

AC251 10 TO 200 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

Low Noise Figure	1.2 dB
Medium Output Power	+13.2 dBm
High Efficiency	11 mA Current Drain

High Performance Thin Film Standard Size TO-8 Package

SPECIFICATIONS*

Parameter	Typical	Guaranteed		
		0 to 50° C	-55 to +85° C	
Frequency (Min.)	10-250 MHz	10-200 MHz	10-200 MHz	10-200 MHz
Small Signal Gain (Min.)	8.0 dB	7.5 [^] dB	7.0 [^] dB	
Gain Flatness (Max.)				
20-200 MHz	±0.2 dB	±0.3 dB	±0.4 dB	
10-200 MHz	±0.2 dB	±0.6 dB	±0.7 dB	
Noise Figure (Max.)	1.2 dB	1.7 dB	2.2 dB	
SWR (Max.)	Input/Output	<1.4:1	1.5:1 [†]	1.7:1 [†]
Power Output (Min.) @ 1 dB comp.	+13.2 dBm	+12.0 dBm	+11.5 dBm	
DC Current (Max.)	11.0 mA	14.0 mA	17.0 mA	

* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.
[^] 0.5 dB lower below 20 MHz. [†] 0.3 higher below 20 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25° C	+5 volts	+8 volts
Second Order Harmonic Intercept Point	+54 dBm	+58 dBm
Second Order Two Tone Intercept Point.	+49 dBm	+52 dBm
Third Order Two Tone Intercept Point.	+30 dBm	+33 dBm

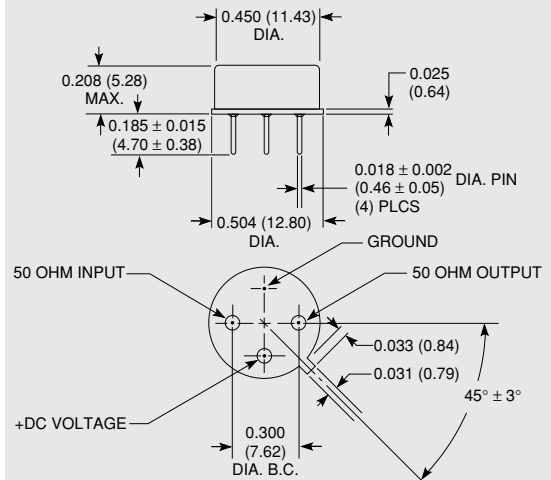
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125° C
Maximum Case Temperature	+125° C
Maximum DC Voltage	+9 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	200 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+125° C
Thermal Resistance ¹ (θjc)	+69° C/Watt
Junction Temperature Rise Above Case (Tjc)	+4.8° C

¹ Thermal resistance is based on total power dissipation.

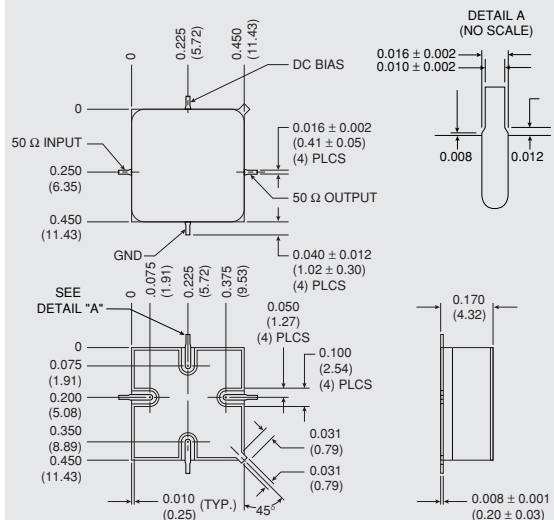
AC251

TO-8 Package for Amplifiers



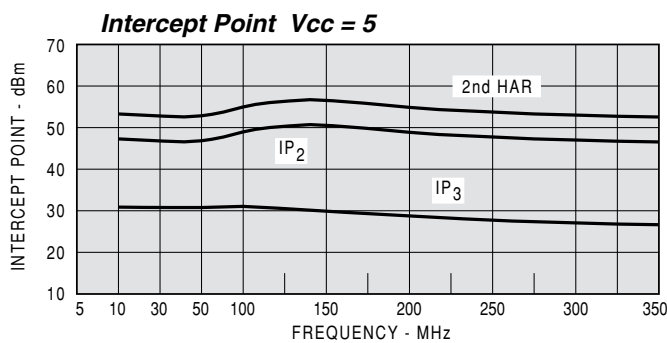
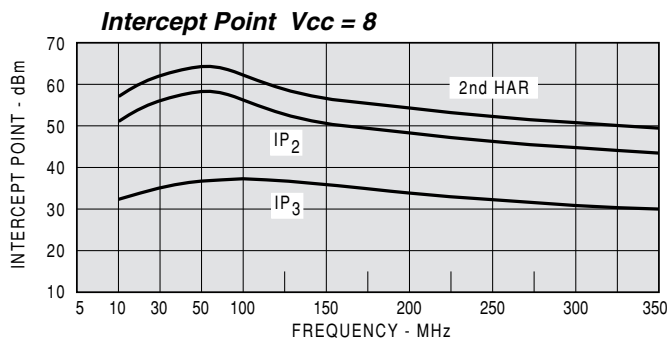
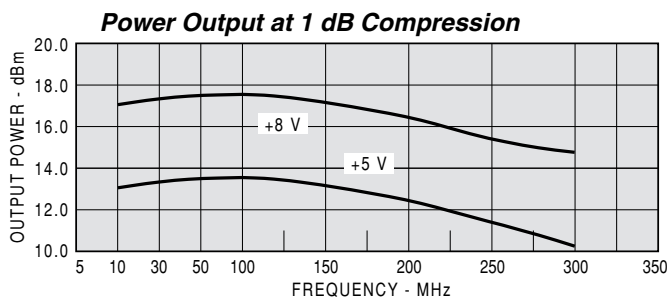
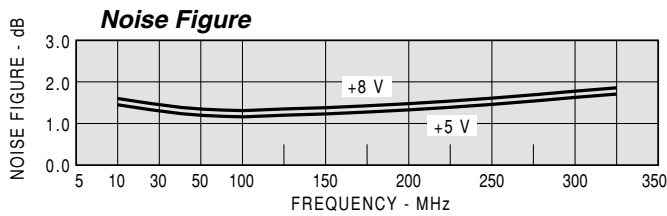
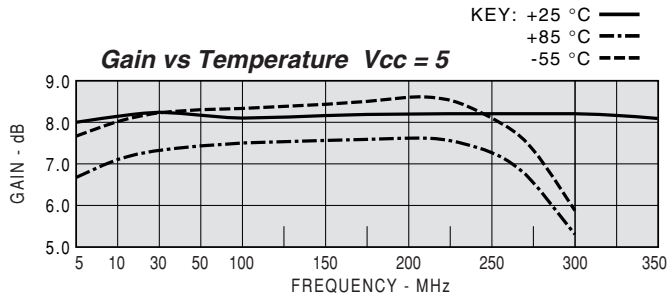
AS251

SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES (MILLIMETERS)

TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

Model: AC251 Vcc=+5V Icc=10.76

FREQ. MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
5	1.12	1.13	7.97	10		-11.0
10	1.09	1.10	8.13	3		-10.9
20	1.08	1.09	8.19	-2	1.6	-10.8
50	1.07	1.09	8.20	-13	0.97	-10.8
100	1.06	1.12	8.14	-27	0.81	-11.0
200	1.03	1.17	8.17	-56	0.8	-11.4
300	1.29	1.29	8.22	-88	0.88	-12.0

Model: AC251 Vcc=+5V Icc=10.76

LINEAR S-PARAMETERS

FREQ. MHZ	S11 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 ANG
5	0.06	152.4	2.50	10.1	0.281	10.4	0.06	165.4
10	0.04	152.1	2.55	3.2	0.287	3.3	0.05	156.1
20	0.04	148.2	2.57	-2.5	0.288	-2.4	0.04	146.9
50	0.03	133.8	2.57	-13.0	0.287	-12.4	0.04	127.5
100	0.03	109.4	2.55	-27.5	0.282	-26.6	0.06	108.2
200	0.02	156.5	2.56	-56.2	0.270	-54.6	0.08	101.8
300	0.13	179.8	2.58	-87.9	0.250	-85.3	0.13	136.5

Model: AC251 Vcc=+8V Icc=19.78

FREQ. MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
5	1.34	1.34	7.74	16		-11.2
10	1.22	1.23	7.98	6		-11.0
20	1.17	1.18	8.11	-1	1.9	-10.9
50	1.13	1.16	8.16	-12	1.0	-10.9
100	1.11	1.18	8.14	-26	0.81	-11.0
200	1.07	1.23	8.16	-55	0.79	-11.4
300	1.30	1.29	8.23	-86	0.86	-12.1

Model: AC251 Vcc=+8V Icc=19.78

LINEAR S-PARAMETERS

FREQ. MHZ	S11 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 ANG
5	0.14	137.4	2.44	15.5	0.275	15.9	0.15	145.8
10	0.10	141.3	2.51	6.2	0.282	6.4	0.10	143.2
20	0.08	143.2	2.54	-0.6	0.285	-0.5	0.08	141.0
50	0.06	137.8	2.56	-11.8	0.286	-11.5	0.07	128.6
100	0.05	122.3	2.55	-26.4	0.281	-26.1	0.08	110.8
200	0.04	135.5	2.56	-55.0	0.269	-54.2	0.10	97.0
300	0.13	171.7	2.58	-86.1	0.250	-84.9	0.13	123.9

