

AC378 AC379

5 TO 300 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC378	AC379
High Dynamic Range	+112 dBm	+114 dBm
High Output Power	+19.5 dBm	+22.5 dBm
High Third Order I.P.	+34.0 dBm	+39.0 dBm
Low Noise Figure	5.0 dB	5.5 dB
High Performance Thin Film Standard Size TO-8 Package		

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to 85 °C
Frequency (Min.)	2-350 MHz	5-300 MHz	5-300 MHz
Small Signal Gain (Min.)	14.0 dB	13.2 dB	13.0 dB
Gain Flatness (Max.)	±0.2 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	5.0 dB	6.0 dB	6.5 dB
SWR (Max.)	Input/Output < 1.3:1	1.7:1	1.8:1
Power Output (Min.) @ 1dB comp.	AC378 +19.5 dBm AC379 +22.5 dBm	+18.0 dBm +21.5 dBm	+17.5 dBm +20.5 dBm
Reverse Isolation	18.0 dB	—	—
DC Current (Max.)	AC378 65.0 mA AC379 88.0 mA	68.0 mA 92.0 mA	71.0 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	+57 dBm
Second Order Two Tone Intercept Point	+49 dBm	+51 dBm
Third Order Two Tone Intercept Point	+34 dBm	+39 dBm

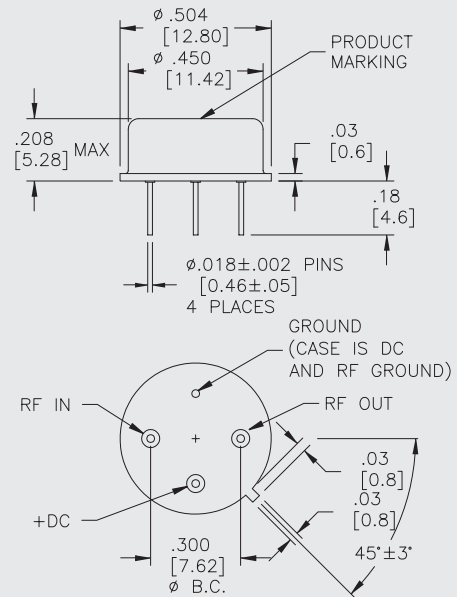
ABSOLUTE MAXIMUM RATINGS

Ambient Operating Temperature	-55 to +100 °C
Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature (AC378)	+105 °C
Burn-in Temperature (AC379)	+85 °C
Thermal Resistance ¹ (θ _{jc} ; AC378)	+36 °C/Watt
Thermal Resistance ¹ (θ _{jc} ; AC379)	+36 °C/Watt
Junction Temperature Rise Above Case (T _{jc} ; AC378)	+36.3 °C
Junction Temperature Rise Above Case (T _{jc} ; AC379)	+50.0 °C

¹ Thermal resistance is based on total power dissipation.

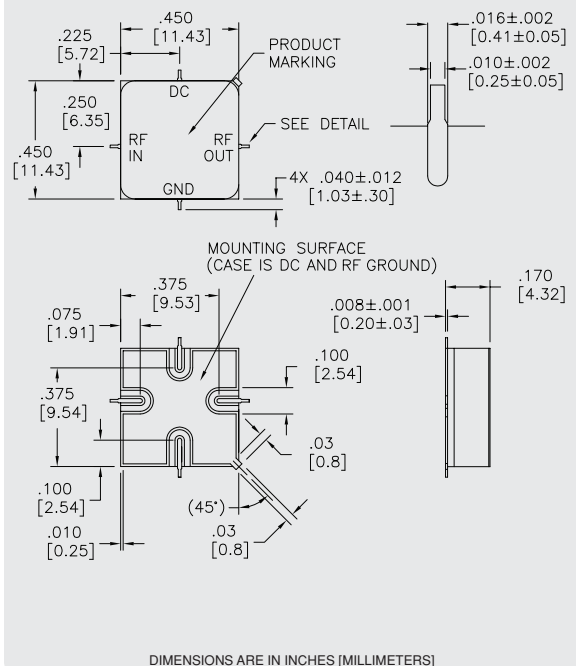
AC378/AC379

TO-8 Package for Amplifiers



AS378/AS379

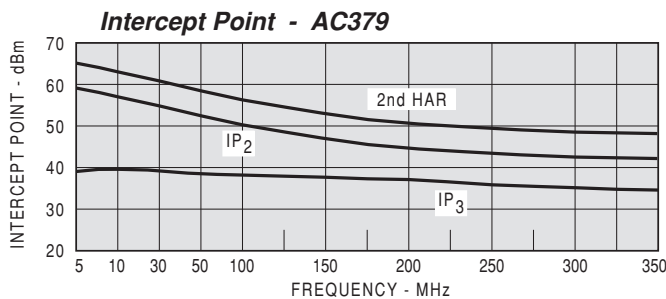
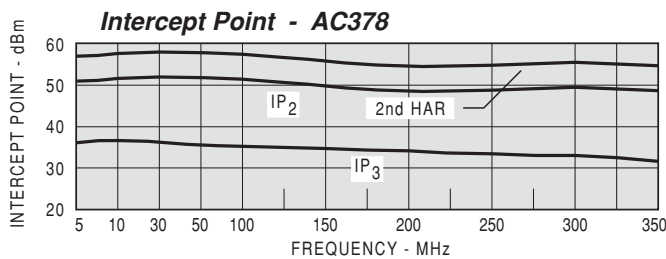
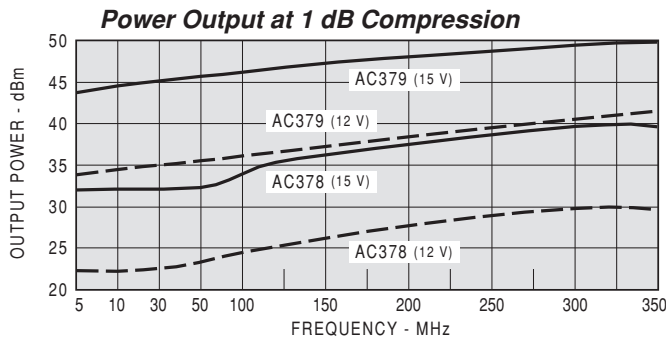
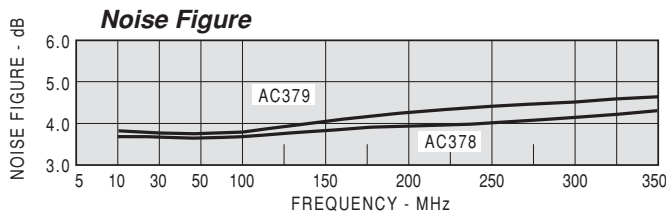
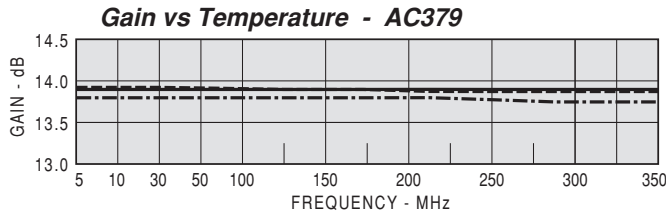
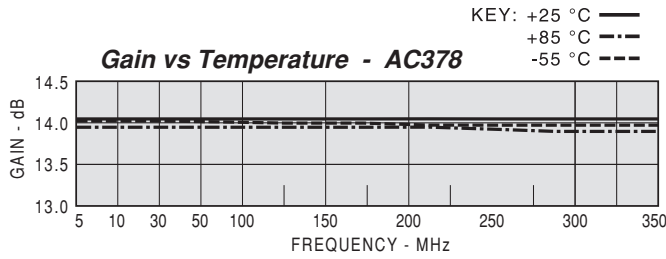
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC378 Vcc=+15V Icc=66.22

FREQ MHz	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
5	1.19	1.17	14.03	-173.0		-17.9
10	1.12	1.11	14.01	-178.0		-17.9
20	1.11	1.09	14.02	177.0	1.20	-17.9
50	1.10	1.10	14.00	169.0	0.78	-17.9
100	1.12	1.14	13.95	157.0	0.68	-17.9
200	1.19	1.25	13.83	133.0	0.66	-17.5
300	1.33	1.40	13.64	109.0	0.67	-17.0
400	1.56	1.59	13.29	84.0	0.68	-16.5
500	1.91	1.82	12.80	59.0	0.69	-16.0

Model: AC378 Vcc=+15V Icc=66.22

LINEAR S-PARAMETERS

FREQ MHz	S11 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 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 MHz	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO 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	1.20	-17.9
50	1.10	1.09	13.92	169	0.80	-17.8
100	1.13	1.14	13.87	156	0.70	-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	0.70	-16.3
500	2.09	1.89	12.40	56	0.71	-15.8

Model: AC379 Vcc=+15V Icc=87.48

FREQ MHz	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO 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	1.40	-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

Model: AC379 Vcc=+15V Icc=87.48

LINEAR S-PARAMETERS

FREQ MHz	S11 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 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 MHz	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO 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	1.30	-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

Model: AC379 Vcc=+12V Icc=69.21

LINEAR S-PARAMETERS

FREQ MHz	S11 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 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