TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AC391

10 TO 250 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC391
High Reverse Isolation	29.0 dB
Low Noise Figure	3.0 dB
High Gain	24.0 dB
High Output Level	+19.0 dBm
High Third Order I.P.	+31.0 dBm
High Efficiency	37 mA Current Drain

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.)		24.0 dB	23.0 dB	22.7 dB
Gain Flatness (Max.)		< ±0.3 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)		3.0 dB	3.5 dB	4.0 dB
SWR (Max.)	Input Output	<1.5:1 <1.4:1	2.0:1 1.7:1	2.0:1 1.8:1
Power Output (Min.) @ 1dB comp.		+19.0 dBm	+18.0^ dBm	+17.5^ dBm
Reverse Isolation		29.0 dB	—	—
DC Current (Max.)		37 mA	40 mA	43 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 0.5 dB less below 20 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC391
Second Order Harmonic Intercept Point	+45 dBm
Second Order Two Tone Intercept Point	+40 dBm
Third Order Two Tone Intercept Point	+31 dBm

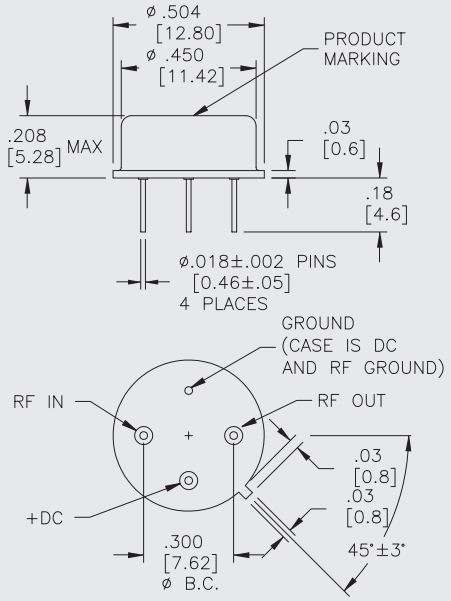
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+19 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)	+46 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+27.7 °C

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

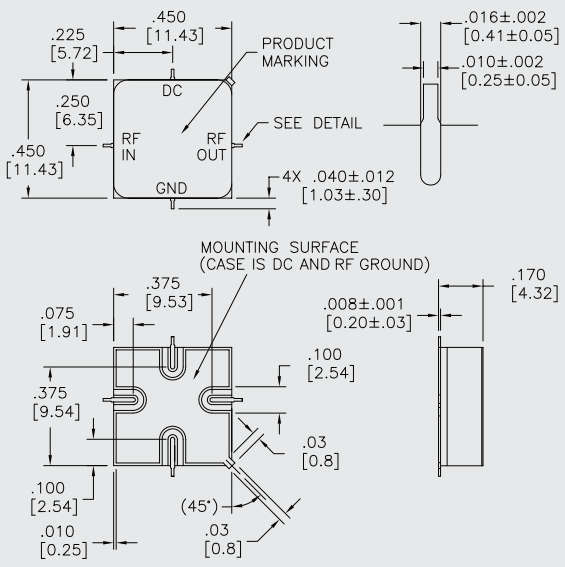
AC391

TO-8 Package for Amplifiers



AS391

SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

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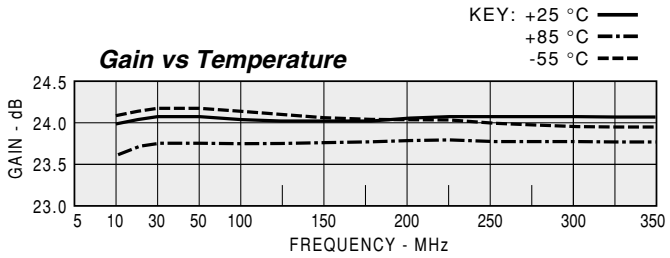
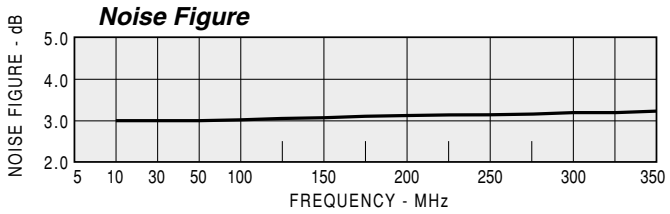
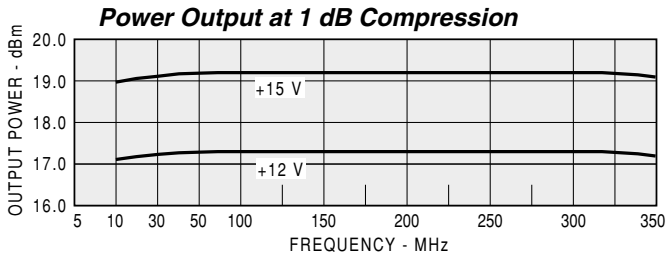
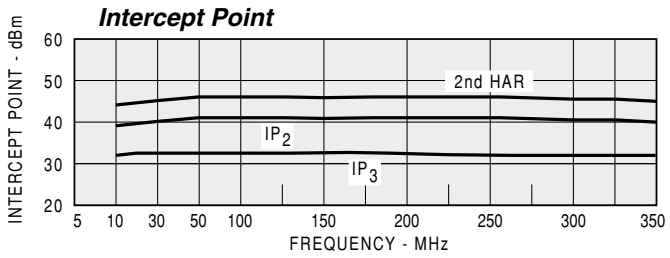
TYPICAL PERFORMANCE









TYPICAL AUTOMATIC TEST DATA

Model: AC391 Vcc=+15V Icc=37.32

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
5	1.78	2.10	23.3		-30.3
10	1.36	1.53	23.5		-29.5
20	1.18	1.31	23.8	2.255	-29.1
30	1.11	1.24	23.8	1.368	-28.8
50	1.06	1.18	23.9	1.008	-28.9
100	1.11	1.17	23.9	0.809	-29.0
150	1.17	1.18	23.8	0.728	-29.0
200	1.23	1.20	23.8	0.722	-29.2
250	1.29	1.20	23.9	0.711	-29.4
300	1.35	1.18	24.0	0.736	-29.5
350	1.43	1.15	24.1	0.743	-29.5

LINEAR S-PARAMETERS

Model: AC391 Vcc=+15V Icc=37.32

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.28	-63.3	14.69	-157.4	0.030	19.0	0.35	131.2
10	0.15	-63.4	15.03	-170.2	0.034	9.0	0.21	126.8
20	0.08	-59.9	15.46	-178.2	0.035	3.0	0.13	123.9
30	0.05	-52.5	15.55	176.8	0.036	-1.0	0.11	123.3
50	0.03	-19.5	15.62	169.6	0.036	-6.0	0.08	122.0
100	0.05	36.3	15.64	155.0	0.036	-16.0	0.08	111.5
150	0.08	37.9	15.49	141.9	0.035	-24.0	0.08	96.5
200	0.10	34.8	15.49	128.9	0.034	-33.0	0.09	80.4
250	0.13	28.4	15.59	116.1	0.034	-42.0	0.09	63.0
300	0.15	21.7	15.78	102.9	0.034	-51.0	0.08	40.4
350	0.18	11.4	16.10	89.5	0.033	-60.0	0.07	7.1
400	0.21	-0.8	16.53	75.0	0.033	-70.0	0.07	-47.3
450	0.24	-16.7	17.08	59.0	0.032	-84.0	0.10	-103.4
500	0.28	-36.6	17.36	41.8	0.030	-97.0	0.19	-140.6

Model: AC391 Vcc=+12V Icc=30.05

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
5	1.78	2.08	23.2		-30.2
10	1.37	1.50	23.3		-29.3
20	1.20	1.29	23.6		-28.8
30	1.14	1.22	23.7	2.261	-28.8
50	1.09	1.16	23.7	1.399	-28.7
100	1.12	1.13	23.7	1.003	-28.8
150	1.19	1.15	23.6	0.818	-29.0
200	1.25	1.16	23.6	0.734	-29.1
250	1.30	1.16	23.7	0.732	-29.3
300	1.37	1.14	23.8	0.712	-29.4
350	1.45	1.11	24.0	0.741	-29.5

LINEAR S-PARAMETERS

Model: AC391 Vcc=+12V Icc=30.05

FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.28	-60.8	14.38	-157.4	0.031	19.0	0.35	129.0
10	0.16	-58.8	14.70	-170.1	0.034	9.0	0.20	123.3
20	0.09	52.1	15.13	-178.4	0.036	3.0	0.13	118.6
30	0.06	-45.1	15.23	176.7	0.036	-1.0	0.10	116.8
50	0.04	-16.8	15.29	169.5	0.037	-6.0	0.07	114.2
100	0.06	26.0	15.30	154.8	0.036	-17.0	0.06	105.5
150	0.09	29.6	15.13	141.6	0.036	-25.0	0.07	92.3
200	0.11	26.2	15.16	128.5	0.035	-34.0	0.07	77.4
250	0.13	21.4	15.26	115.6	0.034	-43.0	0.07	59.2
300	0.16	13.8	15.44	102.3	0.034	-52.0	0.06	33.5
350	0.18	4.9	15.80	88.7	0.033	-62.0	0.05	-7.7
400	0.22	-8.2	16.26	74.0	0.033	-71.0	0.06	-70.6
450	0.25	-24.3	16.79	57.9	0.032	-87.0	0.12	-117.0
500	0.30	-44.0	17.06	40.2	0.031	-100.0	0.21	-147.9