

AC1038

5 TO 1000 MHz TO-8 CASCADABLE AMPLIFIER

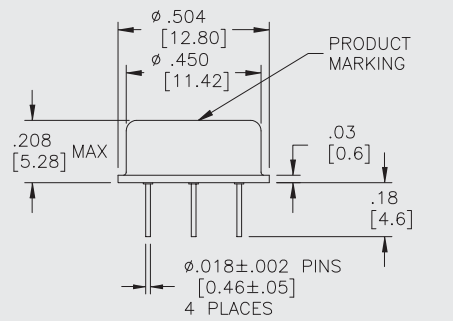
Typical Values

Low Noise Figure	3.6 dB
Medium Output Power	+16.5 dBm
High Gain	+25.5 dB
High Reverse Isolation	34.0 dB
High Performance Thin Film Standard Size TO-8 Package	

AC1038

AC1038

TO-8 Package for Amplifiers



SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	5-1100 MHz	5-1000 MHz	5-1000 MHz
Small Signal Gain (Min.)	25.5 dB	24.5 [^] dB	24.0 [^] dB
Gain Flatness (Max.)	±0.4 dB	±0.6 dB	±0.7 dB
Noise Figure (Max.)	3.6 dB	4.1 dB	4.7 dB
SWR (Max.) Input/Output	<1.4:1	1.8:1	1.9:1
Power Output (Min.) @ 1dB comp.	+16.5 dBm	+15.0 dBm	+14.5 dBm
Reverse Isolation	34.0 dB	—	—
DC Current (Max.)	70.0 mA	76.0 mA	80.0 mA

* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.
^ 0.5 dB less above 900 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 500 MHz	+5 Volts
Second Order Harmonic Intercept Point	+47 dBm
Second Order Two Tone Intercept Point	+41 dBm
Third Order Two Tone Intercept Point	+28 dBm

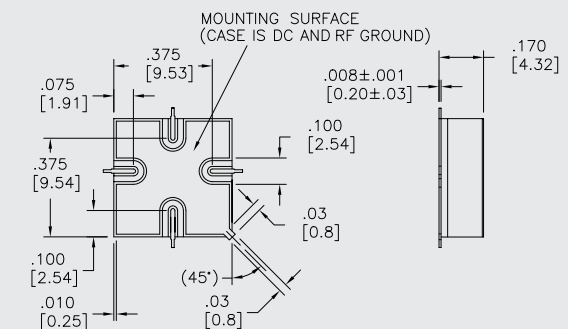
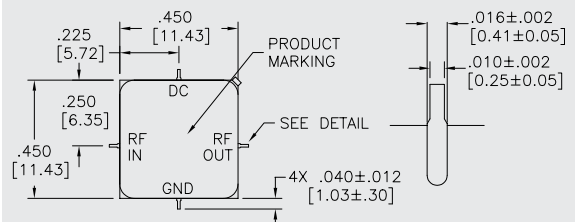
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+7 Volts
Maximum Continuous RF Input Power	+10 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+125 °C
Thermal Resistance¹ (θjC)	+59 °C/Watt
Junction Temperature(TjC)	+22.3 °C/Watt

¹ Thermal resistance is based on total power dissipation.

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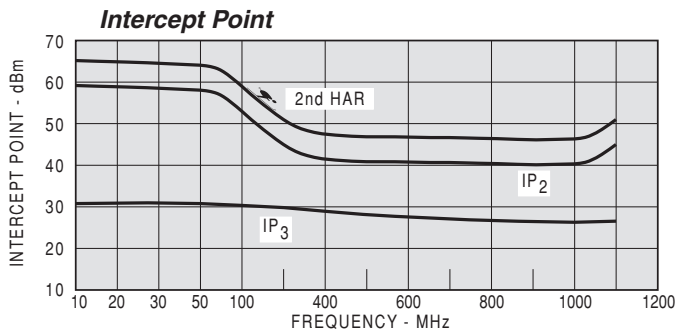
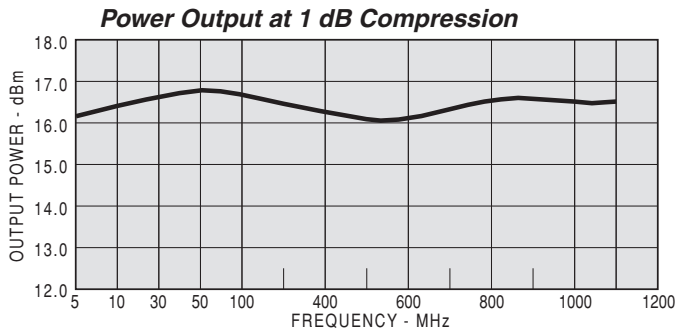
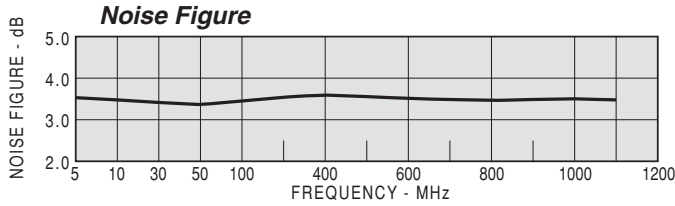
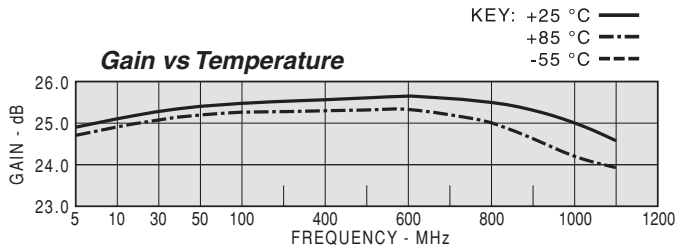
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC1038 Vcc= +5V Icc= 72.45

FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
MHZ	IN	OUT	DB	DEG	NSEC	DB
5	1.30	1.20	25.48	36		-35.6
10	1.20	1.16	25.63	17		-35.0
30	1.14	1.13	25.95	0		-34.8
50	1.13	1.13	26.03	-8	1.00	-34.9
100	1.12	1.13	26.07	-22	0.76	-34.6
200	1.12	1.15	25.96	-48	0.72	-34.4
300	1.13	1.17	25.90	-72	0.67	-34.4
400	1.13	1.17	25.91	-97	0.68	-34.3
500	1.13	1.18	25.94	-122	0.69	-34.2
600	1.13	1.23	25.96	-147	0.70	-33.7
700	1.14	1.30	25.88	-173	0.73	-33.8
800	1.13	1.41	25.70	160	0.73	-33.4
900	1.12	1.56	25.53	134	0.74	-33.1
1000	1.16	1.71	25.20	107	0.75	-32.9
1100	1.26	1.84	24.90	79	0.76	-32.3

Model: AC1038 Vcc= +5V Icc= 72.45

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.13	-62.7	18.80	36.0	0.017	43.6	0.09	-102.4
10	0.09	-44.1	19.11	16.9	0.018	21.7	0.07	-128.2
30	0.06	-21.6	19.83	0.3	0.018	7.4	0.06	-156.6
50	0.06	-13.7	20.02	-7.6	0.018	5.9	0.06	-162.2
100	0.06	-4.8	20.11	-22.4	0.019	-2.4	0.06	-163.6
200	0.06	2.7	19.87	-48.2	0.019	-4.7	0.07	-161.7
300	0.06	1.8	19.73	-72.4	0.019	-11.0	0.08	-162.2
400	0.06	0.7	19.76	-96.9	0.019	-14.4	0.08	-161.9
500	0.06	2.0	19.83	-121.9	0.020	-19.7	0.08	-159.6
600	0.06	0.3	19.86	-147.2	0.021	-23.3	0.10	-152.2
700	0.07	-9.7	19.68	-173.4	0.020	-29.4	0.13	-150.4
800	0.06	-24.4	19.27	160.3	0.021	-35.3	0.17	-155.4
900	0.06	-57.4	18.91	133.8	0.022	-41.3	0.22	-164.0
1000	0.07	-103.1	18.19	106.9	0.023	-47.9	0.26	-176.1
1100	0.12	-140.3	17.59	79.5	0.024	-54.0	0.30	166.9
1200	0.19	-168.3	16.91	50.7	0.026	-62.4	0.32	145.4