

AS3093 AS3094

400 TO 3000 MHz SMT0-8 CASCADABLE AMPLIFIERS

Typical Values	AS3093	AS3094
Low Noise Figure	<1.7 dB	<1.7 dB
Medium Output Power	+18.5 dBm	+23.8 dBm
Broad Bandwidth	400 to 3000 MHz	400 to 3000 MHz
Designed with Internal Limiter		
High Performance Thin Film		
Standard Size SMT0-8		

SPECIFICATIONS*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	
Frequency (Min.)	300-3200 MHz	400-3000 MHz	400-3000 MHz	
Small Signal Gain (Min.)	14.8 dB	14.0 dB	13.5 dB	
Gain Flatness (Max.)	±0.3 dB	±0.6 dB	±0.7 dB	
Noise Figure (Max.)	AS3093 AS3094	<1.7 dB <1.7 dB	2.0 dB 2.2 dB	2.5 dB 2.7 dB
SWR (Max.)	Input/Output	1.5:1	1.8:1	1.9:1
Power Output (Min.) @ 1dB comp.	AS3093 AS3094	+18.5 dBm +23.8 dBm	+17.5 dBm +22.5 dBm	+17.0 dBm +22.0 dBm
Reverse Isolation		20.5 dB	—	—
DC Current (Max.)	AS3093 AS3094	55.0 mA 108.0 mA	60.0 mA 113.0 mA	63.0 mA 115.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 1500 MHz	AS3093	AS3094
Second Order Harmonic Intercept Point . . .	+48 dBm	+51 dBm
Second Order Two Tone Intercept Point	+42 dBm	+45 dBm
Third Order Two Tone Intercept Point	+31 dBm	+37.5 dBm

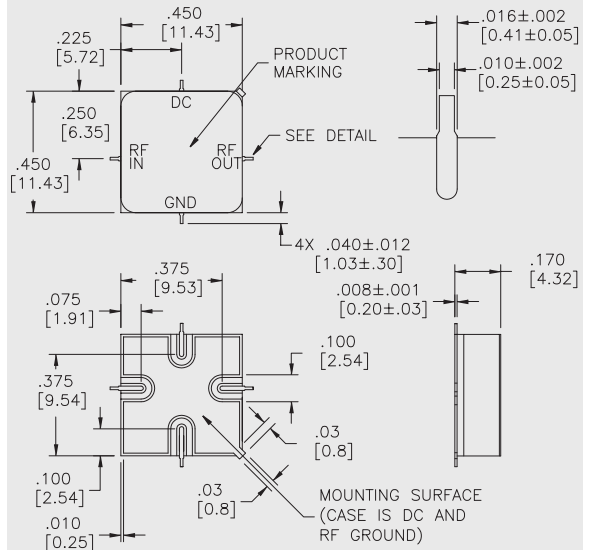
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+20 Volts
Maximum Continuous RF Input Power	+30 dBm
Maximum Short Term Input Power (1 Minute Max.)	+33 dBm
Maximum Peak Power (3 μsec Max.)	+36 dBm
Burn-in Temperature	+125 °C
Thermal Resistance ¹ (θ _{jc} ; AS3093)	+15 °C/Watt
Thermal Resistance ¹ (θ _{jc} ; AS3094)	+11.5 °C/Watt
Junction Temperature Rise Above Case (T _{jc} ; AS3093)	+12.3 °C
Junction Temperature Rise Above Case (T _{jc} ; AS3094)	+18.7 °C

¹ Thermal resistance is based on total power dissipation.

AS3093/AS3094

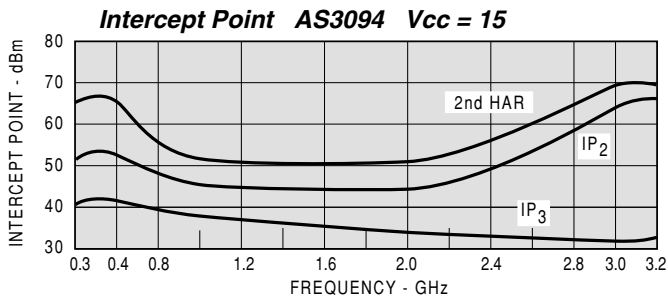
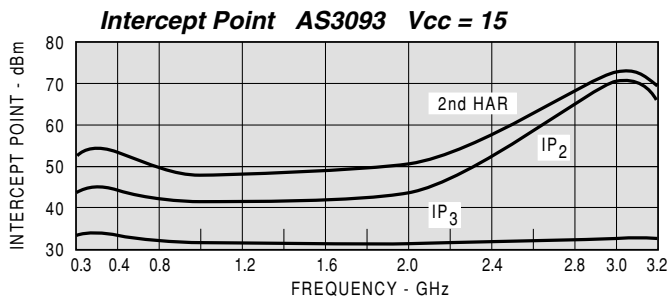
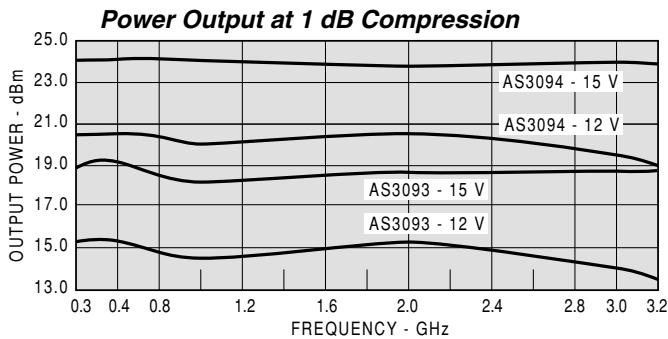
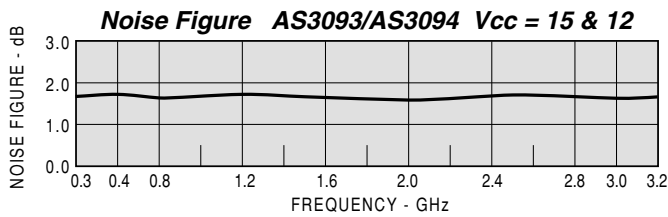
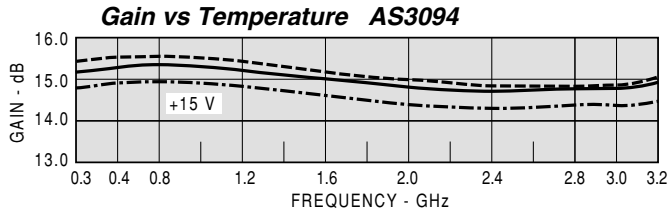
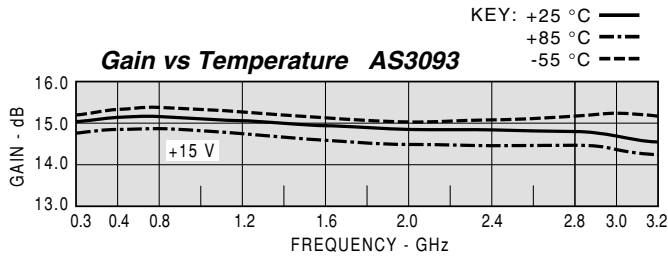
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AS3093				Vcc= +15V			Icc= 54.78	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	DB	
MHZ	IN	OUT	DB	DEG	NSEC			
300	1.41	1.63	15.06	167.00	0.46		-20.80	
400	1.28	1.48	15.15	154.00	0.36		-20.70	
600	1.22	1.30	15.20	131.00	0.30		-20.50	
800	1.26	1.18	15.18	111.00	0.28		-20.40	
1000	1.34	1.07	15.15	91.00	0.27		-20.40	
1200	1.42	1.03	15.09	71.00	0.28		-20.40	
1400	1.48	1.12	15.02	51.00	0.27		-20.40	
1600	1.53	1.21	14.93	32.00	0.27		-20.40	
1800	1.54	1.29	14.84	13.00	0.27		-20.60	
2000	1.53	1.34	14.81	-7.00	0.28		-20.50	
2200	1.50	1.37	14.83	-27.00	0.29		-20.40	
2400	1.45	1.34	14.83	-47.00	0.29		-20.50	
2600	1.40	1.28	14.84	-68.00	0.30		-20.50	
2800	1.35	1.19	14.90	-91.00	0.32		-20.30	
3000	1.30	1.20	14.82	-115.00	0.33		-20.20	
3200	1.31	1.39	14.75	-140.00	0.37		-20.40	

Model: AS3093				LINEAR S-PARAMETERS						Icc= 54.78	
				Vcc= +15V						S22	
FREQ.	S11		S21		S12				MAG	ANG	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
300	0.17	-70.60	5.66	166.90	0.09	-1.70	0.24	120.70			
400	0.12	-66.10	5.72	153.80	0.09	-10.60	0.19	117.20			
600	0.10	-48.60	5.76	131.30	0.09	-24.90	0.13	109.60			
800	0.12	-41.10	5.74	110.60	0.10	-37.20	0.08	98.80			
1000	0.14	-46.00	5.72	90.50	0.10	-50.10	0.03	82.90			
1200	0.17	-57.30	5.68	70.70	0.10	-61.90	0.01	-84.60			
1400	0.19	-70.40	5.64	51.30	0.10	-73.00	0.06	-106.40			
1600	0.21	-85.50	5.58	31.90	0.10	-84.90	0.10	-121.50			
1800	0.21	-102.50	5.52	12.60	0.09	-97.00	0.13	-136.20			
2000	0.21	-120.10	5.50	-7.10	0.10	-108.30	0.15	-148.00			
2200	0.20	-139.60	5.52	-27.10	0.10	-120.90	0.15	-160.10			
2400	0.18	-161.50	5.51	-47.20	0.10	-131.50	0.15	-170.40			
2600	0.17	173.30	5.52	-68.40	0.09	-144.20	0.12	-178.00			
2800	0.15	140.70	5.56	-90.90	0.10	-156.40	0.09	-174.70			
3000	0.13	107.10	5.51	-114.60	0.10	-170.40	0.09	-129.40			
3200	0.13	69.80	5.46	-140.20	0.10	174.80	0.16	-112.60			

Model: AS3094				Vcc= +15V			Icc= 108.44	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	DB	
MHZ	IN	OUT	DB	DEG	NSEC			
300	1.33	1.70	14.92	167.00	0.45		-20.30	
400	1.18	1.54	15.02	154.00	0.36		-20.20	
600	1.09	1.35	15.11	132.00	0.30		-20.10	
800	1.15	1.21	15.10	112.00	0.28		-20.00	
1000	1.24	1.10	15.07	92.00	0.27		-20.10	
1200	1.34	1.08	15.00	72.00	0.27		-20.10	
1400	1.40	1.16	14.92	53.00	0.26		-20.20	
1600	1.42	1.26	14.81	34.00	0.27		-20.30	
1800	1.41	1.36	14.71	15.00	0.27		-20.50	
2000	1.40	1.45	14.64	-5.00	0.28		-20.70	
2200	1.37	1.53	14.64	-24.00	0.28		-20.70	
2400	1.32	1.57	14.57	-43.00	0.27		-21.00	
2600	1.24	1.59	14.58	-63.00	0.27		-21.20	
2800	1.15	1.55	14.69	-83.00	0.28		-21.40	
3000	1.09	1.44	14.71	-105.00	0.30		-21.30	
3200	1.10	1.28	14.89	-129.00	0.35		-21.70	

Model: AS3094				LINEAR S-PARAMETERS						Icc= 108.44	
				Vcc= +15V						S22	
FREQ.	S11		S21		S12				MAG	ANG	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
300	0.14	-85.30	5.57	167.40	0.10	-2.50	0.26	121.10			
400	0.08	-85.30	5.64	154.40	0.10	-11.70	0.21	116.20			
600	0.04	-42.50	5.69	132.20	0.10	-27.00	0.15	106.20			
800	0.07	-20.10	5.69	111.70	0.10	-40.70	0.10	89.50			
1000	0.11	-28.40	5.67	91.70	0.10	-53.70	0.05	56.30			
1200	0.14	-40.20	5.62	72.10	0.10	-66.80	0.04	-30.30			
1400	0.17	-52.70	5.57	53.00	0.10	-79.40	0.07	-80.40			
1600	0.17	-66.80	5.50	33.70	0.10	-91.80	0.11	-103.00			
1800	0.17	-83.00	5.44	14.70	0.10	-104.40	0.15	-122.50			
2000	0.17	-100.00	5.40	-4.60	0.09	-117.00	0.18	-138.20			
2200	0.15	-115.90	5.39	-24.00	0.09	-129.60	0.21	-153.00			
2400	0.14	-130.70	5.35	-43.00	0.09	-140.70	0.22	-168.00			
2600	0.11	-147.90	5.36	-62.70	0.09	-153.50	0.23	-177.90			
2800	0.07	-175.70	5.43	-83.20	0.09	-165.20	0.22	162.50			
3000	0.04	139.60	5.44	-105.10	0.09	-177.20	0.18	147.00			
3200	0.05	79.40	5.55	-128.70	0.08	169.70	0.12	129.40			