

# 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
	AC1292	18.5 dB	17.0 dB
Gain Flatness (Max.)	AC1291	±0.5 dB	±0.9 dB
	AC1292	±0.5 dB	±0.7 dB
Noise Figure (Max.)	200-1400 MHz	1.3 dB	1.5 dB
	SWR (Max.)	1.5:1	1.8:1 <sup>^</sup>
Power Output (Min.) @ 1dB comp.	AC1291	+19.5 dBm	+18.5 dBm
	AC1292	+22.0 dBm	+21.0 dBm
Reverse Isolation	AC1291	22.0 dB	—
	AC1292	23.0 dB	—
DC Current (Max.)	AC1291	63.0 mA	68.0 mA
	AC1292	100.0 mA	105.0 mA

\* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.  
<sup>^</sup> 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

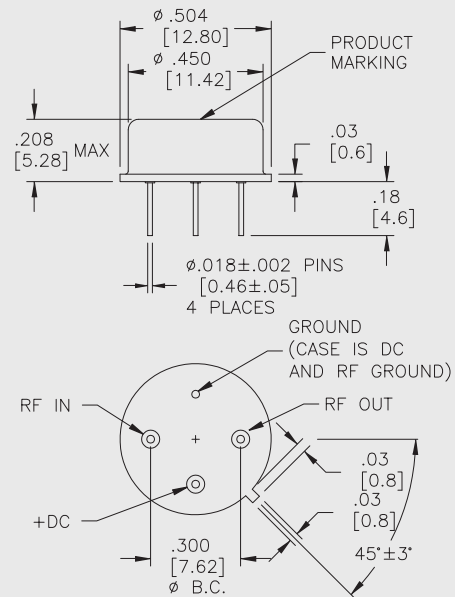
### ABSOLUTE MAXIMUM RATINGS

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 . . . . .	+21 dBm
Maximum Short Term Input Power (1 Minute Max.) . . . . .	+24 dBm
Maximum Peak Power (3 µsec Max.; AC1291) . . . . .	+27 dBm
Maximum Peak Power (3 µsec Max.; AC1292) . . . . .	+25 dBm
Burn-in Temperature . . . . .	+125 °C
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC1291) . . . . .	+49.3 °C/Watt
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC1292) . . . . .	+53 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC1291) . . . . .	+15.5 °C
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC1292) . . . . .	+26 °C

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

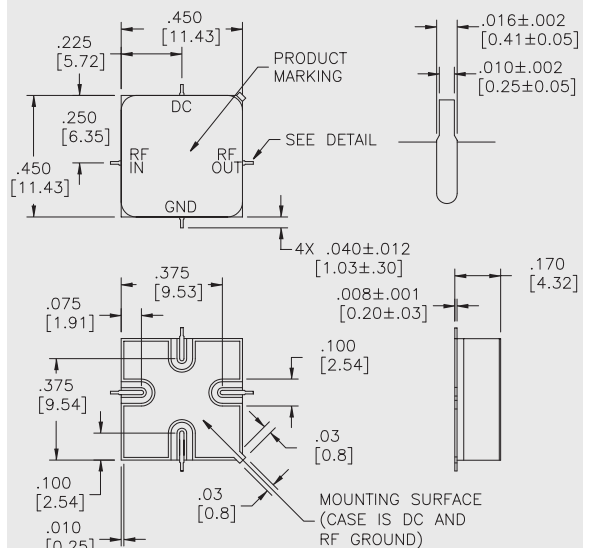
### AC1291/AC1292

#### TO-8 Package for Amplifiers



### AS1291/AS1292

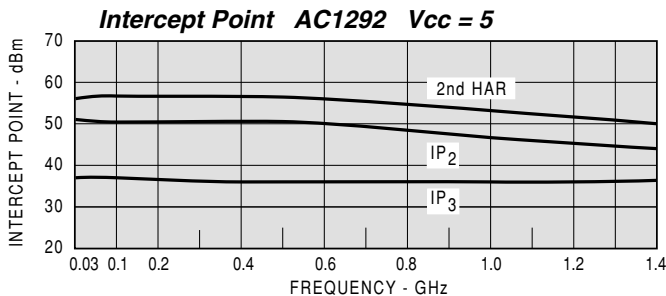
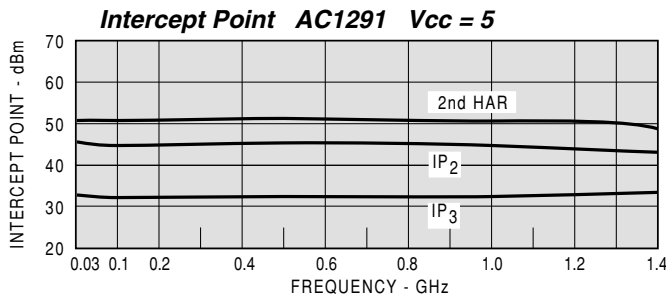
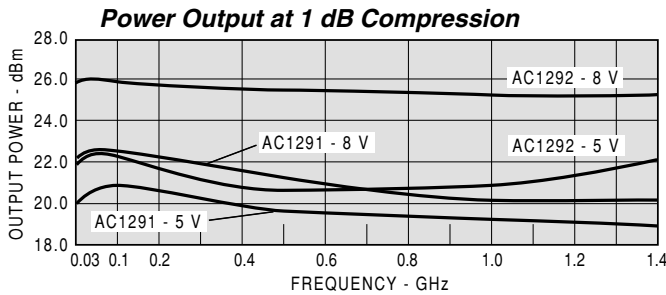
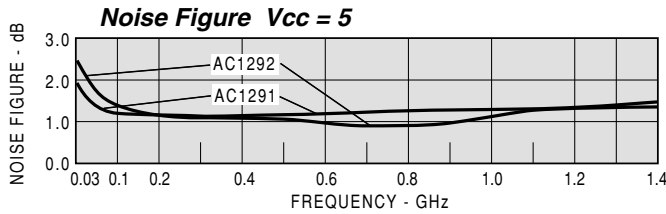
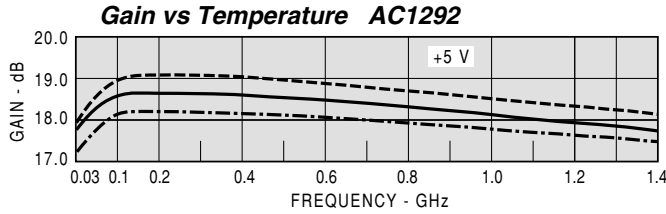
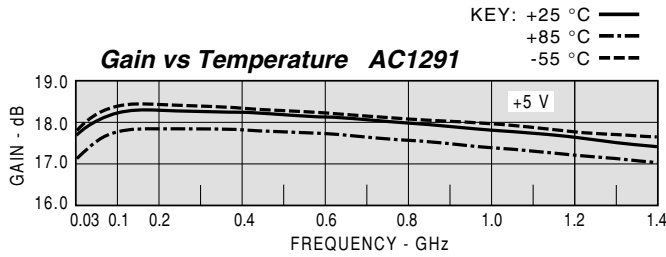
#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AC1291				Vcc= +5V			Icc= 63.60	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO		
MHZ	IN	OUT	DB	DEG	NSEC	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	
FREQ.	S11		S21		S12		S22		
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	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	0.06	-22.30	

Model: AC1292				Vcc= +5V			Icc= 100.30	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO		
MHZ	IN	OUT	DB	DEG	NSEC	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	
FREQ.	S11		S21		S12		S22		
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	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	