TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC3046

10 TO 3000 MHz
TO-8 CASCADABLE AMPLIFIER

Typical Values	AC3046
Ultra Broad Bandwidth	**10-3000 MHz**
Medium Output Level	**+16.0 dBm**
Low Noise Figure above 1.0 GHz	**< 3.0 dB**

High Performance Thin Film
Standard Size TO-8 Package

SPECIFICATIONS*

Parameter		Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)		**10-3600 MHz**	**10-3000 MHz**	**10-3000 MHz**
Small Signal Gain (Min.)		10.5 dB	10.0 dB	9.5 dB
Gain Flatness (Max.)		±0.25 dB	±0.5 dB	±0.8 dB
Noise Figure (Max.)				
	1.0-3.0 GHz	2.7 dB	3.5 dB	4.0 dB
	0.2-1.0 GHz	3.5 dB	5.0 dB	5.5 dB
SWR (Max.)	Input/Output	< 1.5:1	1.9:1†	2.0:1†
Power Output (Min.) @ 1dB comp.		+16.0 dBm	+15.5^ dBm	+15.0^ dBm
Reverse Isolation		17.0 dB	—	—
DC Current (Max.)		56.0 mA	62.0 mA	65.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 1.0 dBm less above 2500 MHz. † 0/50 °C ≤2.0:1, +85 °C ≤2.1:1 below 50 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC3046
Second Order Harmonic Intercept Point	+41 dBm
Second Order Two Tone Intercept Point	+35 dBm
Third Order Two Tone Intercept Point	+27 dBm

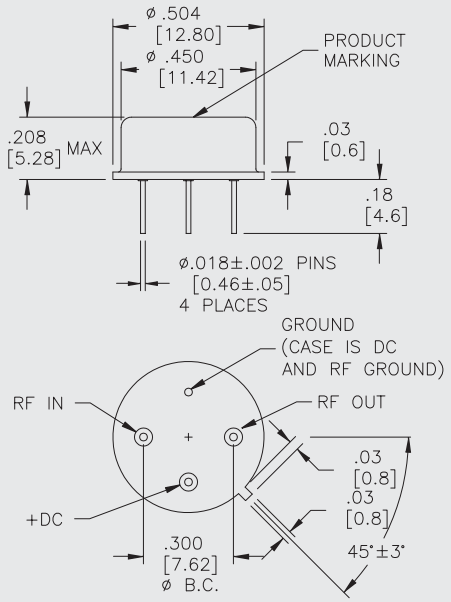
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+10 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+105 °C
Thermal Resistance[1] (θjc)	+31 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+28.4 °C

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

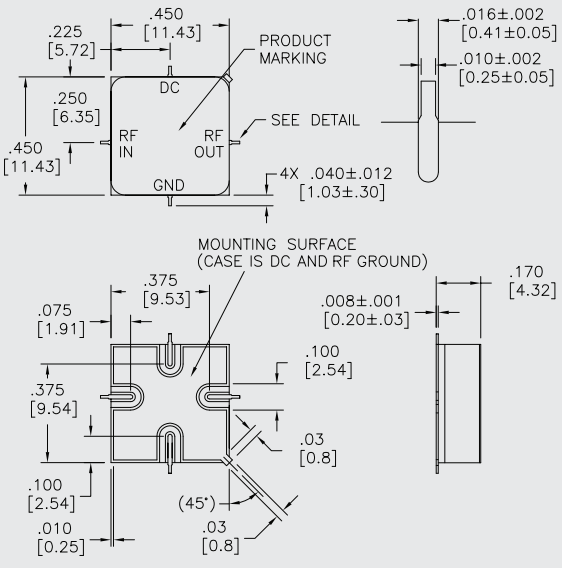
AC3046

TO-8 Package for Amplifiers



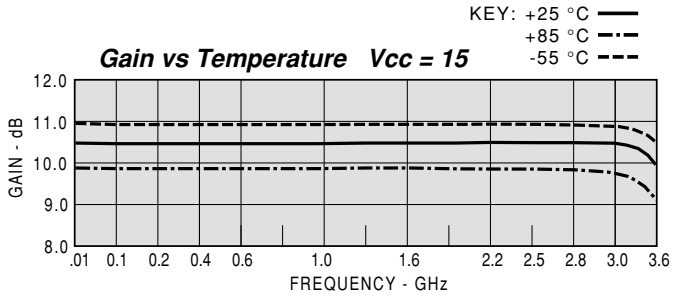
AS3046

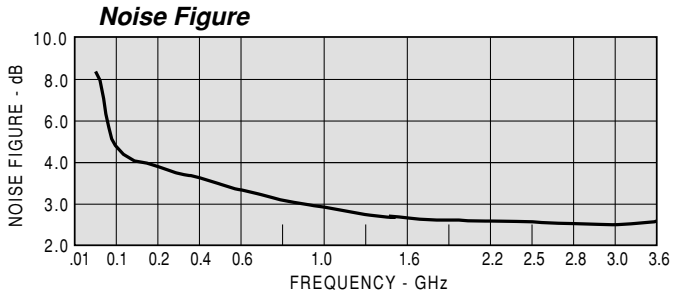
SMTO-8 Package for Amplifiers

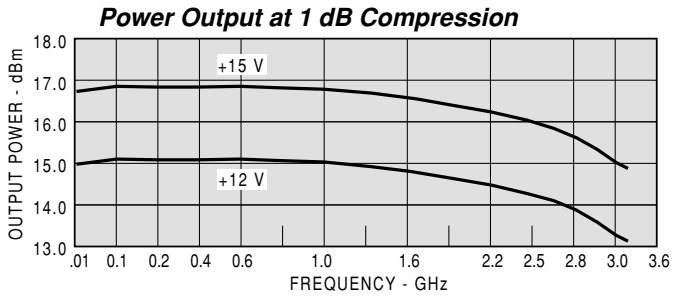


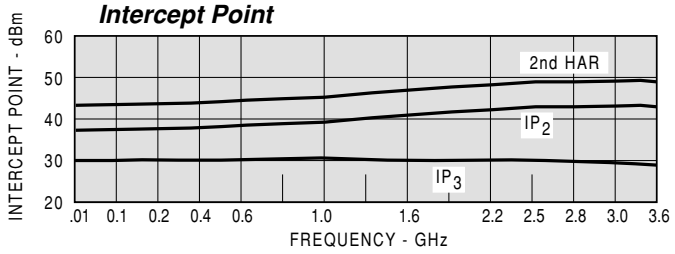
DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE









TYPICAL AUTOMATIC TEST DATA

MODEL: AC3046 Vcc = +15V Icc = 55.90 mA

FREQ. MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
10	1.56	1.44	10.5		-17.8
100	1.41	1.33	10.4		-17.9
200	1.31	1.22	10.6	0.474	-17.9
400	1.31	1.19	10.4	0.238	-17.8
600	1.31	1.16	10.4	0.226	-17.8
800	1.32	1.13	10.5	0.228	-17.8
1000	1.33	1.09	10.5	0.230	-17.8
1200	1.36	1.04	10.5	0.231	-17.8
1400	1.40	1.05	10.5	0.234	-17.8
1600	1.46	1.12	10.5	0.234	-17.8
1800	1.53	1.21	10.5	0.232	-17.8
2000	1.61	1.32	10.5	0.232	-17.8
2200	1.67	1.42	10.5	0.234	-17.8
2400	1.70	1.51	10.4	0.244	-17.8
2600	1.68	1.59	10.6	0.243	-17.6
2800	1.61	1.63	10.7	0.242	-17.4
3000	1.50	1.64	10.6	0.259	-17.2
3200	1.40	1.63	10.7	0.271	-17.0
3400	1.32	1.61	10.7	0.301	-16.9
3500	1.27	1.59	10.7	0.287	-16.8
3600	1.27	1.57	10.5	0.299	-16.7
3700	1.33	1.55	10.3	0.287	-16.6

LINEAR S-PARAMETERS

MODEL: AC3046 Vcc = +15V Icc = 55.90 mA

FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.22	-42.3	3.37	-166.3	0.129	9	0.18	129.3
100	0.17	-31.8	3.31	-179.7	0.127	2	0.14	136.2
200	0.13	-19.1	3.38	161.8	0.128	-9	0.10	144.4
400	0.13	-28.3	3.33	147.7	0.128	-17	0.09	130.1
600	0.14	-41.6	3.32	131.3	0.129	-26	0.07	114.0
800	0.14	-54.7	3.33	115.0	0.129	-35	0.06	96.5
1000	0.14	-68.4	3.34	98.4	0.129	-44	0.04	74.9
1200	0.15	-83.6	3.35	81.8	0.129	-53	0.02	31.9
1400	0.17	-99.6	3.35	65.0	0.129	-63	0.03	-67.4
1600	0.19	-116.0	3.36	48.1	0.130	-73	0.06	-108.4
1800	0.21	-131.0	3.36	31.5	0.129	-83	0.10	-130.7
2000	0.23	-145.7	3.35	15.0	0.129	-93	0.14	-148.6
2200	0.25	-160.1	3.33	-2.0	0.128	-103	0.17	-164.2
2400	0.26	-174.8	3.33	-19.6	0.129	-113	0.20	-179.0
2600	0.25	169.5	3.37	-37.4	0.132	-123	0.23	166.7
2800	0.23	152.2	3.42	-54.8	0.136	-133	0.24	153.5
3000	0.20	130.8	3.39	-73.1	0.138	-144	0.24	140.7
3200	0.17	106.7	3.42	-89.6	0.141	-153	0.24	130.6
3400	0.14	79.6	3.45	-104.0	0.143	-161	0.23	122.4
3500	0.12	51.6	3.43	-114.1	0.145	-167	0.23	116.8
3600	0.12	17.6	3.36	-125.0	0.146	-173	0.22	111.4
3700	0.14	-13.7	3.29	-135.4	0.147	-179	0.22	106.1

MODEL: AC3046 Vcc = +12V Icc = 49.62 mA

FREQ. MHZ	VSWR IN	VSWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
10	1.58	1.47	10.3		-18.1
100	1.45	1.39	10.1		-18.2
200	1.35	1.30	10.3	0.470	-18.2
400	1.35	1.26	10.2	0.239	-18.1
600	1.35	1.23	10.2	0.228	-18.0
800	1.36	1.20	10.2	0.230	-17.9
1000	1.37	1.16	10.2	0.232	-17.9
1200	1.39	1.11	10.3	0.233	-17.8
1400	1.44	1.05	10.3	0.235	-17.7
1600	1.50	1.03	10.3	0.235	-17.5
1800	1.57	1.10	10.3	0.234	-17.4
2000	1.66	1.19	10.3	0.234	-17.3
2200	1.72	1.28	10.3	0.238	-17.2
2400	1.74	1.35	10.3	0.247	-17.1
2600	1.72	1.40	10.4	0.251	-16.7
2800	1.64	1.43	10.5	0.252	-16.4
3000	1.52	1.43	10.5	0.271	-16.1
3200	1.44	1.42	10.6	0.280	-15.9
3400	1.42	1.41	10.6	0.307	-15.7
3500	1.42	1.42	10.5	0.299	-15.6
3600	1.48	1.43	10.3	0.313	-15.6
3700	1.59	1.44	10.0	0.306	-15.5