	11.56	149.0	0.24	-19.30	
600	1.19	1.79	11.53	133.0	0.22	-19.20	
800	1.25	1.72	11.50	117.0	0.22	-19.10	
1000	1.32	1.65	11.47	101.0	0.22	-18.90	
1200	1.38	1.57	11.44	85.0	0.23	-18.70	
1400	1.45	1.49	11.40	68.0	0.23	-18.50	
1600	1.53	1.43	11.36	53.0	0.22	-18.40	
1800	1.64	1.38	11.38	36.0	0.23	-18.20	
2000	1.72	1.36	11.42	20.0	0.23	-17.70	
2200	1.78	1.37	11.42	3.0	0.24	-17.50	
2400	1.79	1.38	11.39	-15.0	0.25	-17.20	
2600	1.74	1.37	11.36	-34.0	0.26	-17.00	
2800	1.64	1.34	11.31	-54.0	0.27	-16.50	
3000	1.51	1.31	11.22	-75.0	0.30	-16.40	
3200	1.48	1.30	10.87	-98.0	0.31	-16.10	