TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC105 1 TO 150 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC105
Low Noise Figure	2.5 dB
Medium Output Power	+15.0 dBm
Medium Gain	15.0 dB

High Performance Thin Film
Standard Size TO-8 Package
Available in Surface Mount

SPECIFICATIONS*

Parameter	Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)	1-250 MHz	1-150 MHz	1-150 MHz
Small Signal Gain (Min.)	15.0 dB	14.0 dB	13.5 dB
Gain Flatness (Max.)	±0.4 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.) 10-150 MHz	2.5 dB	3.0 dB	3.5 dB
SWR (Max.) Input/Output	<1.6:1	1.9:1	2.0:1
Power Output (Min.) @ 1 dB comp.	+15.0 dBm	+14.5 dBm	+14.0 dBm
Reverse Isolation	27.0 dB	—	—
DC Current (Max.)	35.0 mA	40.0 mA	45.0 mA

* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	+5 Volts	+8 Volts
Second Order Harmonic Intercept Point	+46 dBm	+57 dBm
Second Order Two Tone Intercept Point	+42 dBm	+51 dBm
Third Order Two Tone Intercept Point	+30 dBm	+35 dBm

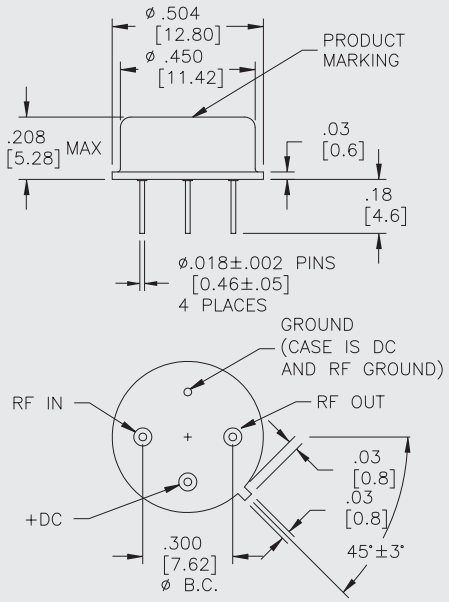
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+12 Volts
Maximum Continuous RF Input Power	+15 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature (+5 Volts/+8 Volts)	+125 °C/+105 °C
Thermal Resistance[1] (θjc; +5 Volts)	+26.6 °C/Watt
Thermal Resistance[1] (θjc; +8 Volts)	+29.0 °C/Watt
Junction Temperature Rise Above Case (Tjc; +5 Volts)	+5 °C
Junction Temperature Rise Above Case (Tjc; +8 Volts)	+13 °C

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

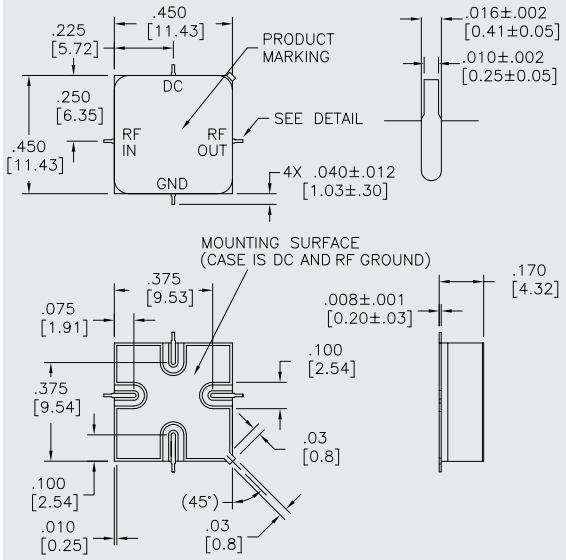
AC105

TO-8 Package for Amplifiers



AS105

SMTO-8 Package for Amplifiers



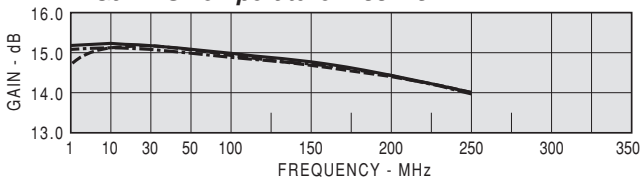
If DC is present on RF input/output, this model requires additional external blocking capacitors.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

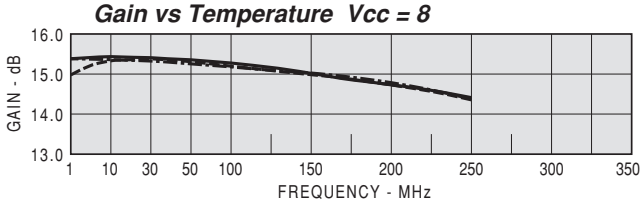
TYPICAL PERFORMANCE

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

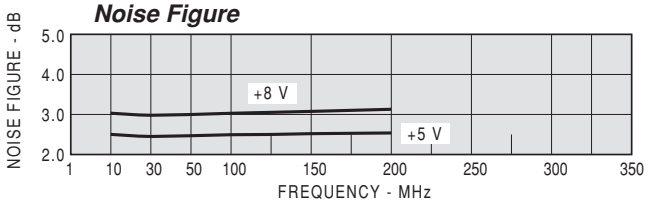
Gain vs Temperature Vcc = 5



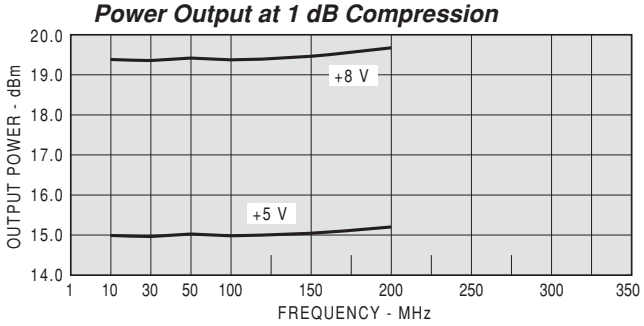
Gain vs Temperature Vcc = 8



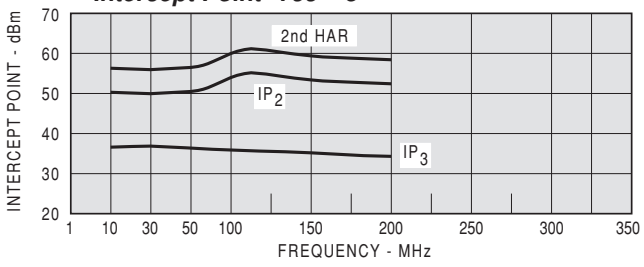
Noise Figure



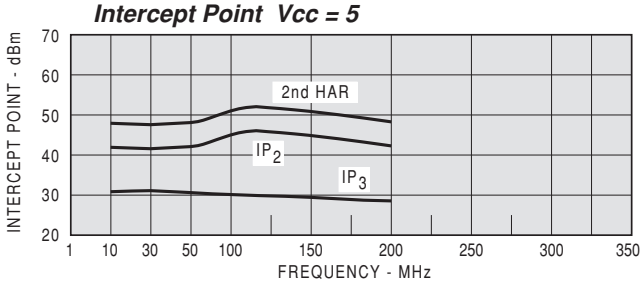
Power Output at 1 dB Compression



Intercept Point Vcc = 8



Intercept Point Vcc = 5



TYPICAL AUTOMATIC TEST DATA

Model: AC105 Vcc=+5V Icc=34.04

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
1	1.20	1.12	15.04	-166		-27.6
5	1.15	1.03	15.03	-178		-28.5
10	1.15	1.01	15.03	179		-28.4
30	1.18	1.03	15.02	171	0.84	-28.4
50	1.23	1.06	14.97	165	0.89	-28.3
100	1.42	1.12	14.84	150	0.83	-27.7
150	1.67	1.20	14.65	135	0.83	-26.8
200	1.99	1.30	14.37	120	0.84	-25.9
250	2.37	1.42	13.96	105	0.85	-25.2
300	2.79	1.55	13.40	89	0.85	-24.4

LINEAR S-PARAMETERS

Model: AC105 Vcc=+5V Icc=34.04

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.09	-144.9	5.65	-166.3	0.042	164.7	0.06	118.3
5	0.07	-170.2	5.64	-178.4	0.038	174.7	0.01	130.2
10	0.07	-167.2	5.64	178.6	0.038	173.8	0.01	163.3
30	0.08	-151.1	5.64	171.4	0.038	164.0	0.01	-118.7
50	0.10	-141.3	5.60	165.2	0.039	155.1	0.03	-112.8
100	0.17	-136.1	5.52	150.1	0.041	133.2	0.06	-123.2
150	0.25	-142.3	5.40	135.2	0.046	112.5	0.09	-138.7
200	0.33	-152.1	5.23	120.0	0.050	94.8	0.13	-154.3
250	0.41	-163.5	4.99	104.7	0.055	78.8	0.17	-170.1
300	0.47	-175.3	4.68	89.5	0.060	64.1	0.22	174.5
350	0.53	172.5	4.30	74.8	0.063	51.0	0.26	159.9

Model: AC105 Vcc=+8V Icc=56.55

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
1	1.25	1.19	15.29	-165		-26.9
5	1.19	1.06	15.22	-178		-27.9
10	1.19	1.05	15.24	179		-27.9
30	1.20	1.05	15.23	172	0.83	-27.9
50	1.24	1.06	15.17	166	0.86	-27.8
100	1.38	1.12	15.06	152	0.79	-27.3
150	1.59	1.19	14.91	137	0.81	-26.6
200	1.85	1.28	14.68	123	0.81	-25.8
250	2.18	1.41	14.34	108	0.83	-25.0
300	2.55	1.54	13.84	93	0.81	-24.3

LINEAR S-PARAMETERS

Model: AC105 Vcc=+8V Icc=56.55

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1	0.11	-144.3	5.81	-165.0	0.045	164.9	0.09	131.0
5	0.09	-172.0	5.77	-178.1	0.040	175.2	0.03	154.3
10	0.09	-170.8	5.78	178.8	0.040	173.4	0.03	168.5
30	0.09	-160.2	5.77	171.8	0.040	165.2	0.02	-161.9
50	0.11	-151.3	5.73	165.9	0.041	156.9	0.03	-150.2
100	0.16	-143.1	5.66	151.6	0.043	135.3	0.06	-141.6
150	0.23	-145.9	5.57	137.1	0.047	117.2	0.09	-148.7
200	0.30	-153.5	5.42	122.6	0.051	99.3	0.12	-160.9
250	0.37	-163.3	5.21	107.7	0.056	83.1	0.17	-174.0
300	0.44	-174.4	4.92	93.0	0.061	69.6	0.21	172.5
350	0.50	174.1	4.55	78.4	0.064	56.3	0.26	158.8