

AP3009

20 TO 3000 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

High Output Power	AP3009 +27.5 dBm
Ultra Broad Bandwidth	20-3000 MHz
High Third Order I.P.	+41.0 dBm
High Performance Thin Film Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	20-3200 MHz	20-3000 MHz	20-3000 MHz
Small Signal Gain (Min.)	12.0 dB	11.0 dB	10.5 dB
Gain Flatness (Max.)	±0.4 dB	±0.6 dB	±0.7 dB
Noise Figure (Max.) 200-3000 MHz	3.0 dB	4.2 dB	4.8 dB
SWR (Max.) Input/Output	1.5:1	1.9:1	2.0:1
Power Output (Min.) @ 1dB comp. 20-2400 MHz 2400-3000 MHz	+27.5 dBm +27.0 dBm	+26.5 dBm +26.0 dBm	+26.0 dBm +25.5 dBm
Reverse Isolation	19.0 dB	—	—
DC Current (Max.)	190 mA	196 mA	206 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	+12 Volts	+15 Volts
Second Order Harmonic Intercept Point	+61 dBm	+60 dBm
Second Order Two Tone Intercept Point	+55 dBm	+54 dBm
Third Order Two Tone Intercept Point	+40 dBm	+41 dBm

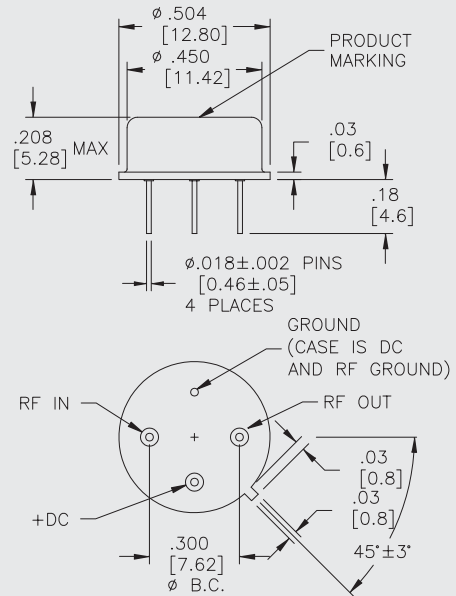
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +125 °C
Maximum Case Temperature	+105 °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	+85 °C
Thermal Resistance ¹ (θ _{jc})	+23 °C/Watt
Junction Temperature Rise Above Case (T _{jc})	+65 °C

¹ Thermal resistance is based on total power dissipation.

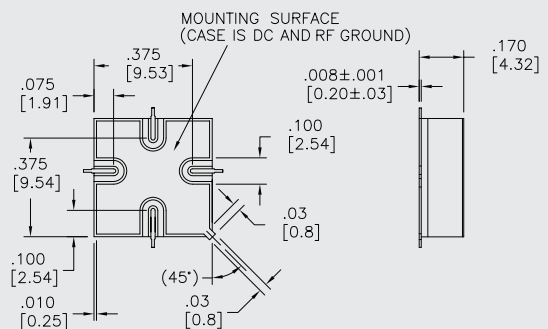
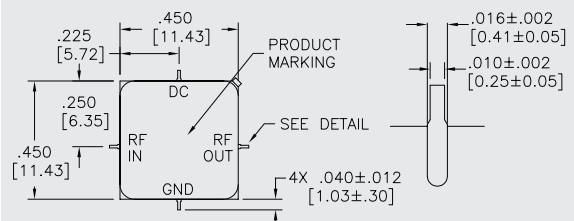
AP3009

TO-8 Package for Amplifiers



APS3009

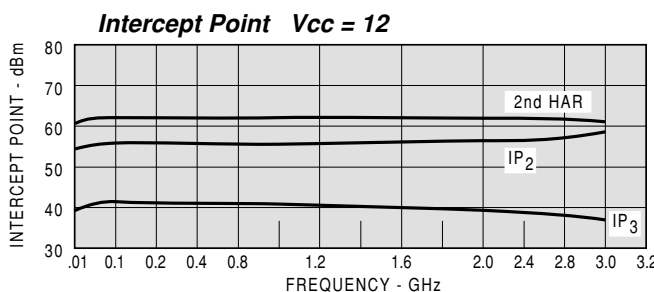
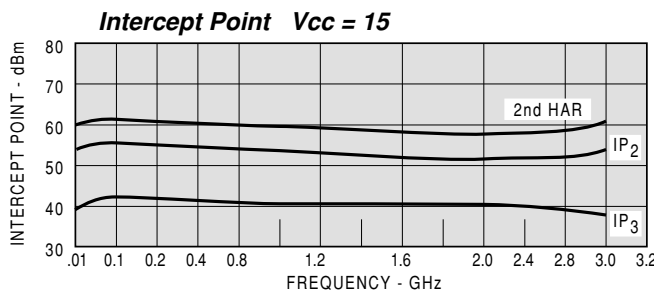
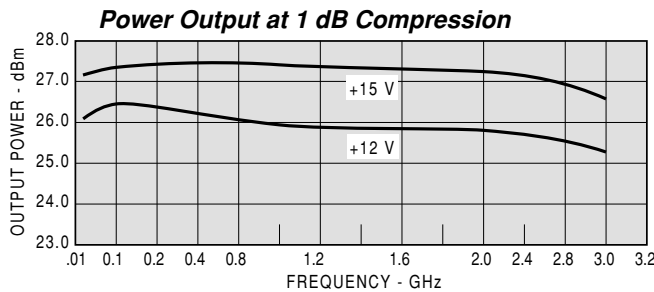
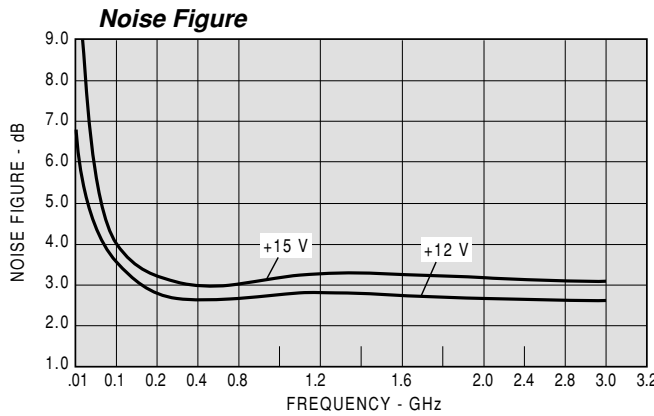
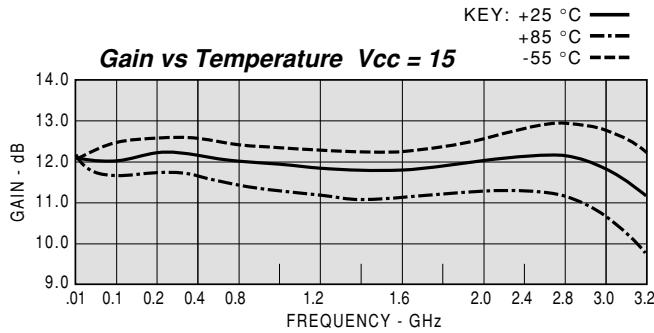
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AP3009			Vcc=+15V			Icc=189.56	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
10	2.06	2.05	12.25	-144.0		-19.20	
20	1.36	1.65	12.57	-166.0		-19.10	
30	1.22	1.64	12.46	-173.0	1.90	-19.30	
40	1.17	1.63	12.42	-177.0	1.10	-19.30	
50	1.13	1.63	12.38	-179.0	0.76	-19.30	
100	1.17	1.45	12.14	175.0	0.34	-18.80	
200	1.15	1.56	12.36	165.0	0.27	-19.10	
400	1.18	1.61	12.31	145.0	0.27	-19.30	
600	1.24	1.66	12.22	127.0	0.25	-19.40	
800	1.29	1.71	12.14	110.0	0.24	-19.70	
1000	1.33	1.75	12.06	93.0	0.24	-20.00	
1200	1.36	1.77	11.95	75.0	0.24	-20.10	
1400	1.37	1.75	11.86	58.0	0.24	-20.20	
1600	1.36	1.73	11.90	41.0	0.23	-20.60	
1800	1.37	1.65	11.96	23.0	0.25	-20.80	
2000	1.35	1.56	12.13	5.0	0.25	-20.80	
2200	1.30	1.44	12.24	-13.0	0.26	-20.90	
2400	1.25	1.30	12.29	-34.0	0.28	-21.00	
2600	1.18	1.14	12.32	-55.0	0.30	-21.10	
2800	1.11	1.11	12.22	-78.0	0.31	-21.00	
3000	1.04	1.34	11.86	-101.0	0.33	-21.10	
3200	1.07	1.65	11.12	-126.0	0.35	-21.20	

Model: AP3009			Vcc=+15V				Icc=189.56	
FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.35	-71.70	4.10	-144.30	0.11	29.80	0.34	159.80
20	0.15	-80.90	4.25	-165.70	0.11	12.30	0.24	166.00
30	0.10	-76.40	4.20	-172.70	0.11	7.80	0.24	167.80
40	0.08	-71.90	4.18	-176.60	0.11	5.10	0.24	166.50
50	0.06	-66.60	4.16	-179.30	0.11	4.00	0.24	164.50
100	0.08	-46.60	4.05	174.50	0.12	-2.10	0.18	158.10
200	0.07	-82.30	4.15	164.70	0.11	-9.50	0.22	149.90
400	0.08	-103.20	4.13	145.30	0.11	-20.00	0.23	121.50
600	0.11	-117.90	4.08	127.40	0.11	-30.40	0.25	97.20
800	0.13	-129.60	4.05	110.00	0.10	-40.30	0.26	74.50
1000	0.14	-139.70	4.01	92.60	0.10	-50.20	0.27	53.80
1200	0.15	-148.10	3.96	75.10	0.10	-59.30	0.28	34.30
1400	0.15	-156.30	3.92	57.80	0.10	-68.80	0.27	15.70
1600	0.15	-160.20	3.93	41.20	0.09	-79.20	0.27	-3.40
1800	0.16	-166.00	3.96	23.30	0.09	-88.10	0.25	-22.30
2000	0.15	-172.90	4.04	5.30	0.09	-98.10	0.22	-41.20
2200	0.13	-177.50	4.09	-13.40	0.09	-108.20	0.18	-61.70
2400	0.11	177.70	4.12	-33.70	0.09	-118.50	0.13	-84.50
2600	0.08	175.60	4.13	-55.20	0.09	-129.50	0.07	-121.80
2800	0.05	171.60	4.08	-77.70	0.09	-139.90	0.05	122.30
3000	0.02	151.80	3.92	-101.40	0.09	-151.70	0.14	73.00
3200	0.04	32.00	3.60	-126.30	0.09	-162.90	0.25	50.20

Model: AP3009			Vcc=+12V			Icc=185.40	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
10	2.03	2.11	12.40	-145.00		-19.90	
20	1.36	1.84	12.71	-166.00		-19.90	
30	1.22	1.84	12.62	-173.00	1.90	-20.00	
40	1.16	1.84	12.59	-177.00	1.10	-20.00	
50	1.12	1.83	12.54	-179.00	0.74	-20.00	
100	1.16	1.61	12.31	175.00	0.34	-19.30	
200	1.14	1.76	12.53	165.00	0.27	-19.80	
400	1.16	1.79	12.50	146.00	0.27	-20.00	
600	1.21	1.83	12.41	128.00	0.25	-20.00	
800	1.26	1.87	12.32	110.00	0.24	-20.10	
1000	1.30	1.90	12.22	93.00	0.24	-20.20	
1200	1.33	1.90	12.12	75.00	0.24	-20.30	
1400	1.34	1.88	12.02	58.00	0.24	-20.30	
1600	1.34	1.84	12.05	41.00	0.23	-20.30	
1800	1.35	1.75	12.11	24.00	0.24	-20.30	
2000	1.34	1.66	12.24	6.00	0.25	-20.20	
2200	1.29	1.54	12.28	-13.00	0.26	-20.00	
2400	1.24	1.39	12.35	-33.00	0.28	-19.80	
2600	1.16	1.25	12.35	-54.00	0.30	-19.60	
2800	1.10	1.18	12.22	-77.00	0.31	-19.30	
3000	1.04	1.28	11.93	-100.00	0.32	-19.10	
3200	1.04	1.47	11.25	-124.00	0.34	-18.90	