TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC847

10 TO 800 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC847
Medium Gain	13.3 dB
Low Noise Figure	<3.0 dB
Medium Output Level	+17.0 dBm
High Performance Thin Film	
Standard Size TO-8	

SPECIFICATIONS*

Parameter	Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)	5-900 MHz	10-800 MHz	10-800 MHz
Small Signal Gain (Min.)	13.3 dB	12.5 dB	12.0 dB
Gain Flatness (Max.)	±0.4 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	<3.0 dB	3.5^ dB	4.0^ dB
SWR (Max.) Input/Output	<1.5:1	1.7:1	1.9:1
Power Output (Min.) @ 1dB comp.	+17.0 dBm	+16.0 dBm	+15.5 dBm
DC Current (Max.)	44.0 mA	48.0 mA	52.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 0.5 dB higher above 600 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	+12 volts	+15 volts
Second Order Harmonic Intercept Point	+51 dBm	+53 dBm
Second Order Two Tone Intercept Point	+45 dBm	+47 dBm
Third Order Two Tone Intercept Point	+31 dBm	+32 dBm

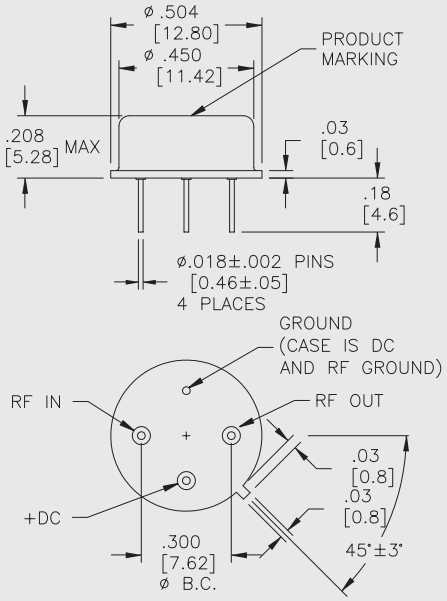
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	125 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+105 °C
Thermal Resistance[1] (θjc; Vcc = 15)	+56 °C/Watt
Junction Temperature Rise Above Case (Tjc; Vcc = 15)	+39.1 °C

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

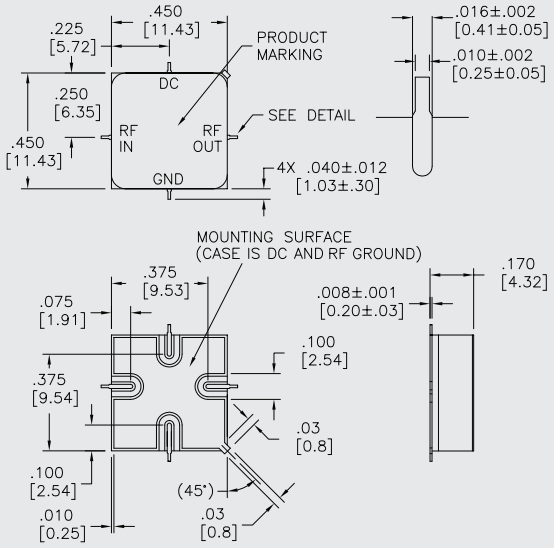
AC847

TO-8 Package for Amplifiers



AS847

SMTO-8 Package for Amplifiers



If DC is present on RF input/output, this model requires additional external blocking capacitors.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

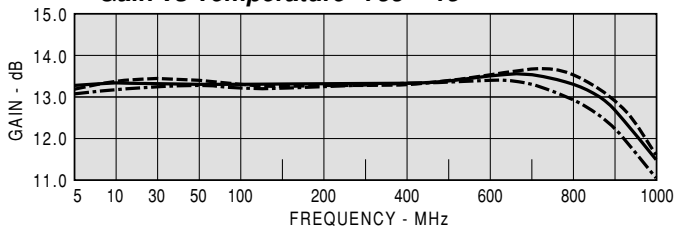
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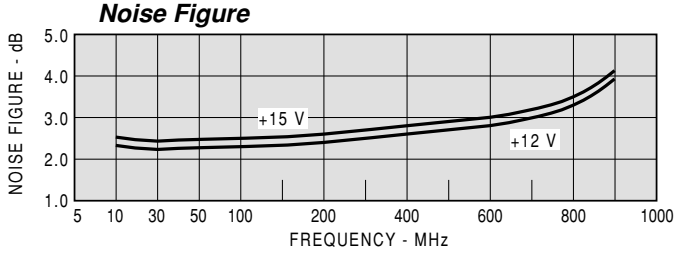
TYPICAL PERFORMANCE

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

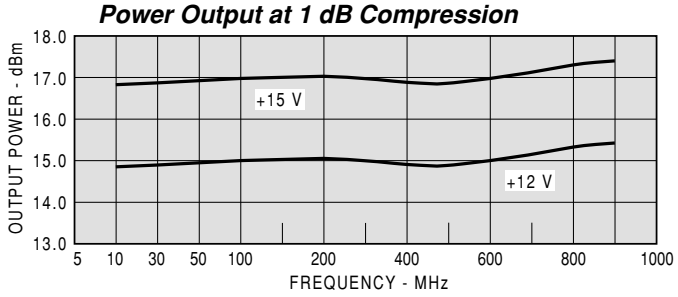
Gain vs Temperature Vcc = 15



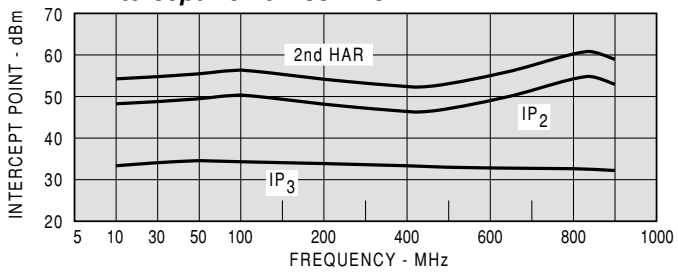
Noise Figure



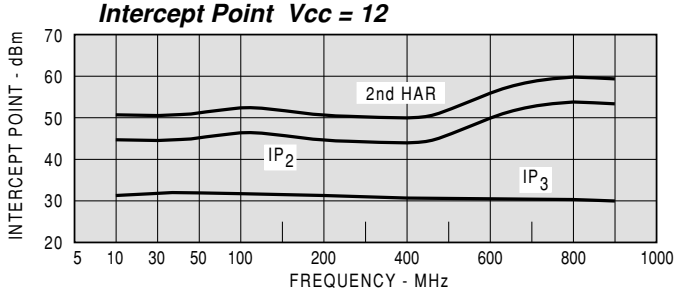
Power Output at 1 dB Compression



Intercept Point Vcc = 15



Intercept Point Vcc = 12



TYPICAL AUTOMATIC TEST DATA

Model: AC847 Vcc=+15V Icc=44.30

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
5	1.47	1.35	13.32	-167		-17.9
10	1.28	1.18	13.35	-175		-17.5
30	1.20	1.08	13.33	176	0.77	-17.4
50	1.20	1.07	13.29	171	0.62	-17.3
100	1.22	1.08	13.26	161	0.57	-17.4
200	1.29	1.11	13.27	141	0.54	-17.4
300	1.39	1.16	13.32	122	0.54	-17.6
400	1.48	1.23	13.40	102	0.56	-17.7
500	1.52	1.33	13.53	81	0.58	-17.8
600	1.48	1.41	13.60	59	0.62	-17.8
700	1.32	1.47	13.63	35	0.67	-17.9
800	1.17	1.45	13.41	9	0.73	-18.1
900	1.40	1.33	12.83	-17	0.75	-18.7
1000	2.02	1.15	11.73	-45	0.75	-19.8
1100	3.01	1.15	10.14	-71	0.70	-21.4

LINEAR S-PARAMETERS

Model: AC847 Vcc=+15V Icc=44.30

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.19	-98	4.63	-166.6	0.127	-171.3	0.15	-75.4
10	0.12	-124.6	4.65	-175.1	0.134	-176.7	0.08	-103.4
30	0.09	-152.8	4.64	176.3	0.136	176.4	0.04	-150.9
50	0.09	-156.0	4.62	171.4	0.136	172.2	0.04	-172.6
100	0.10	-153.5	4.60	161.1	0.135	163.2	0.04	156.8
200	0.13	-146.8	4.61	141.4	0.134	146.2	0.05	120.1
300	0.16	-147.9	4.63	121.9	0.132	129.1	0.07	98.2
400	0.19	-155.3	4.68	101.8	0.130	112.4	0.10	74.5
500	0.21	-168.4	4.75	80.9	0.129	96.1	0.14	52.0
600	0.19	174.3	4.79	58.6	0.129	78.3	0.17	27.5
700	0.14	148.1	4.80	35.0	0.127	59.9	0.19	0.2
800	0.08	77.1	4.68	9.2	0.124	39.6	0.18	-30.4
900	0.17	-11.7	4.38	-17.5	0.115	17.6	0.14	-66.9
1000	0.34	-46.6	3.86	-44.8	0.102	-4.9	0.07	-115.9
1100	0.50	-69.6	3.21	-70.7	0.085	-25.6	0.07	108.3
1200	0.63	-88.0	2.58	-94.5	0.069	-44.8	0.18	62.3

Model: AC847 Vcc=+12V Icc=35.03

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
5	1.46	1.35	13.24	-167		-18.0
10	1.27	1.17	13.26	-175		-17.5
30	1.19	1.07	13.23	176	0.80	-17.4
50	1.19	1.06	13.22	171	0.69	-17.4
100	1.21	1.06	13.18	161	0.57	-17.5
200	1.30	1.09	13.18	141	0.55	-17.6
300	1.41	1.13	13.24	121	0.55	-17.7
400	1.51	1.19	13.30	101	0.56	-17.8
500	1.56	1.28	13.43	80	0.59	-17.9
600	1.51	1.35	13.51	58	0.62	-18.0
700	1.36	1.39	13.53	34	0.67	-18.0
800	1.20	1.36	13.30	8	0.73	-18.3
900	1.42	1.24	12.70	-19	0.75	-19.0
1000	2.04	1.08	11.58	-46	0.75	-20.1
1100	3.06	1.23	9.95	-72	0.71	-21.7

LINEAR S-PARAMETERS

Model: AC847 Vcc=+12V Icc=35.03

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.19	-95.9	4.59	-166.7	0.126	-171.5	0.15	-72.8
10	0.12	-121.6	4.60	-175.1	0.133	-176.8	0.08	-98.7
30	0.09	-149.8	4.59	176.2	0.135	176.1	0.03	-141.9
50	0.09	-153.3	4.58	171.3	0.134	172.1	0.03	-165.5
100	0.10	-149.6	4.56	161.0	0.134	163.0	0.03	161.6
200	0.13	-143.6	4.56	141.2	0.132	145.7	0.04	124.2
300	0.17	-146.0	4.59	121.5	0.131	128.5	0.06	101.2
400	0.20	-154.9	4.62	101.4	0.129	111.8	0.09	76.8
500	0.22	-169.0	4.69	80.2	0.127	95.0	0.12	54.0
600	0.20	173.2	4.74	58.0	0.127	77.3	0.15	28.7
700	0.15	145.6	4.75	34.2	0.125	58.5	0.16	0.5
800	0.09	78.1	4.62	8.3	0.121	37.9	0.15	-30.9
900	0.17	-7.8	4.32	-18.7	0.113	15.6	0.11	-69.6
1000	0.34	-44.7	3.79	-46.1	0.098	-7.3	0.04	-141.2
1100	0.51	-68.5	3.15	-72.1	0.082	-28.5	0.10	92.3
1200	0.64	-87.6	2.52	-95.9	0.065	-48	0.21	57.6