

# AC1291 AC1292 30 TO 1400 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC1291	AC1292
Low Noise Figure	1.3 dB	<1.3 dB
Medium Output Power	+19.5 dBm	+22.0 dBm
High Gain	18.0 dB	18.5 dB
High Performance Thin Film Standard Size TO-8 Package		

## SPECIFICATIONS\*

Parameter	Typical	Guaranteed		
		0 to 50° C	-55 to +85° C	
Frequency (Min.)	30-1400 MHz	30-1400 MHz	30-1400 MHz	
Small Signal Gain (Min.)				
AC1291	18.0 dB	16.5 dB	16.0 dB	
AC1292	18.5 dB	17.0 dB	16.5 dB	
Gain Flatness (Max.)				
AC1291	±0.5 dB	±0.9 dB	±1.0 dB	
AC1292	±0.5 dB	±0.7 dB	±0.8 dB	
Noise Figure (Max.)				
AC1291: 100-1400 MHz	1.3 dB	1.5 dB	1.8 dB	
AC1292: 200-1400 MHz	<1.3 dB	1.5 dB	1.8 dB	
SWR (Max.)	Input/Output	1.5:1	1.8:1 <sup>^</sup>	1.9:1 <sup>^</sup>
Power Output (Min.) @ 1dB comp.				
AC1291	+19.5 dBm	+18.5 dBm	+18.0 dBm	
AC1292	+22.0 dBm	+21.0 dBm	+20.5 dBm	
Reverse Isolation				
AC1291	22 dB	—	—	
AC1292	23 dB	—	—	
DC Current (Max.)				
AC1291	63.0 mA	68.0 mA	70.0 mA	
AC1292	100.0 mA	105.0 mA	108.0 mA	

\* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.  
^ Input VSWR 0.3 higher below 50 MHz.

## INTERMODULATION PERFORMANCE

Typical @ 25° C; 500 MHz	AC1291	AC1292
Second Order Harmonic Intercept Point	+51 dBm	+56 dBm
Second Order Two Tone Intercept Point	+45 dBm	+50 dBm
Third Order Two Tone Intercept Point	+32 dBm	+36 dBm

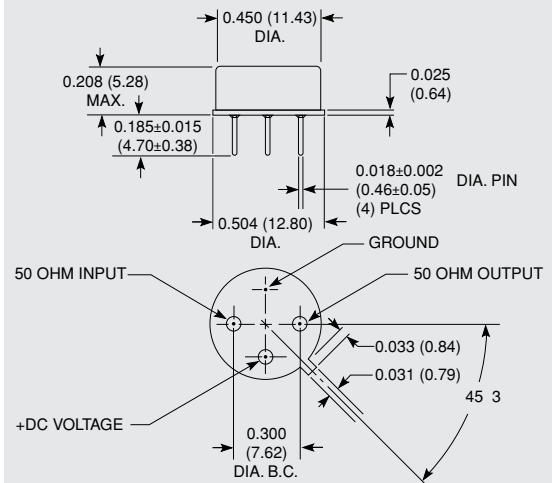
## ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125° C
Maximum Case Temperature	+125° C
Maximum DC Voltage (AC1291)	+12 Volts
Maximum DC Voltage (AC1292)	+10 Volts
Maximum Continuous RF Input Power	+24 dBm
Maximum Short Term Input Power (1 Minute Max.)	+27 dBm
Maximum Peak Power (3 usec Max.)	+27 dBm
Burn-in Temperature	+125° C
Thermal Resistance <sup>1</sup> (θjc; AC1291)	+49.3° C/Watt
Thermal Resistance <sup>1</sup> (θjc; AC1292)	+53° C/Watt
Junction Temperature Rise Above Case (Tjc; AC1291)	+15.5° C
Junction Temperature Rise Above Case (Tjc; AC1292)	+26° C

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

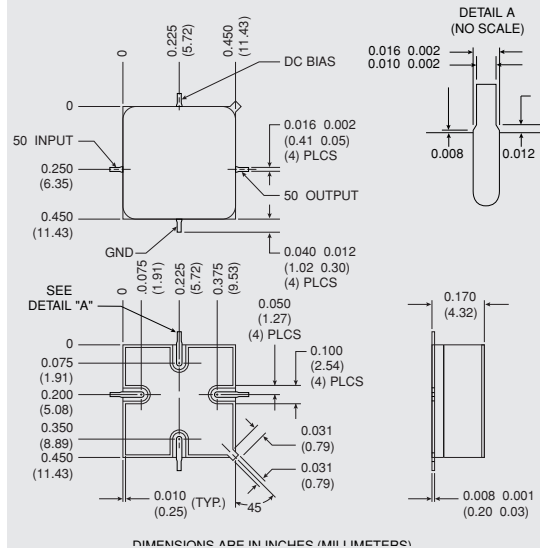
## AC1291/AC1292

### TO-8 Package for Amplifiers



## AS1291/AS1292

### SMT0-8 Package for Amplifiers

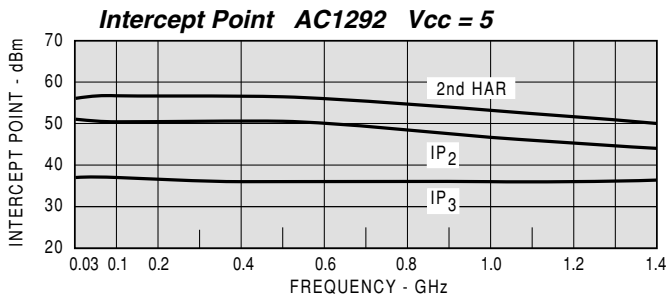
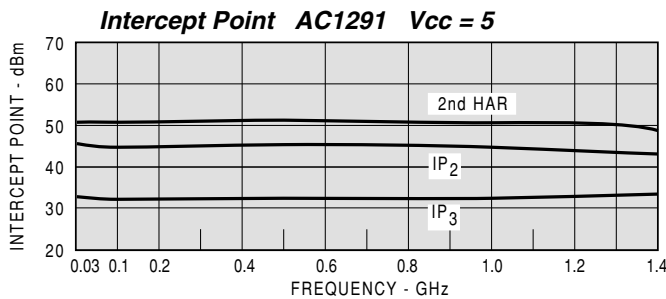
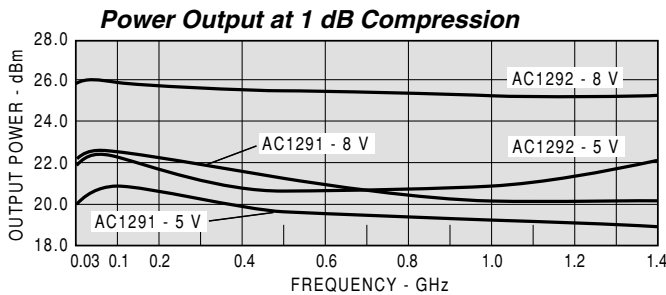
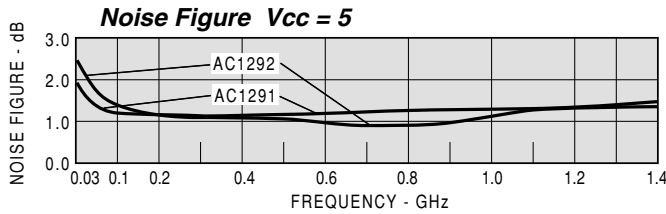
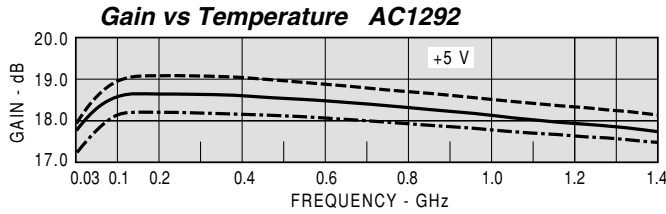
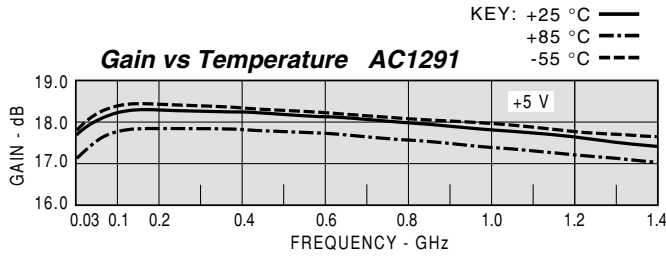


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**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



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

Model: AC1291 Vcc= +5V Icc= 63.60

FREQ. MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
30	1.75	1.45	17.76	-163.0		-23.40
50	1.55	1.46	18.10	-173.0	1.10	-24.00
100	1.44	1.46	18.30	176.0	0.64	-24.30
200	1.40	1.44	18.36	161.0	0.37	-24.20
300	1.40	1.42	18.33	149.0	0.34	-24.20
400	1.41	1.38	18.29	138.0	0.32	-24.00
500	1.43	1.34	18.22	126.0	0.31	-23.90
600	1.44	1.30	18.15	115.0	0.31	-23.50
700	1.47	1.26	18.06	104.0	0.31	-23.20
800	1.47	1.21	17.97	93.0	0.30	-22.90
900	1.49	1.17	17.88	83.0	0.31	-22.70
1000	1.50	1.13	17.78	72.0	0.30	-22.30
1100	1.49	1.10	17.67	61.0	0.31	-22.10
1200	1.48	1.07	17.57	50.0	0.30	-21.80
1300	1.46	1.06	17.45	39.0	0.31	-21.50
1400	1.42	1.07	17.33	28.0	0.31	-21.30
1500	1.35	1.12	17.22	17.0	0.31	-20.90

Model: AC1291 Vcc= +5V Icc= 63.60

LINEAR S-PARAMETERS

FREQ. MHz	S11 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 ANG
30	0.27	-35.50	7.73	-163.20	0.07	-1.90	0.19	-117.90
50	0.22	-29.50	8.03	-172.70	0.06	-3.20	0.19	-143.70
100	0.18	-19.80	8.22	175.80	0.06	-5.50	0.19	-167.60
200	0.17	-12.80	8.28	161.50	0.06	-8.50	0.18	174.00
300	0.17	-10.50	8.25	149.30	0.06	-11.40	0.17	163.10
400	0.17	-9.70	8.21	137.80	0.06	-14.60	0.16	153.80
500	0.18	-10.40	8.14	126.50	0.06	-19.20	0.14	145.00
600	0.18	-12.50	8.08	115.40	0.07	-23.60	0.13	137.70
700	0.19	-15.40	8.00	104.40	0.07	-27.70	0.11	131.20
800	0.19	-19.50	7.92	93.50	0.07	-32.50	0.10	122.70
900	0.20	-25.00	7.83	82.50	0.07	-37.80	0.08	114.70
1000	0.20	-30.60	7.75	71.70	0.08	-42.80	0.06	106.00
1100	0.20	-37.70	7.64	60.70	0.08	-48.70	0.05	92.20
1200	0.19	-45.30	7.56	49.90	0.08	-54.00	0.03	67.70
1300	0.19	-53.90	7.46	38.90	0.08	-61.10	0.03	35.80
1400	0.17	-63.50	7.36	27.90	0.09	-67.40	0.04	-1.50
1500	0.15	-75.00	7.26	16.80	0.09	-74.50	0.04	-22.30

Model: AC1292 Vcc= +5V Icc= 100.30

FREQ. MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
30	1.66	1.36	17.83	-164.0		-23.10
50	1.45	1.46	18.34	-172.0	0.99	-23.60
100	1.29	1.52	18.68	177.0	0.46	-24.10
200	1.23	1.53	18.76	164.0	0.37	-24.10
300	1.22	1.52	18.75	153.0	0.30	-24.00
400	1.22	1.51	18.72	143.0	0.28	-24.10
500	1.22	1.49	18.65	133.0	0.28	-23.90
600	1.23	1.48	18.61	123.0	0.27	-23.70
700	1.24	1.47	18.51	113.0	0.27	-23.60
800	1.25	1.45	18.45	104.0	0.27	-23.60
900	1.27	1.44	18.36	94.0	0.27	-23.40
1000	1.28	1.42	18.26	84.0	0.26	-23.30
1100	1.29	1.41	18.17	75.0	0.27	-23.10
1200	1.31	1.40	18.07	65.0	0.26	-22.90
1300	1.33	1.39	17.97	56.0	0.27	-22.80
1400	1.34	1.39	17.84	46.0	0.27	-22.60
1500	1.34	1.40	17.72	36.0	0.26	-22.30

Model: AC1292 Vcc= +15V Icc= 100.30

LINEAR S-PARAMETERS

FREQ. MHz	S11 MAG	S11 ANG	S21 MAG	S21 ANG	S12 MAG	S12 ANG	S22 MAG	S22 ANG
30	0.24	-39.90	7.75	-164.40	0.07	0.70	0.14	-125.30
50	0.18	-37.40	8.14	-172.80	0.07	-3.20	0.17	-149.00
100	0.13	-26.60	8.42	176.40	0.06	-5.20	0.18	-171.60
200	0.11	-11.30	8.48	162.80	0.06	-8.50	0.19	168.90
300	0.11	-2.30	8.47	151.30	0.07	-11.60	0.18	155.90
400	0.12	3.30	8.43	140.60	0.07	-15.50	0.18	144.50
500	0.13	4.70	8.37	129.90	0.07	-19.50	0.17	133.50
600	0.14	5.50	8.30	119.50	0.07	-24.00	0.17	123.20
700	0.15	4.60	8.22	109.30	0.07	-28.20	0.16	112.90
800	0.15	1.30	8.15	99.00	0.07	-32.10	0.15	101.40
900	0.17	-1.60	8.06	88.70	0.07	-36.60	0.15	90.90
1000	0.17	-4.60	7.97	79.00	0.07	-41.60	0.14	80.90
1100	0.18	-8.50	7.87	68.70	0.07	-46.90	0.14	69.70
1200	0.18	-12.40	7.80	58.80	0.08	-52.50	0.14	59.50
1300	0.18	-14.70	7.72	48.80	0.08	-57.70	0.13	49.10
1400	0.18	-16.60	7.64	38.70	0.08	-63.20	0.14	38.60
1500	0.16	-18.10	7.57	28.70	0.08	-68.60	0.14	28.90