

AC378 5 to 300 MHz
AC379 TO-8 Cascadable Amplifiers

Typical Values

<i>Typical Values</i>	AC378	AC379
Medium Gain	14.0 dB	13.8 dB
High Output Power	+20.5 dBm	+22.5 dBm
High Third Order I.P.	+34.0 dBm	+38.0 dBm
Low Noise Figure	4.0 dB	4.5 dB

**High Performance Thin Film
Available in Surface Mount**

Specifications

		Guaranteed*		
Parameter		Typical	0 to 50° C	-55 to +85° C
Frequency (Min.)		2-350 MHz	5-300 MHz	5-300 MHz
Small Signal Gain (Min.)	AC378	14.0 dB	13.5 dB	13.0 dB
	AC379	13.8 dB	13.0 dB	12.5 dB
Gain Flatness (Max.)		<±0.25 dB	±0.4 dB	±0.6 dB
Noise Figure (Max.)	AC378	4.0 dB	5.0 dB	5.5 dB
	AC379	4.5 dB	5.5 dB	6.0 dB
SWR (Max.)—Input/Output		<1.5:1	1.7:1	1.9:1
Power Output (Min.) @ 1 dB comp.	AC378	+ 20.0 dBm	+ 19.0 dBm	+ 18.5 dBm
	AC379	+ 22.5 dBm	+ 21.5 dBm	+ 20.5 dBm
DC Current (Max.)	AC378	65.0 mA	68.0 mA	71.0 mA
	AC379	86.0 mA	92.0 mA	96.0 mA

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

Intermodulation Performance

Typical @ 25° C	AC378	AC379
Second Order Harmonic Intercept Point	55 dBm	52 dBm
Second Order Two Tone Intercept Point	50 dBm	46 dBm
Third Order Two Tone Intercept Point	34 dBm	38 dBm

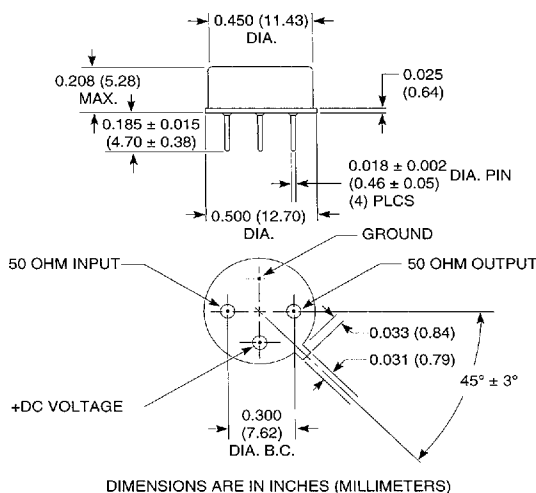
Absolute Maximum Ratings

Storage Temperature	-62 to 125° C
Maximum Case Temperature	+125° C
Maximum DC Voltage	+19 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 μ sec Max.)	0.5 Watt
Q Series Burn-in Temperature AC378/AC379	+105°C/+85°C
Thermal Resistance ¹ (θ jc); AC378	+36° C/Watt
Thermal Resistance ¹ (θ jc); AC379	+38° C/Watt
Junction Temperature Rise above Case (Tjc); AC378	+36° C
Junction Temperature Rise above Case (Tjc); AC379	+50° C

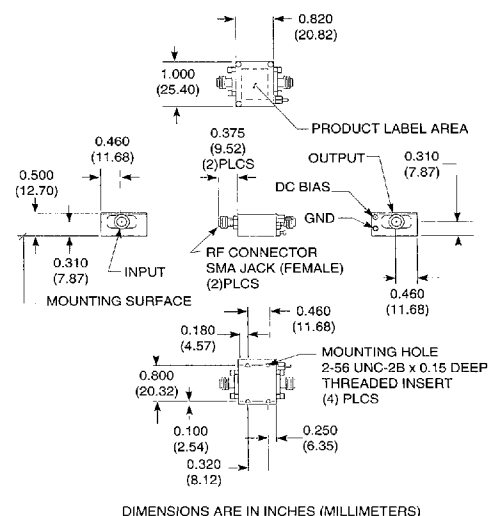
1. Thermal resistance is based on total power dissipation.

Outline Drawings

TO-8 Package for Amplifiers



Amplifier Case—connectorized

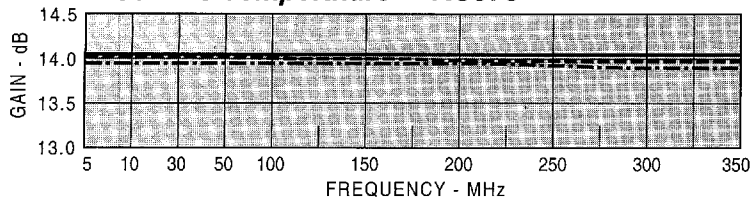


AC378/AC379

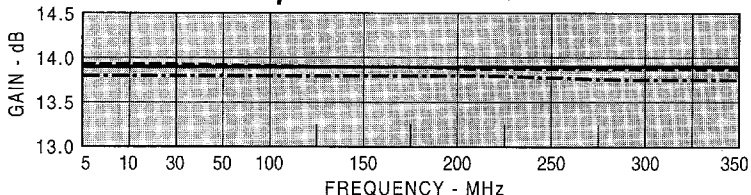
Typical Performance

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

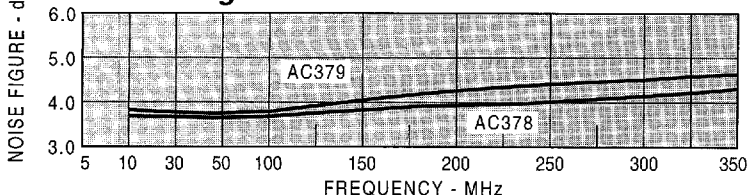
Gain vs Temperature - AC378



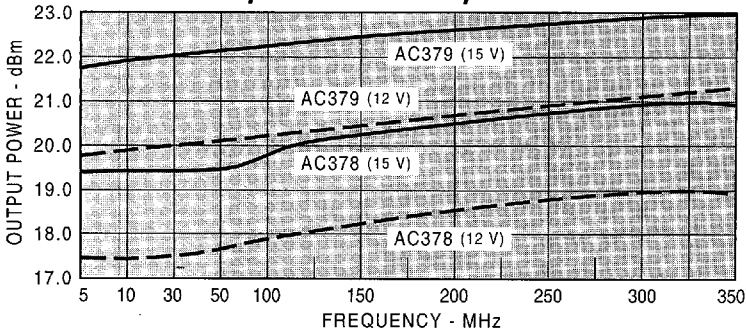
Gain vs Temperature - AC379



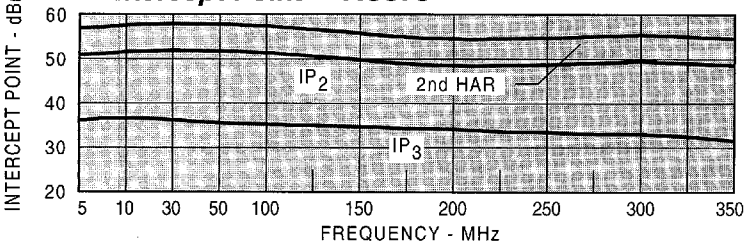
Noise Figure



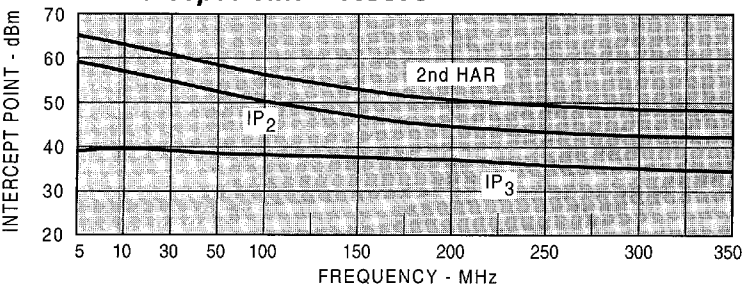
Power Output at 1 dB Compression



Intercept Point - AC378



Intercept Point - AC379



Typical Automatic Test Data

Model:AC378		Vcc=+15V				Icc=66.22	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHz	IN	OUT	DB	DEG	NSEC	DB	
5	1.19	1.17	14.03	-173		-17.9	
10	1.12	1.11	14.01	-178		-17.9	
20	1.11	1.09	14.02	177	1.2	-17.9	
50	1.10	1.10	14.00	169	0.78	-17.9	
100	1.12	1.14	13.95	157	0.68	-17.9	
200	1.19	1.25	13.83	133	0.66	-17.5	
300	1.33	1.40	13.64	109	0.67	-17.0	
400	1.56	1.58	13.29	84	0.68	-16.5	
500	1.91	1.82	12.80	59	0.69	-16.0	

LINEAR S-PARAMETERS

Model:AC378		Voc=+15V						Icc=66.22	
FREQ.	S11		S21		S12		S22		
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.09	-120.6	5.03	-172.9	0.127	8.9	0.08	134.5	
10	0.06	-140.1	5.02	-178.2	0.127	4.1	0.05	150.3	
20	0.05	-157.1	5.02	177.3	0.128	1.3	0.04	169.8	
50	0.05	-164.4	5.01	168.9	0.127	-1.3	0.05	-166.2	
100	0.06	-163.0	4.98	156.6	0.128	-4.1	0.06	-154.4	
200	0.09	-163.6	4.91	132.7	0.133	-9.3	0.11	-161.2	
300	0.14	-174.1	4.81	108.7	0.141	-15.2	0.17	-178.2	
400	0.22	172.6	4.62	84.0	0.150	-23.3	0.23	161.4	
500	0.31	157.1	4.37	59.0	0.159	-32.7	0.29	139.5	

Model:AC378		Vcc=+12V				Icc=52.38	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHz	IN	OUT	DB	DEG	NSEC	DB	
5	1.18	1.15	13.94	-173		-17.9	
10	1.12	1.09	13.93	-178		-17.9	
20	1.10	1.07	13.94	177	1.2	-17.9	
50	1.10	1.09	13.92	169	0.8	-17.8	
100	1.13	1.14	13.87	156	0.7	-17.8	
200	1.23	1.27	13.71	131	0.69	-17.4	
300	1.40	1.44	13.45	106	0.69	-16.9	
400	1.68	1.64	13.01	81	0.7	-16.3	
500	2.09	1.89	12.40	56	0.71	-15.8	

Model:AC379		Vcc=+15V				Icc=87.48	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHz	IN	OUT	DB	DEG	NSEC	DB	
5	1.21	1.22	14.02	-171		-18.1	
10	1.11	1.10	14.02	-177		-18.0	
20	1.07	1.04	14.05	178	1.4	-18.0	
50	1.04	1.05	14.06	169	0.86	-17.9	
100	1.02	1.14	14.02	155	0.74	-17.8	
200	1.09	1.31	13.89	130	0.71	-17.4	
300	1.28	1.54	13.62	104	0.72	-16.8	
400	1.61	1.82	13.18	77	0.74	-16.2	
500	2.16	2.17	12.48	50	0.75	-15.8	

LINEAR S-PARAMETERS

Model:AC379		Vcc=+15V						Icc=87.48	
FREQ.		S11		S21		S12		S22	
MHz.	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.09	-73.7	5.02	-171.0	0.125	10.6	0.10	97.5	
10	0.05	-64.5	5.02	-177.2	0.126	5.1	0.05	85.9	
20	0.03	-57.8	5.04	177.8	0.126	2.2	0.02	59.2	
50	0.02	-48.6	5.04	168.5	0.127	-1.0	0.03	-67.1	
100	0.01	-78.0	5.02	155.3	0.128	-4.0	0.06	-99.2	
200	0.04	-178.0	4.95	129.6	0.134	-10.1	0.14	-130.9	
300	0.12	158.9	4.80	103.8	0.144	-17.4	0.21	-158.3	
400	0.23	142.2	4.56	77.1	0.155	-27.3	0.29	175.7	
500	0.37	125.3	4.21	50.1	0.163	-39.1	0.37	149.0	

Model:AC379		Vcc=+12V				Icc=69.21	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHz	IN	OUT	DB	DEG	NSEC	DB	
5	1.19	1.18	13.97	-172		-18.0	
10	1.11	1.09	13.97	-178		-18.0	
20	1.07	1.04	13.99	177	1.3	-18.0	
50	1.05	1.07	14.01	168	0.86	-17.9	
100	1.04	1.16	13.95	155	0.75	-17.8	
200	1.12	1.36	13.79	128	0.73	-17.3	
300	1.34	1.62	13.48	102	0.74	-16.6	
400	1.72	1.93	12.94	74	0.76	-16.0	
500	2.34	2.30	12.12	47	0.76	-15.5	

LINEAR S-PARAMETERS

Model:AC379		Vcc=+12V						Icc=69.21	
FREQ.	S11		S21		S12		S22		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.09	-71.1	4.99	-172.0	0.125	9.7	0.08	92.7	
10	0.05	-61.1	4.99	-177.8	0.126	4.8	0.04	76.8	
20	0.03	-53.6	5.01	177.4	0.126	1.8	0.02	34.6	
50	0.02	-52.2	5.02	168.1	0.127	-0.5	0.03	-63.9	
100	0.02	-90.9	4.98	154.5	0.129	-3.7	0.07	-97.6	
200	0.06	-166.5	4.89	128.2	0.136	-9.2	0.15	-130.1	
300	0.14	163.9	4.72	101.6	0.148	-16.9	0.24	-158.0	
400	0.26	143.9	4.43	74.2	0.158	-27.2	0.32	175.1	
500	0.40	125.3	4.04	46.9	0.168	-39.8	0.39	147.9	



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