TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

AS6043

10 TO 6000 MHz SMTO-8 CASCADABLE AMPLIFIER

Typical Values	AS6043
Ultra Broad Bandwidth	10-6000 MHz
Low Noise Figure	4.2 dB
Medium Output Level	+15.5 dBm
High Performance Thin Film	
Standard Size SMTO-8	

SPECIFICATIONS*

Parameter	Typical	Guaranteed 0 to 50 °C	Guaranteed -55 to +85 °C
Frequency (Min.)	10-6000 MHz	10-6000 MHz	10-6000 MHz
Small Signal Gain (Min.)	15.0 dB	14.5^ dB	14.0^ dB
Gain Flatness (Max.)	±0.4 dB	±0.7 dB	±0.9 dB
Noise Figure (Max.)			
100-500 MHz	<5.0 dB	5.5 dB	6.0 dB
1000-6000 MHz	4.2 dB	4.8 dB	5.3 dB
SWR (Max.) Input/Output	<1.6:1†	1.9:1†	2.0:1†
Power Output (Min.) @ 1dB comp.	+15.5‡ dBm	+14.5‡ dBm	+14.0‡ dBm
Reverse Isolation	34.0 dB	—	—
DC Current (Max.)	105.0 mA	115.0 mA	120.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified. † 0.2 higher below 200 MHz.
^ 0.5 dB less below 1000 MHz. ‡1.0 dBm lower above 5500 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 3000 MHz	+12 Volts	+15 Volts
Second Order Harmonic Intercept Point	+40 dBm	+51 dBm
Second Order Two Tone Intercept Point	+34 dBm	+45 dBm
Third Order Two Tone Intercept Point	+22 dBm	+27 dBm

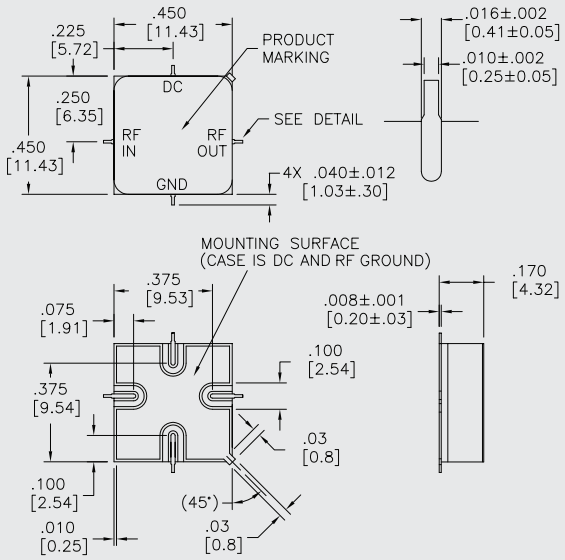
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+17 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+125 °C
Thermal Resistance[1] (θjc)	+14 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+25.7 °C

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

AS6043

SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

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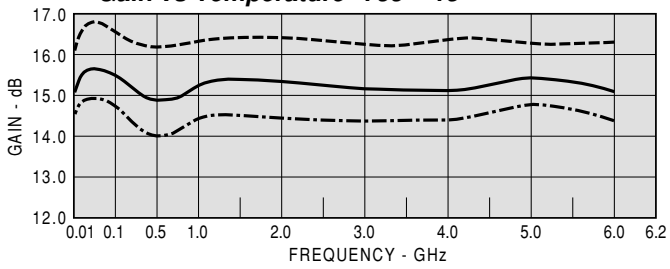
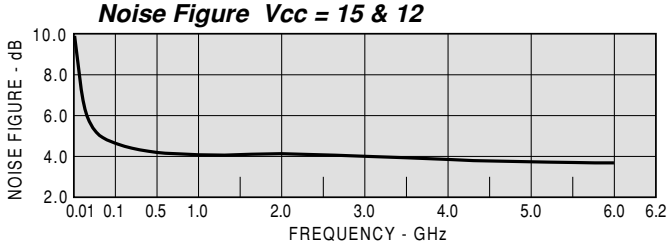
TYPICAL PERFORMANCE

KEY: +25 °C —— +85 °C -·-·- -55 °C - - -

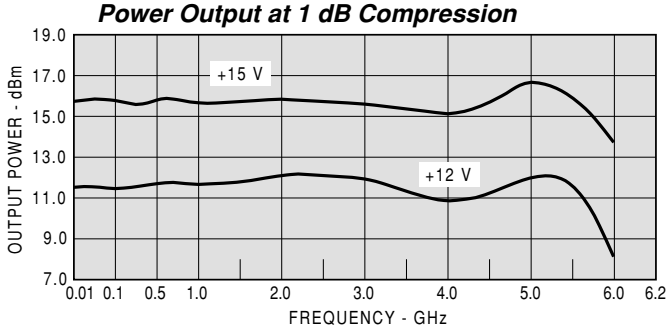
Gain vs Temperature Vcc = 15



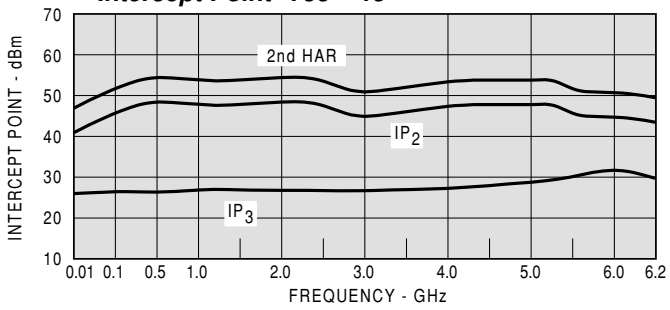
Noise Figure Vcc = 15 & 12



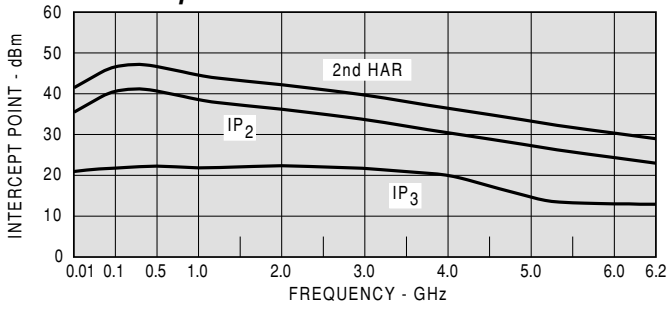
Power Output at 1 dB Compression



Intercept Point Vcc = 15



Intercept Point Vcc = 12



TYPICAL AUTOMATIC TEST DATA

Model: AS6043 Vcc= +15V Icc= 103.44

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
10	1.72	1.89	14.71	31		-34.5
50	1.24	1.57	15.28	0	0.89	-34.3
100	1.20	1.56	15.12	-10	0.55	-34.0
500	1.21	1.54	14.69	-40	0.25	-34.2
1000	1.21	1.64	15.01	-84	0.24	-34.3
1200	1.19	1.66	15.13	-103	0.25	-34.2
1400	1.17	1.68	15.03	-121	0.24	-34.1
1600	1.16	1.69	14.97	-138	0.24	-33.6
1800	1.17	1.72	15.11	-155	0.25	-34.0
2000	1.18	1.68	15.08	-172	0.21	-33.7
2200	1.21	1.64	15.03	170	0.24	-34.1
2400	1.24	1.65	15.20	151	0.27	-33.7
2600	1.30	1.61	15.18	133	0.24	-34.1
2800	1.36	1.51	14.98	115	0.24	-33.7
3000	1.44	1.43	15.09	98	0.26	-33.9
3200	1.50	1.34	15.12	80	0.23	-33.7
3400	1.57	1.25	15.00	62	0.23	-33.8
3600	1.64	1.20	15.02	43	0.26	-34.0
3800	1.67	1.10	15.02	25	0.25	-34.3
4000	1.68	1.03	15.01	7	0.25	-34.6
4200	1.68	1.02	15.04	-11	0.25	-34.8
4400	1.62	1.07	15.10	-30	0.26	-34.8
4600	1.60	1.13	15.16	-49	0.27	-35.0
4800	1.49	1.10	15.31	-67	0.27	-34.7
5000	1.39	1.15	15.51	-88	0.28	-34.6
5200	1.30	1.14	15.65	-110	0.30	-34.2
5400	1.19	1.08	15.59	-133	0.32	-34.0
5600	1.11	1.09	15.51	-156	0.33	-34.4
5800	1.04	1.08	15.20	178	0.36	-34.7
6000	1.07	1.10	14.53	154	0.34	-34.9

LINEAR S-PARAMETERS

Model: AS6043 Vcc= +15V Icc= 103.44

FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.26	-94.9	5.44	31.1	0.019	13.5	0.31	-117.1
50	0.11	-154.7	5.81	-0.3	0.019	1.2	0.22	-164.7
100	0.09	-174.9	5.70	-10.2	0.020	0.0	0.22	-174.5
500	0.10	-180.0	5.43	-39.9	0.019	-25.3	0.21	175.6
1000	0.10	171.4	5.63	-84.4	0.019	-44.3	0.24	162.3
1200	0.09	168.8	5.71	-102.7	0.019	-52.2	0.25	153.3
1400	0.08	167.8	5.64	-120.6	0.020	-59.7	0.25	142.8
1600	0.08	170.2	5.60	-138.1	0.021	-70.2	0.26	135.8
1800	0.08	177.4	5.69	-155.3	0.020	-80.0	0.26	127.1
2000	0.08	-172.8	5.68	-171.9	0.021	-90.8	0.25	116.5
2200	0.09	-166.9	5.64	169.6	0.020	-99.4	0.24	105.6
2400	0.11	-164.2	5.76	150.9	0.021	-109.2	0.25	94.1
2600	0.13	-166.1	5.74	133.4	0.020	-120.8	0.23	84.0
2800	0.15	-168.6	5.61	115.2	0.021	-129.0	0.20	76.7
3000	0.18	-172.3	5.68	97.6	0.020	-141.9	0.18	65.3
3200	0.20	-178.5	5.70	80.4	0.021	-154.2	0.15	51.5
3400	0.22	174.8	5.62	61.9	0.020	-163.7	0.11	45.8
3600	0.24	166.8	5.64	43.3	0.020	-170.7	0.09	41.0
3800	0.25	159.0	5.64	25.4	0.019	176.1	0.05	23.1
4000	0.25	151.5	5.63	7.2	0.019	160.3	0.01	82.5
4200	0.25	141.0	5.65	-11.0	0.018	151.9	0.01	9.5
4400	0.24	130.1	5.69	-29.6	0.018	144.5	0.03	174.3
4600	0.23	122.1	5.73	-48.6	0.018	128.3	0.06	130.3
4800	0.20	106.5	5.83	-67.3	0.018	122.8	0.05	144.9
5000	0.16	97.4	5.97	-87.8	0.019	110.3	0.07	153.2
5200	0.13	82.7	6.06	-109.7	0.019	96.3	0.06	137.8
5400	0.08	61.2	6.02	-132.6	0.02	82.1	0.04	133.8
5600	0.05	41.1	5.96	-155.9	0.019	69.4	0.04	112.0
5800	0.02	-14.5	5.75	178.5	0.018	54.7	0.04	64.8
6000	0.03	-63.2	5.33	153.9	0.018	40.1	0.05	77.0