TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC386

10 TO 250 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC386
High Reverse Isolation	40 dB
High Efficiency	21 mA Current Drain
High Third Order I.P.	+25 dBm at +8 Volts
Low Noise Figure	2.6 dB
Power Suppy Range	+5 to +8 Volts
High Performance Thin Film Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter		Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)		**5-350 MHz**	**10-250 MHz**	**10-250 MHz**
Small Signal Gain (Min.)				
	Vcc = +5	28.0 dB	27.0 dB	26.5 dB
	Vcc = +8	29.5 dB	28.5 dB	28.0 dB
Gain Flatness (Max.)		< ±0.3 dB	±0.7 dB	±0.8 dB
Noise Figure (Max.)				
	Vcc = +5	2.6 dB	3.3 dB	3.8 dB
	Vcc = +8	2.9 dB	3.8 dB	4.3 dB
SWR (Max.)	Input/Output	<1.3:1	1.7:1	1.8:1
Power Output (Min.)				
@ 1dB comp.	Vcc = +5	+8.0 dBm	+7.5 dBm	+7.0 dBm
	Vcc = +8	+12.5 dBm	+11.5 dBm	+11.0 dBm
Reverse Isolation		40.0 dB	—	—
DC Current (Max.)				
	Vcc = +5	21 mA	23 mA	25 mA
	Vcc = +8	34 mA	36 mA	38 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	Vcc = +5.0	Vcc = +8.0
Second Order Harmonic Intercept Point	+39 dBm	+45 dBm
Second Order Two Tone Intercept Point	+33 dBm	+39 dBm
Third Order Two Tone Intercept Point	+20 dBm	+25 dBm

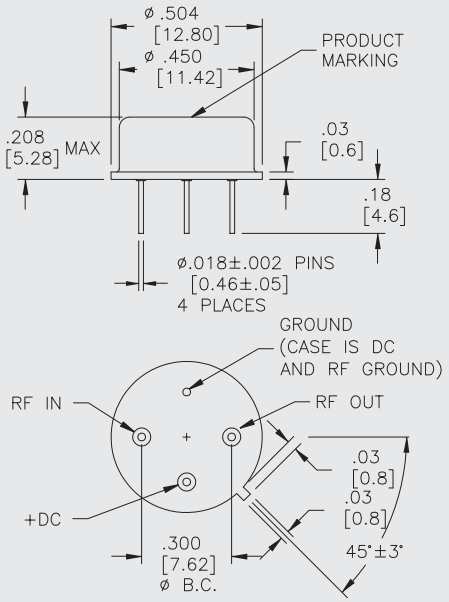
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+10 Volts
Maximum Continuous RF Input Power	+6 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[1] (θjc)	+65 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+7.5 °C

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

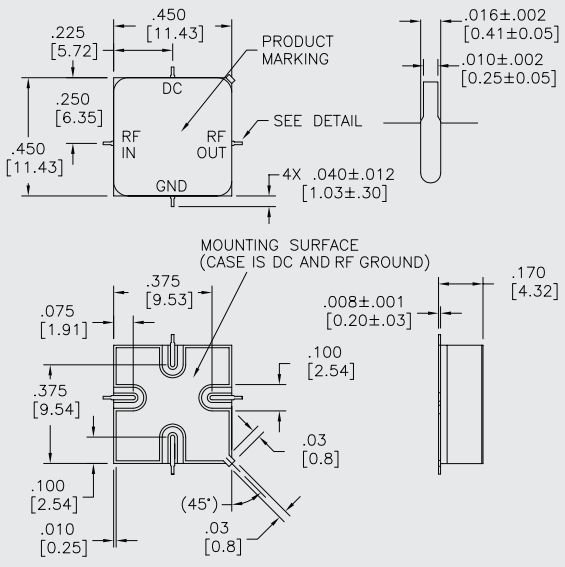
AC386

TO-8 Package for Amplifiers



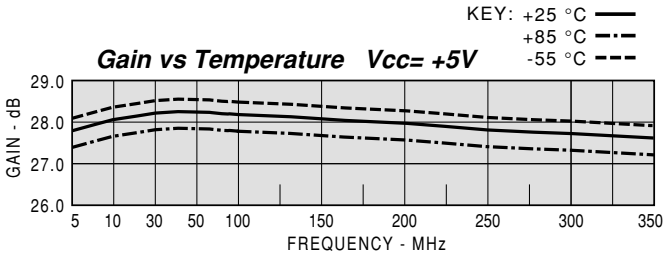
AS386

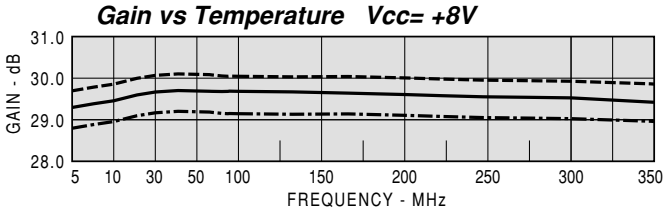
SMTO-8 Package for Amplifiers

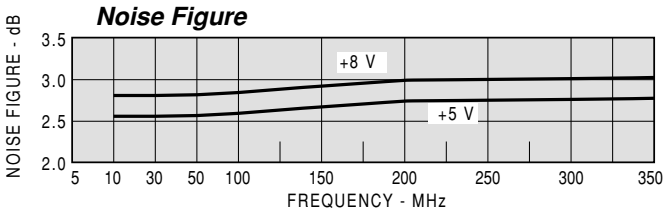


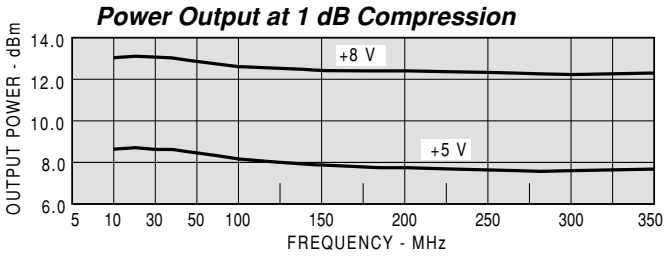
DIMENSIONS ARE IN INCHES [MILLIMETERS]

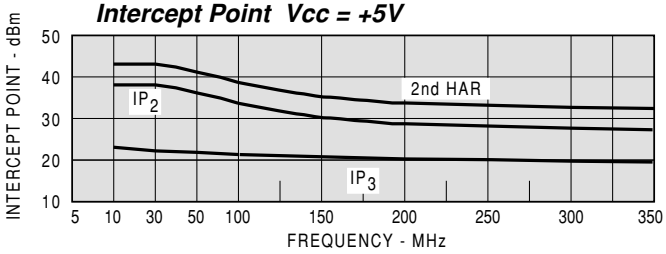
TYPICAL PERFORMANCE

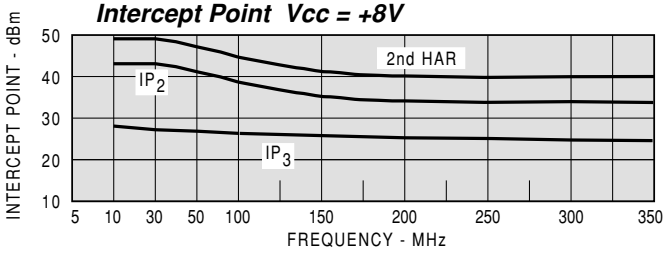












TYPICAL AUTOMATIC TEST DATA

Model: AC386 Vcc= +5V Icc=20.52

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
5	1.23	2.32	28.1		-43.7
10	1.06	1.51	28.3		-40.9
20	1.04	1.22	28.4	4.177	-40.4
50	1.06	1.15	28.2	1.908	-40.6
100	1.05	1.28	28.2	1.397	-40.3
150	1.04	1.38	28.0	1.202	-40.6
200	1.11	1.48	28.1	1.226	-40.4
250	1.16	1.56	28.2	1.251	-40.4
300	1.19	1.62	28.1	1.309	-40.2
350	1.29	1.62	28.0	1.284	-39.6
400	1.38	1.53	27.9	1.261	-39.6

LINEAR S-PARAMETERS

Model: AC386 Vcc=+5V Icc=20.52

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.10	-177.0	25.47	42.7	0.007	35.0	0.40	149.7
10	0.03	133.6	25.88	17.2	0.009	17.0	0.20	133.4
20	0.02	95.9	26.45	2.4	0.010	9.0	0.10	136.3
50	0.03	28.5	25.85	-18.4	0.009	-3.0	0.07	-162.9
100	0.03	33.7	25.65	-43.4	0.010	-16.0	0.12	-146.1
150	0.02	42.8	25.26	-65.2	0.009	-24.0	0.16	-144.7
200	0.05	29.3	25.41	-87.2	0.010	-34.0	0.19	-146.2
250	0.07	20.0	25.57	-109.8	0.010	-44.0	0.22	-151.0
300	0.09	17.7	25.39	-133.3	0.010	-50.0	0.24	-158.5
350	0.13	-0.0	24.99	-156.2	0.010	-61.0	0.24	-167.0
400	0.16	-20.8	24.75	-178.9	0.011	-75.0	0.21	-176.6
450	0.19	-37.2	24.73	156.4	0.011	-91.0	0.15	173.5
500	0.23	-60.8	24.68	130.7	0.011	-104.0	0.06	162.7

Model: AC386 Vcc=+8V Icc=32.82

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB
5	1.45	2.34	29.3		-44.7
10	1.21	1.51	29.6		-42.0
20	1.15	1.20	29.8	4.217	-41.2
50	1.11	1.13	29.6	1.914	-41.5
100	1.11	1.27	29.6	1.375	-41.4
150	1.14	1.38	29.5	1.183	-41.6
200	1.18	1.49	29.6	1.201	-41.5
250	1.24	1.58	29.6	1.239	-41.3
300	1.33	1.66	29.6	1.286	-41.7
350	1.40	1.66	29.5	1.259	-41.0
400	1.49	1.58	29.4	1.268	-41.2

LINEAR S-PARAMETERS

Model: AC386 Vcc=+8V Icc=32.82

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.18	-169.1	29.34	44.4	0.006	34.0	0.40	148.8
10	0.10	167.5	30.17	18.4	0.008	21.0	0.20	130.2
20	0.07	165.4	30.98	3.1	0.009	8.0	0.09	129.1
50	0.05	152.0	30.36	-17.5	0.008	-4.0	0.06	-157.3
100	0.05	142.6	30.16	-42.1	0.009	-14.0	0.12	-140.0
150	0.07	122.6	29.82	-63.6	0.008	-23.0	0.16	-139.6
200	0.08	98.3	30.03	-85.2	0.008	-34.0	0.20	-142.1
250	0.11	66.4	30.32	-107.5	0.009	-43.0	0.23	-147.7
300	0.14	50.0	30.25	-130.8	0.008	-50.0	0.25	-156.0
350	0.17	33.7	29.95	-153.6	0.009	-60.0	0.25	-165.3
400	0.20	6.7	29.63	-176.1	0.009	-74.0	0.22	-175.3
450	0.23	-12.1	29.66	159.5	0.009	-88.0	0.17	173.5
500	0.24	-38.3	29.72	134.0	0.010	-103.0	0.07	161.0