

# AC2078

## 10 TO 2000 MHz TO-8 CASCADABLE AMPLIFIER

**Typical Values**

High Output Power .....	<b>AC2078</b> <b>+20.5 dBm</b>
High Third Order I.P. ....	<b>+34.0 dBm</b>
Low Noise Figure .....	<b>4.0 dB</b>
High Performance Thin Film Standard Size TO-8 Package	

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	10-2200 MHz	10-2000 MHz	10-2000 MHz
Small Signal Gain (Min.)	10.0 dB	9.0 dB	8.5 dB
Gain Flatness (Max.)	< ±0.2 dB	±0.5 dB	±0.6 dB
Noise Figure (Max.) 30-2000 MHz	4.0 dB	4.8 dB	5.3 dB
SWR (Max.) Input/Output	1.5:1	2.0:1 <sup>^</sup>	2.2:1 <sup>^</sup>
Power Output (Min.) @ 1dB comp.	+20.5 dBm	+19.5 dBm	+19.0 dBm
Reverse Isolation	18.0 dB	—	—
DC Current (Max.)	100.0 mA	105.0 mA	108.0 mA

\* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.  
<sup>^</sup> Input SWR is ≤ 2.5:1 below 30 MHz.

### INTERMODULATION PERFORMANCE

Typical @ 25 °C	<b>+15 volts</b>
Second Order Harmonic Intercept Point .....	<b>+56 dBm</b>
Second Order Two Tone Intercept Point .....	<b>+50 dBm</b>
Third Order Two Tone Intercept Point .....	<b>+34 dBm</b>

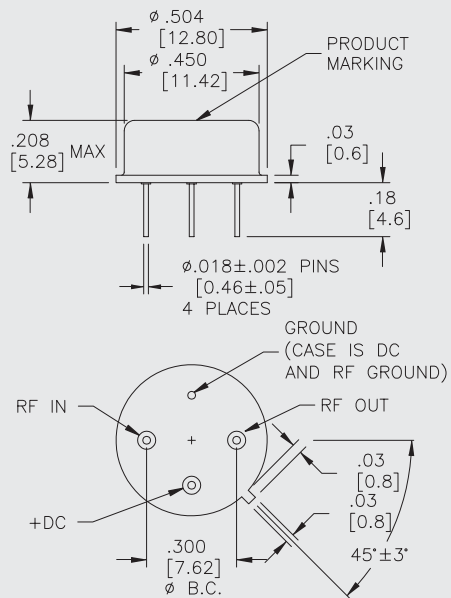
### ABSOLUTE MAXIMUM RATINGS

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.) .....	100 Milliwatts
Maximum Peak Power (3 μsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+105 °C
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ) .....	+16 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ) .....	+26 °C

<sup>1</sup> Thermal resistance is based on total power dissipation.

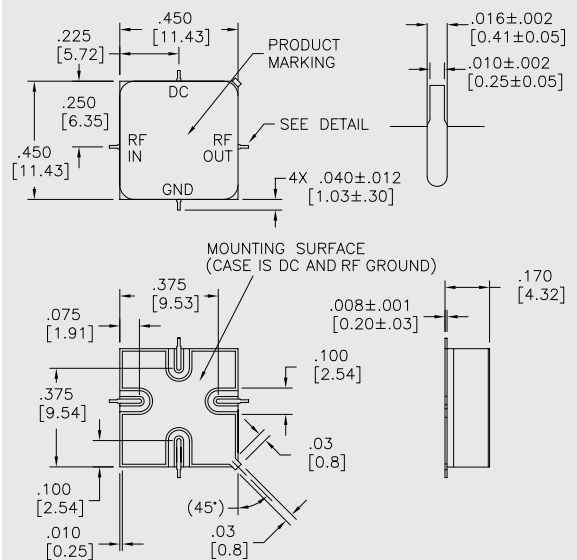
### AC2078

#### TO-8 Package for Amplifiers



### AS2078

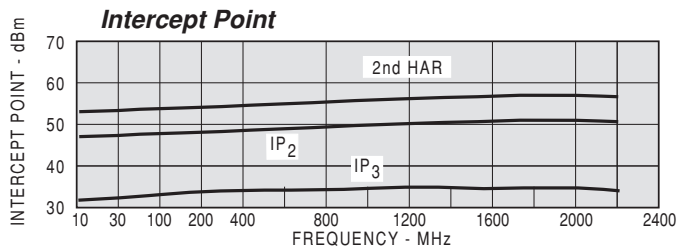
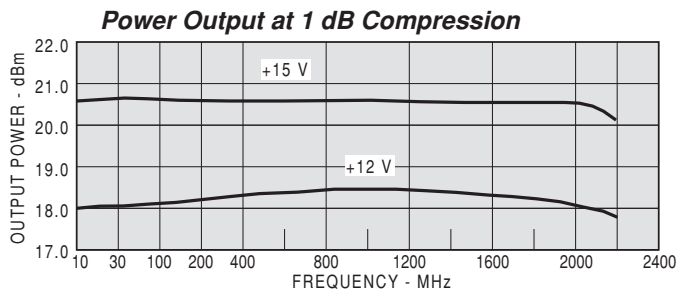
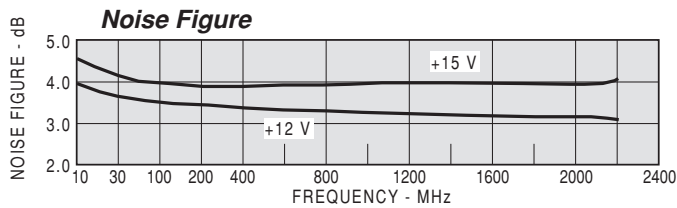
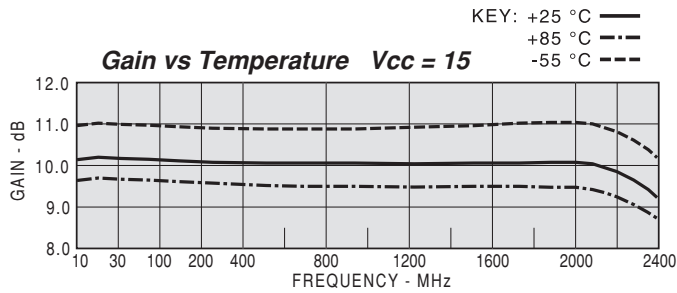
#### SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



MODEL: AC2078 Vcc = +15V Icc = 99.80 mA

FREQ. (MHZ)	VSWR IN	VSWR OUT	GAIN (DB)	GROUP DELAY (NSEC)	REV/ISO (DB)
10	2.15	1.65	10.2		-18.5
20	1.72	1.27	10.4		-18.3
50	1.70	1.22	10.3	1.062	-18.8
100	1.69	1.20	10.3	0.442	-18.8
200	1.66	1.18	10.2	0.339	-18.7
300	1.66	1.17	10.1	0.309	-18.5
400	1.63	1.17	10.1	0.286	-18.2
500	1.63	1.17	10.1	0.298	-18.4
600	1.59	1.18	10.0	0.297	-18.6
700	1.55	1.18	10.1	0.292	-18.3
800	1.50	1.21	10.1	0.290	-18.5
900	1.49	1.20	10.0	0.296	-18.5
1000	1.47	1.19	10.0	0.300	-18.0
1100	1.46	1.20	10.0	0.299	-18.9
1200	1.43	1.18	10.0	0.296	-18.8
1300	1.43	1.18	10.0	0.302	-18.3
1400	1.41	1.20	9.9	0.306	-18.4
1500	1.35	1.20	10.0	0.310	-18.4
1600	1.30	1.20	10.0	0.318	-18.4
1700	1.24	1.21	10.1	0.311	-18.9
1800	1.19	1.23	10.0	0.338	-18.2
1900	1.18	1.25	10.2	0.323	-18.4
2000	1.22	1.27	10.2	0.383	-18.5
2100	1.30	1.32	10.1	0.365	-18.2

MODEL: AC2078 Vcc = +15V Icc = 99.80 mA

LINEAR S-PARAMETERS

FREQ. (MHZ)	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.36	-32.6	3.23	-150.5	0.119	25	0.24	136.3
20	0.27	-19.4	3.31	-168.9	0.121	10	0.12	141.0
50	0.26	-13.4	3.27	179.5	0.115	3	0.10	149.0
100	0.26	-16.4	3.26	171.6	0.114	-4	0.09	144.6
200	0.25	-28.7	3.24	159.3	0.116	-8	0.08	121.9
300	0.25	-41.1	3.20	148.3	0.119	-17	0.08	109.9
400	0.24	-51.2	3.22	137.9	0.123	-22	0.08	100.6
500	0.24	-63.1	3.19	127.3	0.120	-27	0.08	85.1
600	0.23	-76.3	3.16	116.6	0.117	-35	0.08	79.8
700	0.22	-88.2	3.19	106.1	0.121	-41	0.08	67.5
800	0.20	-101.0	3.18	95.7	0.119	-47	0.09	57.3
900	0.20	-115.6	3.17	85.0	0.119	-52	0.09	49.5
1000	0.19	-131.1	3.17	74.1	0.125	-59	0.09	39.7
1100	0.19	-143.4	3.16	63.3	0.113	-66	0.09	31.6
1200	0.18	-158.8	3.16	52.7	0.114	-72	0.08	22.0
1300	0.18	-171.7	3.15	41.9	0.122	-76	0.08	7.8
1400	0.17	176.5	3.13	30.8	0.121	-83	0.09	6.4
1500	0.15	164.7	3.18	19.6	0.120	-91	0.09	0.1
1600	0.13	146.1	3.17	8.3	0.120	-97	0.09	-9.3
1700	0.11	125.6	3.21	-3.0	0.113	-106	0.09	-15.5
1800	0.09	100.5	3.18	-15.2	0.123	-113	0.10	-20.1
1900	0.08	62.5	3.24	-26.9	0.120	-127	0.11	-30.0
2000	0.10	24.7	3.23	-40.7	0.119	-130	0.12	-33.8
2100	0.13	-11.9	3.20	-53.8	0.123	-138	0.14	-38.1
2200	0.17	-38.2	3.17	68.0	0.124	-147	0.15	-47.5