AC4086 800 TO 4000 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	*AC4086*
High Gain	*20.0 dB*
Low Noise Figure	*<3.8 dB*
High Output Level	*+20.5 dBm*
High Reverse Isolation	*39 dB*
High Performance Thin Film	
Standard Size TO-8	

SPECIFICATIONS*

Parameter		Typical	Guaranteed 0 to 50° C	Guaranteed -55 to +85° C
Frequency (Min.)		**800-4000 MHz**	**800-4000 MHz**	**800-4000 MHz**
Small Signal Gain (Min.)		20.0 dB	19.0 dB	18.0 dB
Gain Flatness (Max.)		±0.5 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.)		<3.8 dB	4.3 dB	4.8 dB
SWR (Max.)	Input Output	<1.6:1 <1.8:1	1.8:1 2.0:1	1.9:1 2.1:1
Power Output (Min.) @ 1dB comp.		+20.5^ dBm	+20.0^ dBm	+19.5^ dBm
Reverse Isolation		39 dB	—	—
DC Current (Max.)		60.0 mA	65.0 mA	70.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 0.5 dBm lower below 1000 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25° C; 2500 MHz	*+12 Volts*	*+15 Volts*
Second Order Harmonic Intercept Point	+49 dBm	+48 dBm
Second Order Two Tone Intercept Point	+43 dBm	+42 dBm
Third Order Two Tone Intercept Point	+30 dBm	+30 dBm

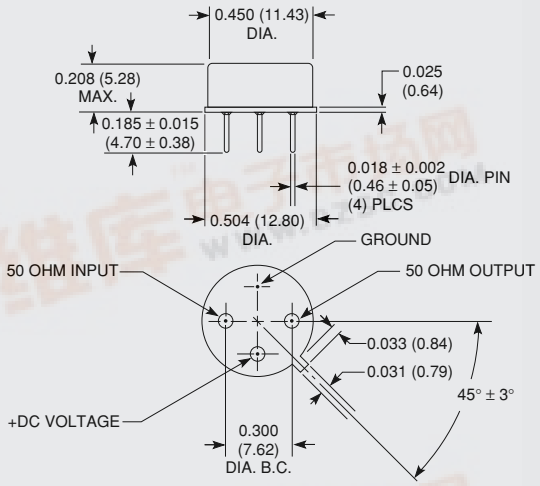
ABSOLUTE MAXIMUM RATINGS

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.)	200 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+105° C
Thermal Resistance[1] (θjc)	+41° C/Watt
Junction Temperature Rise Above Case (Tjc)	+39.6° C

[1] Thermal resistance is based on total power dissipation.

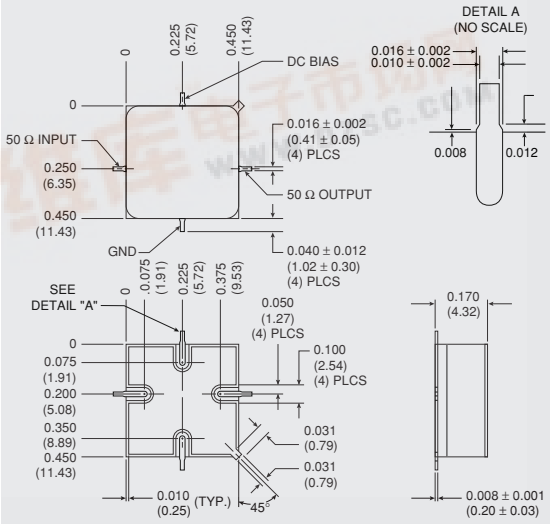
AC4086

TO-8 Package for Amplifiers



AS4086

SMTO-8 Package for Amplifiers

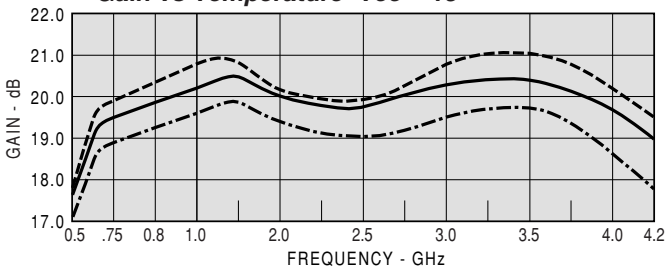


DIMENSIONS ARE IN INCHES (MILLIMETERS)

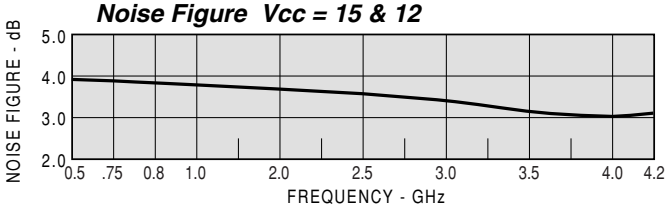
TYPICAL PERFORMANCE

KEY: +25 °C ——
+85 °C –·–
-55 °C – – –

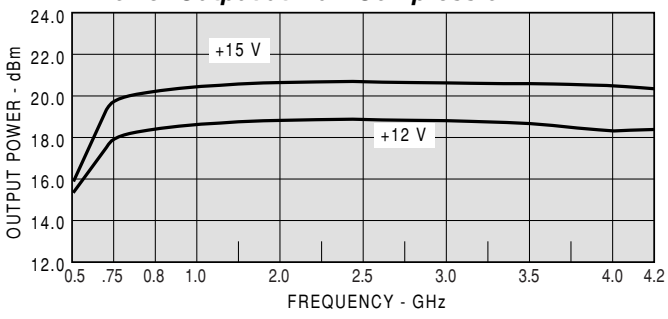
Gain vs Temperature Vcc = 15



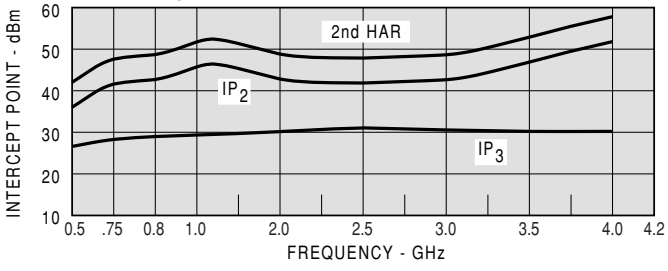
Noise Figure Vcc = 15 & 12



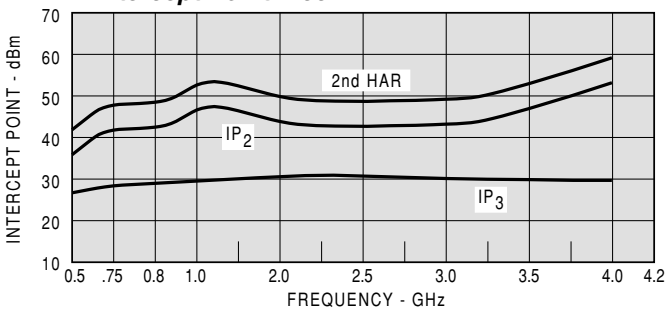
Power Output at 1 dB Compression



Intercept Point Vcc = 15



Intercept Point Vcc = 12



TYPICAL AUTOMATIC TEST DATA

Model: AC4086 Vcc= +15V Icc= 61.43

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
500	2.19	2.06	17.55	39	0.91	-38.8
600	1.83	1.59	18.67	12	0.76	-37.2
700	1.61	1.31	19.33	-11	0.64	-36.7
800	1.46	1.13	19.74	-32	0.57	-36.2
900	1.41	1.01	19.99	-51	0.52	-36.6
1000	1.42	1.09	20.13	-68	0.48	-36.4
1200	1.47	1.20	20.35	-100	0.44	-37.1
1400	1.54	1.23	20.36	-130	0.42	-38.1
1600	1.55	1.21	20.25	-158	0.39	-39.3
1800	1.60	1.16	20.13	175	0.37	-40.3
2000	1.64	1.09	19.92	150	0.36	-41.5
2200	1.57	1.11	19.70	126	0.33	-41.5
2400	1.39	1.21	19.59	102	0.33	-41.9
2600	1.40	1.33	19.69	78	0.33	-41.4
2800	1.32	1.46	20.03	55	0.32	-40.7
3000	1.20	1.59	20.21	30	0.35	-39.8
3200	1.14	1.72	20.24	3	0.38	-39.3
3400	1.14	1.84	20.23	-24	0.37	-38.6
3600	1.27	1.84	20.09	-50	0.36	-38.1
3800	1.24	1.78	19.69	-77	0.37	-37.4
4000	1.29	1.66	19.35	-106	0.39	-36.7
4200	1.22	1.51	18.71	-131	0.35	-35.9

LINEAR S-PARAMETERS

Model: AC4086 Vcc= 15V Icc= 61.43

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	0.37	-113.6	7.54	39.0	0.011	54.5	0.35	89.0
600	0.29	-125.2	8.59	11.9	0.014	39.0	0.23	67.9
700	0.23	-130.1	9.25	-11.2	0.015	23.6	0.13	50.0
800	0.19	-134.6	9.70	-31.8	0.015	11.9	0.06	35.9
900	0.17	-140.3	9.99	-50.6	0.015	2.2	0.01	87.0
1000	0.18	-140.4	10.15	-67.9	0.015	-7.1	0.04	173.8
1200	0.19	-142.6	10.42	-99.7	0.014	-25.8	0.09	152.5
1400	0.21	-147.8	10.43	-129.7	0.013	-45.0	0.10	127.2
1600	0.21	-163.4	10.29	-157.9	0.011	-63.8	0.10	98.9
1800	0.23	179.8	10.15	175.3	0.010	-82.9	0.07	68.6
2000	0.24	168.4	9.91	149.8	0.008	-105.4	0.04	31.0
2200	0.22	152.7	9.66	125.7	0.008	-131.1	0.05	-58.5
2400	0.16	145.5	9.54	102.1	0.008	-152.8	0.09	-100.6
2600	0.17	120.1	9.65	78.3	0.008	-168.4	0.14	-123.8
2800	0.14	100.4	10.04	55.1	0.009	176.6	0.19	-141.7
3000	0.09	115.9	10.24	30.1	0.010	170.7	0.23	-158.6
3200	0.06	150.3	10.28	2.5	0.011	166.9	0.27	-175.7
3400	0.06	-139.8	10.27	-24.4	0.012	162.2	0.30	168.0
3600	0.12	-168.1	10.10	-50.5	0.012	161.4	0.30	151.5
3800	0.11	172.8	9.65	-77.4	0.013	158.0	0.28	136.4
4000	0.12	157.9	9.28	-105.8	0.015	156.3	0.25	122.1
4200	0.10	123.7	8.62	-130.8	0.016	156.3	0.2	106.9
4400	0.08	77.4	7.87	-155.9	0.016	156.2	0.15	91.1

Model: AC4086 Vcc= +12V Icc= 58.38

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
500	2.15	1.97	17.61	37	0.89	-39.7
600	1.82	1.53	18.69	10	0.74	-37.8
700	1.61	1.26	19.31	-12	0.63	-37.1
800	1.46	1.09	19.72	-33	0.56	-36.6
900	1.41	1.04	19.98	-51	0.51	-37.1
1000	1.43	1.14	20.11	-68	0.48	-36.9
1200	1.46	1.27	20.36	-100	0.44	-37.7
1400	1.53	1.33	20.38	-130	0.41	-38.3
1600	1.55	1.31	20.28	-158	0.39	-39.5
1800	1.61	1.26	20.19	175	0.37	-40.3
2000	1.65	1.18	19.95	150	0.35	-40.9
2200	1.59	1.11	19.72	125	0.34	-41.9
2400	1.42	1.11	19.64	101	0.33	-42.2
2600	1.45	1.20	19.66	78	0.33	-41.5
2800	1.37	1.32	19.87	55	0.32	-41.2
3000	1.24	1.44	20.02	30	0.34	-39.8
3200	1.12	1.53	20.06	3	0.38	-39.2
3400	1.08	1.63	19.99	-24	0.37	-38.3
3600	1.21	1.66	19.75	-50	0.36	-37.7
3800	1.22	1.64	19.33	-76	0.37	-36.8
4000	1.29	1.57	19.05	-103	0.37	-35.8
4200	1.23	1.45	18.45	-128	0.34	-35.0