

# AC2046

# 10 TO 2000 MHz TO-8 CASCADABLE AMPLIFIER

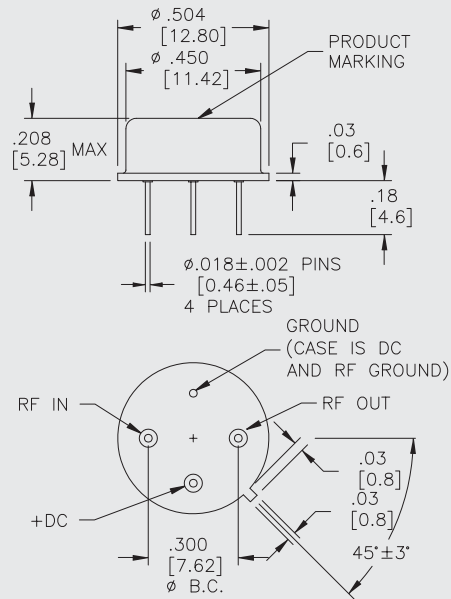
**Typical Values**

High Gain - Two Stages	20.5 dB
Low Noise Figure	4.5 dB
Medium Output Power	+15.0 dBm
High Third Order I.P.	+25 dBm
High Performance Thin Film	
Standard Size TO-8 Package	

**AC2046**

## AC2046

### TO-8 Package for Amplifiers



## SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	8-2100 MHz	10-2000 MHz	10-2000 MHz
Small Signal Gain (Min.)	20.5 dB	19.5 dB	19.0 dB
Gain Flatness (Max.)	±0.25 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.) 100-2000 MHz	4.5 dB	5.5 dB	6.0 dB
SWR (Max.)	Input < 1.5:1 Output < 1.5:1	1.8:1 2.0:1	2.0:1 2.0:1
Power Output (Min.) @ 1dB comp.	+15.0 <sup>^</sup> dBm	+14.0 <sup>^</sup> dBm	+13.5 <sup>^</sup> dBm
Reverse Isolation	32.0 dB	—	—
DC Current (Max.)	58.0 mA	62.0 mA	65.0 mA

\* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.  
^ 1.0 dB lower below 800 MHz.

## INTERMODULATION PERFORMANCE

**Typical @ 25 °C**

Second Order Harmonic Intercept Point	+46 dBm
Second Order Two Tone Intercept Point	+41 dBm
Third Order Two Tone Intercept Point	+25 dBm

**+15 volts**

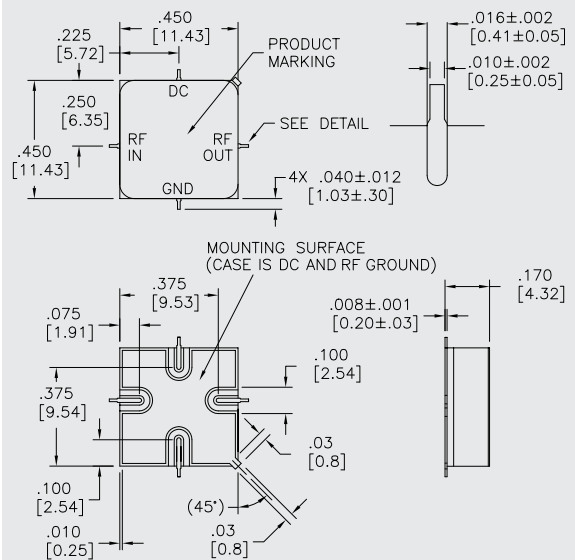
## ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 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 Resistance <sup>1</sup> (θjc)	+34 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+31.5 °C

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

## AS2046

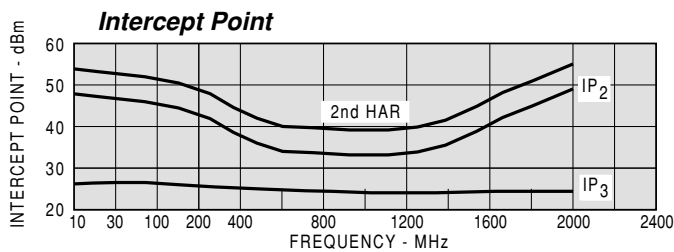
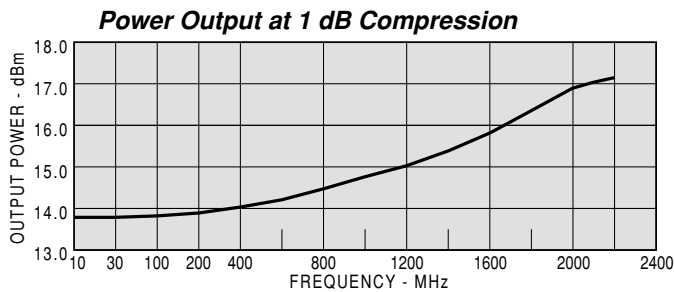
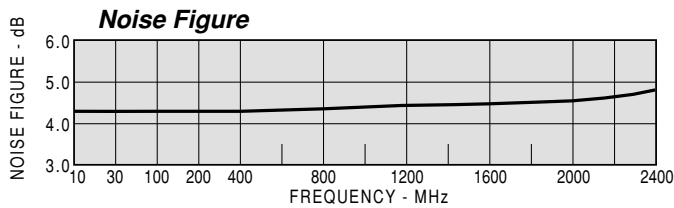
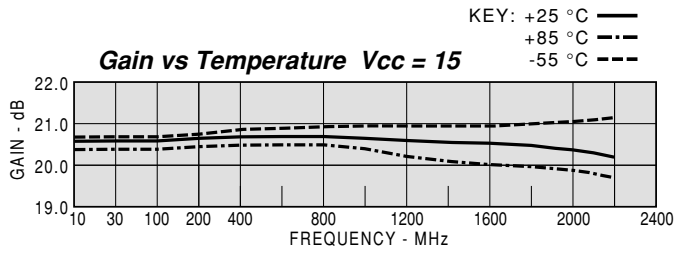
### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



MODEL: AC2046 Vcc = +15V Icc = 58.97 mA

FREQUENCY	VSWR	GAIN	GROUP DELAY	REV/ISO
MHZ	IN	OUT	NSEC	DB
10	1.27	2.03		-32.1
20	1.18	1.37		-31.2
50	1.17	1.16	1.362	-31.7
100	1.16	1.13	0.628	-31.7
200	1.16	1.12	0.508	-31.2
300	1.17	1.12	0.488	-31.5
400	1.17	1.11	0.480	-31.5
500	1.21	1.10	0.482	-31.4
600	1.25	1.10	0.490	-31.5
700	1.30	1.10	0.484	-31.5
800	1.35	1.12	0.492	-31.7
900	1.37	1.13	0.502	-32.1
1000	1.37	1.16	0.488	-32.2
1100	1.34	1.18	0.496	-32.1
1200	1.26	1.22	0.500	-33.2
1300	1.21	1.26	0.504	-33.6
1400	1.18	1.32	0.507	-33.0
1500	1.17	1.38	0.519	-34.1
1600	1.13	1.44	0.479	-33.4
1700	1.09	1.50	0.517	-34.1
1800	1.06	1.55	0.492	-34.8
1900	1.17	1.62	0.527	-34.7
2000	1.35	1.65	0.553	-34.7
2100	1.62	1.68	0.561	-34.9

MODEL: AC2046 Vcc = +15V Icc = 58.97 mA

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.12	170.7	9.95	32.4	0.025	38	0.34	115.3
20	0.08	171.4	10.36	12.0	0.027	16	0.16	80.9
50	0.08	172.4	10.27	-1.6	0.026	6	0.08	56.4
100	0.08	166.7	10.22	-12.2	0.026	0	0.06	35.1
200	0.08	160.9	10.34	-29.1	0.027	-5	0.06	12.2
300	0.08	150.2	10.38	-45.1	0.027	-8	0.06	1.5
400	0.08	142.3	10.52	-60.9	0.027	-10	0.05	-9.2
500	0.10	126.9	10.58	-76.9	0.027	-18	0.05	-10.5
600	0.11	116.4	10.62	-93.1	0.027	-22	0.05	-13.0
700	0.13	106.0	10.74	-109.0	0.027	-24	0.05	-12.8
800	0.15	98.3	10.75	-125.3	0.026	-27	0.06	-13.3
900	0.16	93.7	10.77	-142.0	0.025	-31	0.06	-18.4
1000	0.15	85.3	10.81	-158.2	0.025	-35	0.07	-24.8
1100	0.14	75.7	10.82	-174.6	0.025	-41	0.08	-34.5
1200	0.12	65.3	10.78	168.9	0.024	-44	0.10	-47.7
1300	0.10	45.1	10.66	152.2	0.023	-53	0.12	-63.4
1400	0.08	19.1	10.67	135.4	0.022	-55	0.14	-80.9
1500	0.08	-1.0	10.45	118.2	0.022	-60	0.16	-96.6
1600	0.06	-23.3	10.42	102.4	0.021	-65	0.18	-112.2
1700	0.04	-47.9	10.36	85.1	0.020	-69	0.20	-125.2
1800	0.02	-129.5	10.13	68.8	0.020	-75	0.21	-138.1
1900	0.08	174.8	10.28	51.2	0.018	-77	0.24	-150.9
2000	0.15	156.0	10.21	32.9	0.018	-87	0.25	-166.5
2100	0.24	142.7	10.18	14.0	0.018	-82	0.25	175.1
2200	0.32	127.6	9.94	-6.0	0.019	-80	0.26	155.5