

# AS1209

## 100 TO 1200 MHz SMT0-8 CASCADABLE AMPLIFIER

**Typical Values**

<b>Low Noise Figure</b> .....	<b>AS1209</b> 1.0 dB
<b>High Gain</b> .....	28.0 dB
<b>Medium Output Level</b> .....	+19.8 dBm
<b>High Performance Thin Film Standard Size SMT0-8 Package</b>	

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	
<b>Frequency (Min.)</b>		<b>80-1400 MHz</b>	<b>100-1200 MHz</b>	<b>100-1200 MHz</b>
<b>Small Signal Gain (Min.)</b>	28.0 dB	27.0 dB	26.5 dB	26.5 dB
<b>Gain Flatness (Max.)</b>	±0.3 dB	±0.6 dB	±0.8 dB	±0.8 dB
<b>Noise Figure (Max.)</b>				
200-1000 MHz	1.0 <sup>^</sup> dB	1.5 <sup>^</sup> dB	1.7 <sup>^</sup> dB	1.7 <sup>^</sup> dB
1000-1200 MHz	1.2 dB	1.7 dB	1.9 dB	1.9 dB
<b>SWR (Max.)</b>				
Input	1.5:1	1.8:1	2.0:1	2.0:1
Output	1.2:1	1.5:1	1.7:1	1.7:1
<b>Power Output (Min.)</b> @ 1dB comp.	+19.8 dBm	+19.0 dBm	+18.5 dBm	+18.5 dBm
<b>Reverse Isolation</b>	40.0 dB	—	—	—
<b>DC Current (Max.)</b>	171 mA	178 mA	180 mA	180 mA

\* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.  
^ 0.2 dB higher below 200 MHz.

### INTERMODULATION PERFORMANCE

**Typical @ 25 °C; 300 MHz**

<b>Second Order Harmonic Intercept Point</b> .....	<b>AS1209</b> +55 dBm
<b>Second Order Two Tone Intercept Point</b> .....	+49 dBm
<b>Third Order Two Tone Intercept Point</b> .....	+33 dBm

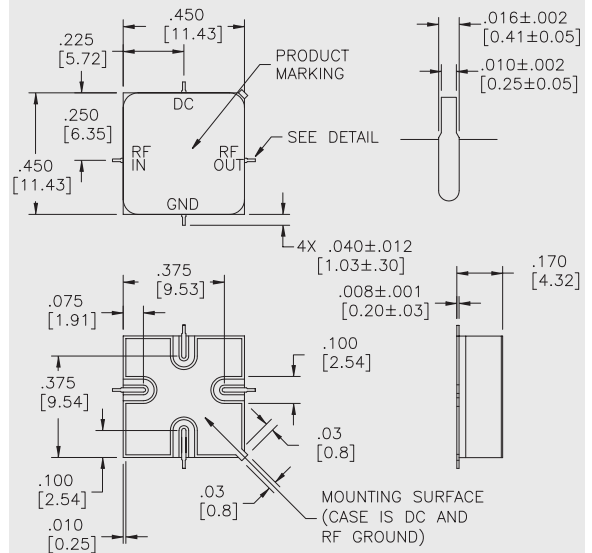
### ABSOLUTE MAXIMUM RATINGS

<b>Storage Temperature</b> .....	-62 to +125 °C
<b>Maximum Case Temperature</b> .....	+125 °C
<b>Maximum DC Voltage</b> .....	+12 Volts
<b>Maximum Continuous RF Input Power</b> .....	+24 dBm
<b>Maximum Short Term Input Power (1 Minute Max.)</b> .....	+27 dBm
<b>Maximum Peak Power (3 μsec Max.)</b> .....	+27 dBm
<b>Burn-in Temperature</b> .....	+125 °C
<b>Thermal Resistance<sup>1</sup> (θjc)</b> .....	+16.2 °C/Watt
<b>Junction Temperature Rise Above Case (Tjc)</b> .....	+13.9 °C

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

## AS1209

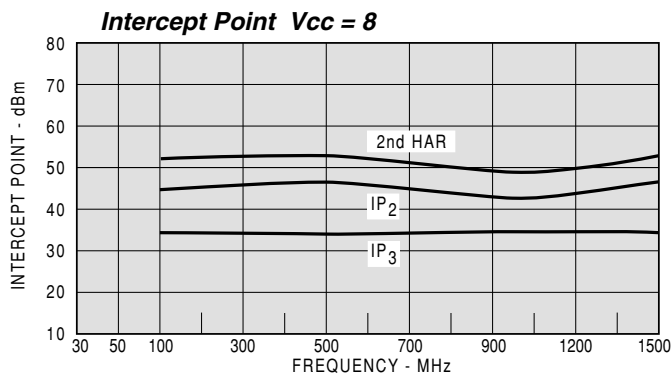
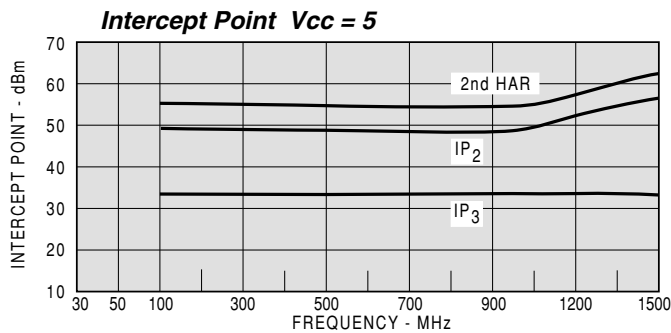
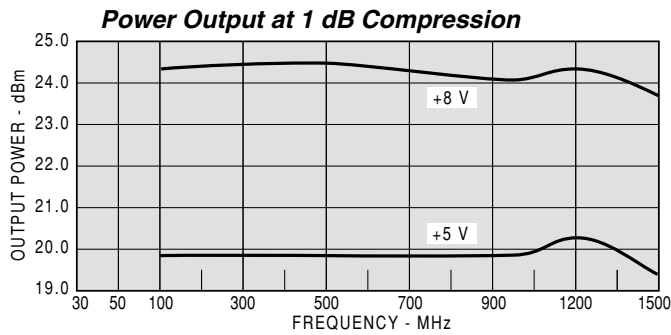
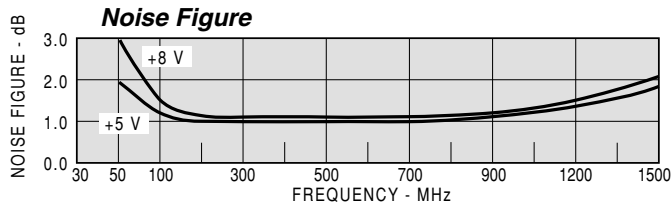
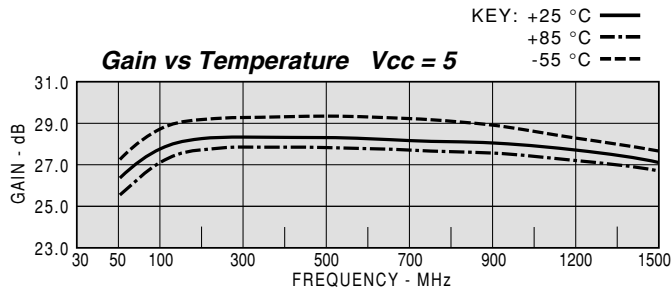
### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AS1209		Vcc=+5V				Icc=171.23	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
50	2.07	1.36	26.55	49.0		-46.00	
100	1.34	1.17	27.85	11.0	1.50	-46.10	
200	1.11	1.06	28.24	-25.0	1.00	-45.00	
300	1.12	1.04	28.32	-51.0	0.73	-44.50	
400	1.14	1.08	28.29	-75.0	0.65	-44.30	
500	1.13	1.12	28.25	-97.0	0.63	-42.40	
600	1.10	1.16	28.18	-119.0	0.61	-41.70	
700	1.07	1.20	28.10	-141.0	0.61	-40.20	
800	1.09	1.24	28.02	-163.0	0.61	-39.80	
900	1.18	1.25	27.94	174.0	0.62	-38.80	
1000	1.27	1.25	27.82	152.0	0.62	-38.00	
1100	1.35	1.24	27.76	129.0	0.64	-38.10	
1200	1.40	1.26	27.70	106.0	0.65	-36.90	
1300	1.39	1.36	27.66	81.0	0.69	-36.60	
1400	1.40	1.56	27.55	54.0	0.75	-36.10	
1500	1.66	1.91	27.17	25.0	0.81	-36.20	

LINEAR S-PARAMETERS

Model: AS1209		Vcc=+5V				Icc=171.23		
FREQ.	S11	S21		S12		S22		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
30	0.57	149.50	15.93	85.70	0.01	56.00	0.23	176.00
50	0.35	124.10	21.26	49.40	0.01	32.00	0.15	147.60
100	0.15	111.40	24.68	10.80	0.01	12.20	0.08	126.90
200	0.05	141.60	25.83	-25.10	0.01	15.20	0.03	129.30
300	0.06	174.70	26.05	-51.30	0.01	7.70	0.02	-178.80
400	0.07	-178.80	25.97	-74.80	0.01	2.70	0.04	-151.60
500	0.06	-177.90	25.84	-97.50	0.01	-3.30	0.06	-152.80
600	0.05	-176.50	25.64	-119.50	0.01	-1.90	0.08	-161.00
700	0.03	-150.60	25.40	-141.40	0.01	-8.40	0.09	-171.10
800	0.04	-101.40	25.17	-163.40	0.01	-17.60	0.11	178.60
900	0.08	-89.20	24.96	174.40	0.01	-21.00	0.11	170.50
1000	0.12	-92.10	24.60	152.20	0.01	-37.30	0.11	164.40
1100	0.15	-99.50	24.44	129.40	0.01	-48.30	0.11	164.50
1200	0.17	-104.00	24.27	105.80	0.01	-59.30	0.11	172.20
1300	0.16	-102.10	24.14	80.90	0.02	-70.90	0.15	177.20
1400	0.17	-88.80	23.86	53.90	0.02	-88.30	0.22	170.40
1500	0.25	-71.50	22.82	24.90	0.02	-107.50	0.31	152.40

Model: AS1209		Vcc=8V				Icc=183.35	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
50	1.98	1.33	27.23	49.0		-43.80	
100	1.36	1.17	28.47	11.0	1.40	-44.10	
200	1.22	1.10	28.87	-24.0	0.97	-43.80	
300	1.19	1.09	28.96	-49.0	0.71	-43.20	
400	1.16	1.09	28.95	-72.0	0.63	-43.80	
500	1.11	1.09	28.93	-94.0	0.61	-42.30	
600	1.05	1.09	28.85	-115.0	0.60	-41.50	
700	1.05	1.08	28.76	-137.0	0.59	-40.70	
800	1.15	1.07	28.64	-158.0	0.59	-41.30	
900	1.28	1.05	28.51	-179.0	0.59	-40.30	
1000	1.40	1.03	28.33	159.0	0.59	-39.30	
1100	1.52	1.05	28.16	138.0	0.60	-39.60	
1200	1.63	1.09	28.00	116.0	0.61	-38.90	
1300	1.69	1.14	27.84	93.0	0.63	-39.20	
1400	1.73	1.19	27.64	69.0	0.66	-39.40	
1500	1.81	1.22	27.32	44.0	0.69	-39.00	