

# AC2091 AC2092

## 30 TO 2000 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC2091	AC2092
Low Noise Figure	<1.5 dB	<1.5 dB
Medium Output Power	+19.5 dBm	+21.5 dBm
Broad Bandwidth	30-2200 MHz	30-2200 MHz
High Gain	17.0 dB	18.0 dB
High Performance Thin Film Standard Size TO-8 Package		

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	30-2200 MHz	30-2000 MHz	30-2000 MHz
Small Signal Gain (Min.)			
AC2091	17.0 dB	16.0 dB	15.5 dB
AC2092	18.0 dB	16.5 dB	16.0 dB
Gain Flatness (Max.)	±0.4 dB	±0.6 dB	±0.7 dB
Noise Figure (Max.)			
300-2000 MHz	<1.5 dB	1.7 dB	2.0 dB
SWR (Max.)	1.5:1	1.9:1	2.0:1
Input/Output			
Power Output (Min.) @ 1dB comp.			
AC2091	+19.5 dBm	+19.0 dBm	+18.5 dBm
AC2092	+21.5 dBm	+20.5 dBm	+20.0 dBm
Reverse Isolation		—	—
AC2091	22.0 dB		
AC2092	23.0 dB		
DC Current (Max.)			
AC2091	60.0 mA	66.0 mA	66.0 mA
AC2092	100.0 mA	105.0 mA	108.0 mA

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

### INTERMODULATION PERFORMANCE

Typical @ 25 °C; 500 MHz	AC2091	AC2092
Second Order Harmonic Intercept Point	+50 dBm	+56 dBm
Second Order Two Tone Intercept Point	+43 dBm	+50 dBm
Third Order Two Tone Intercept Point	+33 dBm	+38 dBm

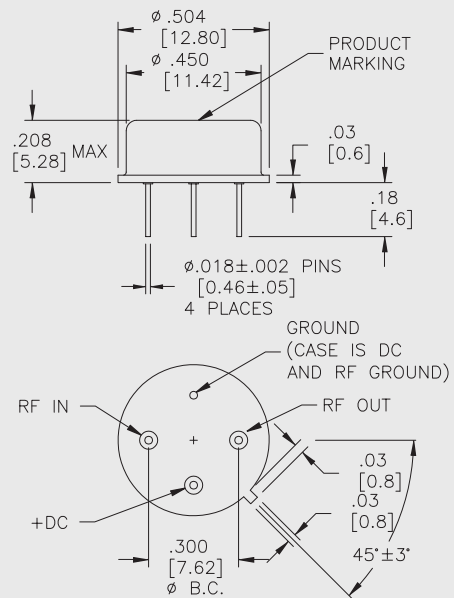
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+12 Volts
Maximum Continuous RF Input Power	+21 dBm
Maximum Short Term Input Power (1 Minute Max.)	+24 dBm
Maximum Peak Power (3 μsec Max.)	+27 dBm
Burn-in Temperature	+125 °C
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC2091)	+51.7 °C/Watt
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC2092)	+58.3 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC2091)	+15.5 °C
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC2092)	+29.1 °C

<sup>1</sup> Thermal resistance is based on total power dissipation.

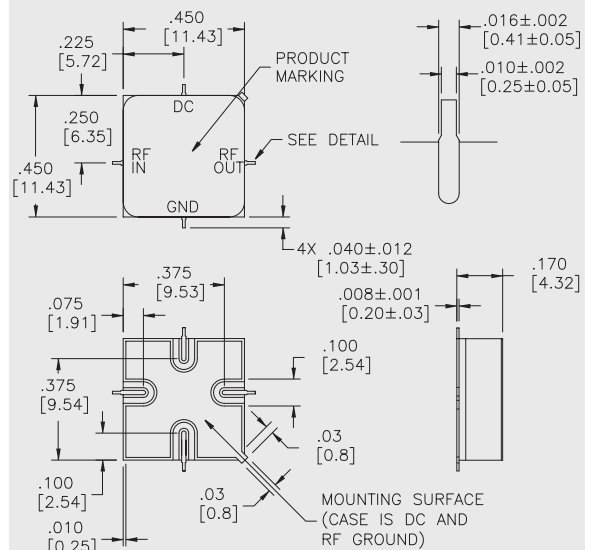
### AC2091/AC2092

#### TO-8 Package for Amplifiers



### AS2091/AS2092

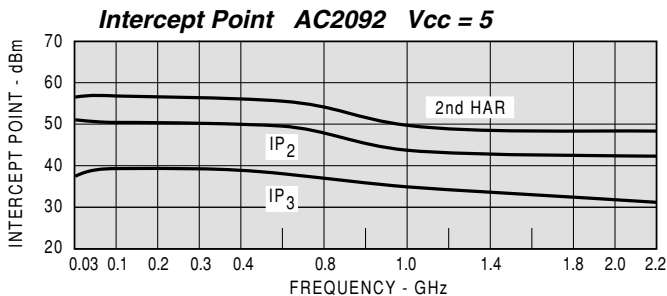
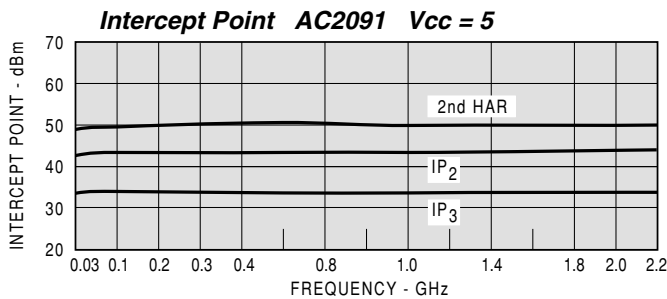
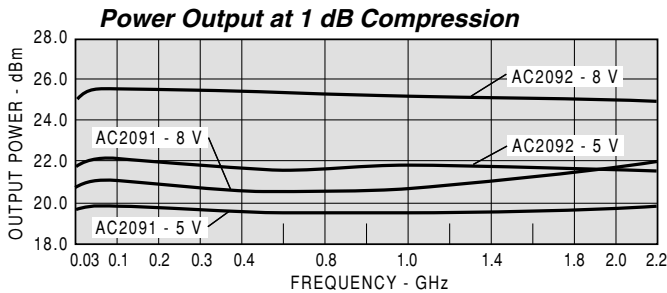
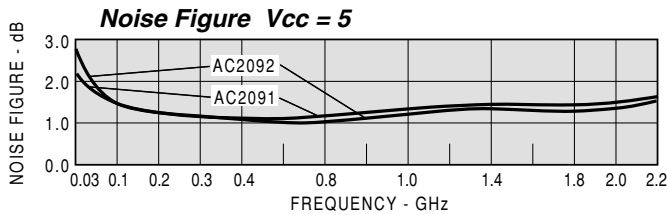
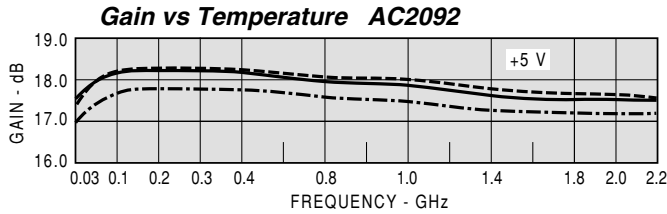
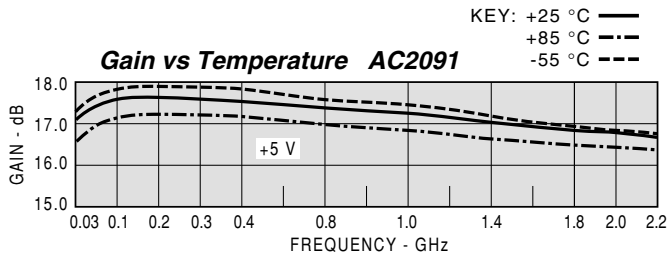
#### SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

## TYPICAL PERFORMANCE

## TYPICAL AUTOMATIC TEST DATA



Model: AC2091			Vcc= +5V			Icc= 60.07	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
30	1.61	1.45	17.25	-163.0		-23.10	
100	1.34	1.46	17.67	176.0	0.61	-23.80	
200	1.31	1.44	17.72	163.0	0.35	-23.80	
300	1.31	1.43	17.71	152.0	0.32	-23.80	
400	1.32	1.41	17.68	141.0	0.30	-23.70	
500	1.33	1.39	17.62	130.0	0.29	-23.70	
600	1.35	1.37	17.59	120.0	0.29	-23.40	
700	1.37	1.34	17.52	110.0	0.28	-23.40	
800	1.39	1.32	17.46	100.0	0.28	-23.20	
900	1.40	1.29	17.40	89.0	0.29	-23.20	
1000	1.43	1.27	17.35	79.0	0.28	-22.90	
1100	1.44	1.25	17.27	69.0	0.29	-22.80	
1200	1.44	1.24	17.22	59.0	0.28	-22.60	
1300	1.45	1.23	17.15	49.0	0.28	-22.50	
1400	1.44	1.23	17.09	39.0	0.29	-22.30	
1500	1.41	1.23	17.04	29.0	0.28	-22.00	
1600	1.35	1.25	16.98	18.0	0.29	-21.80	
1700	1.31	1.27	16.89	8.0	0.29	-21.60	
1800	1.25	1.29	16.86	-2.0	0.29	-21.60	
1900	1.20	1.35	16.77	-13.0	0.28	-21.30	
2000	1.15	1.41	16.79	-23.0	0.29	-20.90	
2100	1.13	1.49	16.71	-35.0	0.31	-20.90	
2200	1.15	1.60	16.69	-45.0	0.29	-20.70	

Model: AC2091			Vcc= +5V						Icc= 60.07	
FREQ.	S11		S21		S12		S22		MAG	ANG
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		
30	0.23	-41.60	7.29	-163.30	0.07	-1.10	0.18	-123.40		
100	0.14	-22.00	7.65	176.30	0.07	-4.40	0.19	-169.50		
200	0.13	-11.90	7.69	162.90	0.06	-8.90	0.18	173.00		
300	0.13	-6.70	7.68	151.50	0.07	-12.60	0.18	162.20		
400	0.14	-3.40	7.65	140.70	0.07	-16.40	0.17	152.60		
500	0.14	-2.50	7.61	130.20	0.07	-20.80	0.16	143.90		
600	0.15	-3.40	7.57	119.90	0.07	-24.90	0.16	136.10		
700	0.16	-5.80	7.52	109.70	0.07	-28.30	0.15	129.30		
800	0.16	-8.90	7.47	99.50	0.07	-34.30	0.14	120.80		
900	0.17	-13.20	7.42	89.30	0.07	-38.30	0.13	112.80		
1000	0.18	-17.60	7.37	79.30	0.07	-43.60	0.12	104.60		
1100	0.18	-22.30	7.30	69.00	0.07	-48.10	0.11	96.30		
1200	0.18	-26.70	7.26	59.00	0.07	-52.50	0.11	85.80		
1300	0.18	-31.20	7.20	48.90	0.08	-58.30	0.10	78.30		
1400	0.18	-35.60	7.15	38.60	0.08	-63.90	0.10	70.20		
1500	0.17	-38.90	7.11	28.60	0.08	-69.00	0.10	58.60		
1600	0.15	-42.70	7.06	18.30	0.08	-74.80	0.11	49.20		
1700	0.13	-46.00	6.99	7.90	0.08	-80.00	0.12	39.70		
1800	0.11	-47.40	6.97	-2.50	0.08	-86.10	0.13	27.50		
1900	0.09	-45.00	6.89	-12.70	0.09	-91.90	0.15	15.90		
2000	0.07	-36.90	6.91	-23.20	0.09	-97.80	0.17	5.40		
2100	0.06	-16.40	6.84	-34.50	0.09	-105.40	0.20	-6.50		
2200	0.07	12.40	6.83	-44.80	0.09	-112.50	0.23	-18.00		

Model: AC2092			Vcc= +5V			Icc= 98.96	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
30	1.60	1.37	17.61	-165.0		-22.70	
100	1.27	1.50	18.25	176.0	0.46	-23.60	
200	1.23	1.50	18.32	163.0	0.37	-23.70	
300	1.24	1.49	18.30	152.0	0.31	-23.80	
400	1.27	1.47	18.27	141.0	0.29	-23.60	
500	1.30	1.45	18.20	131.0	0.29	-23.60	
600	1.34	1.43	18.18	121.0	0.28	-23.40	
700	1.37	1.41	18.09	111.0	0.28	-23.50	
800	1.40	1.38	18.05	101.0	0.27	-23.30	
900	1.44	1.36	17.97	91.0	0.28	-23.30	
1000	1.46	1.34	17.93	81.0	0.27	-22.90	
1100	1.49	1.33	17.87	71.0	0.28	-23.20	
1200	1.51	1.31	17.80	61.0	0.27	-23.00	
1300	1.51	1.31	17.75	51.0	0.27	-22.80	
1400	1.51	1.31	17.69	41.0	0.28	-22.70	
1500	1.51	1.32	17.64	32.0	0.27	-22.50	
1600	1.49	1.33	17.59	22.0	0.28	-22.40	
1700	1.45	1.36	17.54	12.0	0.28	-22.40	
1800	1.41	1.38	17.57	1.0	0.28	-22.30	
1900	1.37	1.43	17.56	-9.0	0.28	-22.00	
2000	1.33	1.48	17.55	-19.0	0.29	-22.00	
2100	1.30	1.54	17.49	-30.0	0.31	-21.80	
2200	1.28	1.62	17.51	-40.0	0.28	-21.90	

Curve characterization and data shown above were completed using the SMT0-8 Package.