TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 9/10

AS8002

100 TO 8000 MHz SMTO-8 CASCADABLE AMPLIFIER

Typical Values	AS8002
High Gain	19.5 dB
High Reverse Isolation	40.0 dB
Medium Output Power	+15.5 dBm
Ultra Broadband Width	0.1 – 8.0 GHz
High Efficiency	
High Performance Thin Film	
Standard Size SMTO-8 Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)	**100-8000 MHz**	**100-8000 MHz**	**100-8000 MHz**
Small Signal Gain (Min.)			
100-7000 MHz	19.5 dB	18.0 dB	17.5 dB
7000-8000 MHz	18.0 dB	17.0 dB	16.0 dB
Gain Flatness (Max.)			
100-7000 MHz	±0.5 dB	±0.8 dB	±1.2 dB
7000-8000 MHz	±0.8 dB	±1.2 dB	±1.8 dB
Noise Figure (Max.)	2.5 dB	3.3† dB	3.8† dB
SWR (Max.) Input/Output	<1.6:1^	1.9:1^	2.0:1^
Power Output (Min.)			
@ 1dB comp. 100-2000 MHz	+14.0 dBm	+13.5 dBm	+13.0 dBm
2000-4000 MHz	+15.5 dBm	+14.0 dBm	+13.5 dBm
4000-8000 MHz	+17.0 dBm	+15.5 dBm	+15.0 dBm
Reverse Isolation	40.0 dB	—	—
DC Current (Max.)	92 mA	98 mA	100 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ Input VSWR 0.3:1 higher above 7.4 GHz. † 0.5 dB higher below 500 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	+12 Volts	+15 Volts
Second Order Harmonic Intercept Point	+47 dBm	+45 dBm
Second Order Two Tone Intercept Point	+41 dBm	+39 dBm
Third Order Two Tone Intercept Point	+26 dBm	+28 dBm

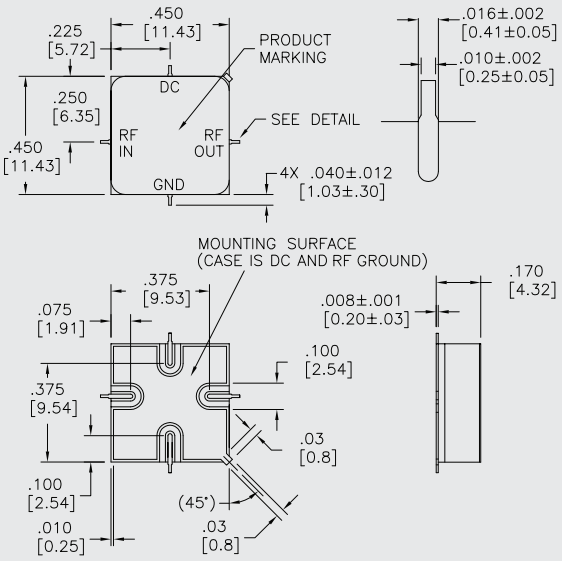
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Burn-in Temperature	+125 °C
Thermal Resistance[1] (θjc)	+19.7 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+26.1 °C

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

AS8002

SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

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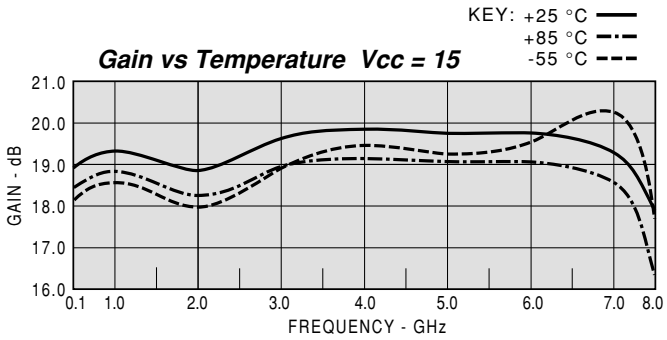
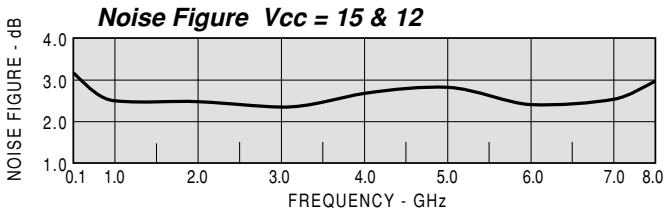
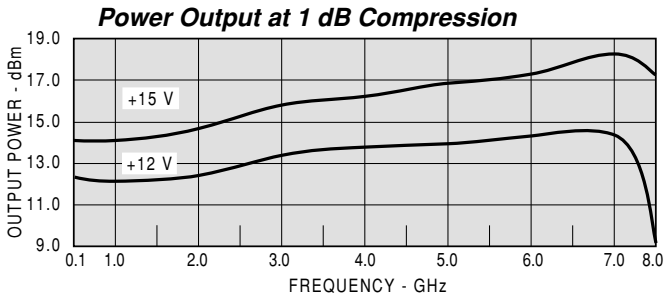
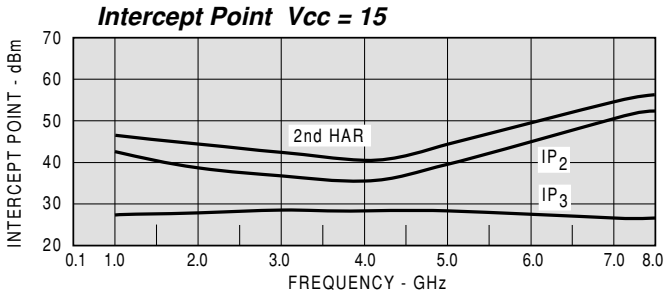
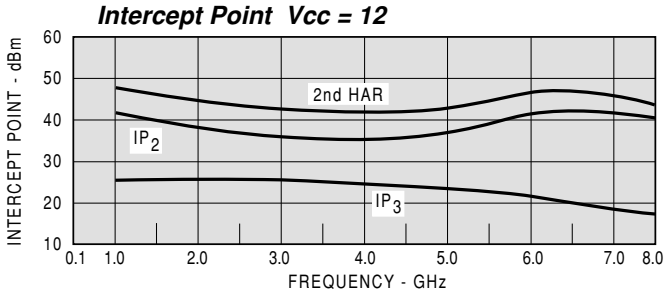
TYPICAL PERFORMANCE











TYPICAL AUTOMATIC TEST DATA

Model: AS8002 Vcc=+15V Icc=90.97

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
100	1.14	1.36	19.07	8	0.47	-35.7
500	1.12	1.48	19.73	-40	0.28	-38.9
1000	1.22	1.47	19.48	-85	0.24	-38.0
1200	1.27	1.46	19.36	-102	0.24	-38.1
1400	1.32	1.45	19.21	-119	0.23	-39.4
1600	1.37	1.43	19.07	-135	0.23	-40.0
1800	1.41	1.43	19.01	-151	0.22	-41.1
2000	1.46	1.44	19.00	-167	0.22	-38.2
2200	1.49	1.45	19.09	178	0.22	-38.7
2400	1.51	1.47	19.21	161	0.23	-37.9
2600	1.54	1.52	19.43	145	0.24	-38.3
2800	1.57	1.54	19.61	127	0.24	-39.3
3000	1.59	1.56	19.68	110	0.25	-40.9
3200	1.62	1.59	19.80	92	0.25	-38.7
3400	1.64	1.60	19.84	75	0.24	-40.0
3600	1.67	1.58	19.85	57	0.25	-41.9
3800	1.68	1.55	19.82	39	0.24	-41.8
4000	1.68	1.53	19.80	22	0.24	-41.3
4200	1.67	1.50	19.78	4	0.24	-40.7
4400	1.67	1.44	19.78	-13	0.24	-42.0
4600	1.65	1.38	19.76	-31	0.24	-43.0
4800	1.63	1.32	19.76	-49	0.25	-39.5
5000	1.59	1.28	19.78	-66	0.25	-39.3
5200	1.54	1.25	19.78	-84	0.25	-41.8
5400	1.48	1.22	19.79	-103	0.25	-42.5
5600	1.42	1.23	19.72	-121	0.25	-42.0
5800	1.36	1.24	19.67	-139	0.25	-43.0
6000	1.28	1.22	19.61	-158	0.25	-40.5
6200	1.23	1.21	19.56	-176	0.26	-42.0
6400	1.19	1.21	19.51	165	0.26	-43.4
6600	1.19	1.20	19.49	146	0.26	-42.0
6800	1.23	1.20	19.42	127	0.27	-41.5
7000	1.32	1.22	19.37	107	0.28	-41.6
7200	1.43	1.26	19.29	87	0.29	-40.6
7400	1.59	1.33	19.20	66	0.31	-40.6
7600	1.74	1.38	18.89	43	0.32	-40.3
7800	1.84	1.41	18.34	21	0.30	-39.0
8000	1.93	1.43	17.67	0	0.29	-37.1

LINEAR S-PARAMETERS

Model: AS8002 Vcc=+15V Icc=90.97

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100	0.09	-59.4	8.92	9.1	0.019	38.4	0.19	-159.2
500	0.06	-69.6	9.66	-39.1	0.009	-20.5	0.20	160.5
1000	0.10	-104.2	9.43	-83.5	0.011	-42.4	0.20	127.7
1200	0.11	-118.3	9.32	-100.6	0.011	-52.2	0.19	114.6
1400	0.13	-133.6	9.18	-117.2	0.012	-74.6	0.19	102.7
1600	0.14	-147.7	9.06	-133.4	0.008	-57.3	0.19	89.2
1800	0.16	-162.8	9.03	-149.0	0.010	-88.4	0.19	74.8
2000	0.17	-178.0	9.04	-164.8	0.012	-89.1	0.19	60.6
2200	0.18	166.7	9.16	179.6	0.011	-85.0	0.19	46.9
2400	0.18	151.3	9.29	163.4	0.013	-105.6	0.20	32.6
2600	0.19	136.4	9.54	146.8	0.012	-115.7	0.21	16.9
2800	0.20	121.3	9.77	129.6	0.011	-123.6	0.22	2.6
3000	0.21	104.6	9.89	111.8	0.011	-130.0	0.23	-11.8
3200	0.22	89.8	10.03	94.3	0.011	-144.6	0.24	-26.8
3400	0.22	73.8	10.08	76.7	0.010	-164.2	0.25	-39.1
3600	0.23	57.6	10.12	58.7	0.010	-171.2	0.25	-50.4
3800	0.24	43.2	10.11	41.2	0.009	177.9	0.25	-62.3
4000	0.25	28.6	10.10	23.5	0.011	159.5	0.24	-73.6
4200	0.25	14.7	10.07	6.2	0.011	152.5	0.25	-84.4
4400	0.26	1.9	10.09	-11.6	0.009	146.5	0.24	-92.7
4600	0.25	-10.6	10.05	-29.3	0.010	134.1	0.23	-100.8
4800	0.26	-23.3	10.01	-47.4	0.011	116.3	0.21	-107.4
5000	0.25	-35.9	9.98	-65.0	0.011	114.5	0.20	-113.4
5200	0.24	-48.0	9.98	-82.9	0.011	93.0	0.20	-116.7
5400	0.23	-61.6	9.98	-101.0	0.011	87.3	0.19	-122.5
5600	0.21	-75.3	9.89	-119.4	0.011	81.4	0.20	-129.7
5800	0.19	-90.3	9.81	-137.6	0.010	49.9	0.20	-138.5
6000	0.16	-110.4	9.73	-155.7	0.010	44.5	0.19	-150.6
6200	0.14	-135.4	9.70	-173.8	0.012	36.0	0.19	-166.6
6400	0.12	-165.6	9.71	167.8	0.009	15.8	0.18	176.6
6600	0.12	158.6	9.72	148.5	0.010	8.5	0.17	159.6
6800	0.14	127.8	9.69	129.0	0.010	-8.6	0.17	142.8
7000	0.17	103.1	9.64	108.8	0.012	-18.9	0.16	128.8
7200	0.19	83.6	9.50	88.1	0.013	-34.0	0.16	120.6
7400	0.22	69.1	9.26	66.9	0.014	-26.2	0.17	112.5
7600	0.25	55.1	8.89	45.5	0.013	-44.6	0.19	98.5
7800	0.27	43.0	8.48	24.1	0.018	-62.0	0.18	87.0
8000	0.29	30.4	7.90	2.2	0.020	-80.2	0.15	87.5