

# 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

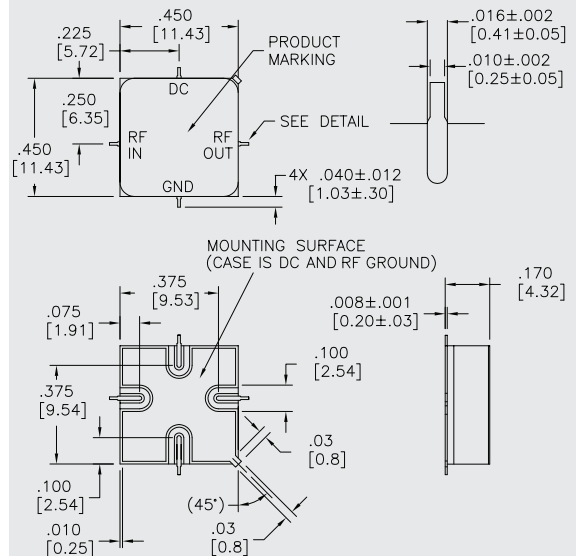
### ABSOLUTE MAXIMUM RATINGS

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 <sup>1</sup> (θjc; AS3093) . . . . .	+15 °C/Watt
Thermal Resistance <sup>1</sup> (θjc; AS3094) . . . . .	+11.5 °C/Watt
Junction Temperature Rise Above Case (Tjc; AS3093) . . . . .	+12.3 °C
Junction Temperature Rise Above Case (Tjc; AS3094) . . . . .	+18.7 °C

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

### AS3093/AS3094

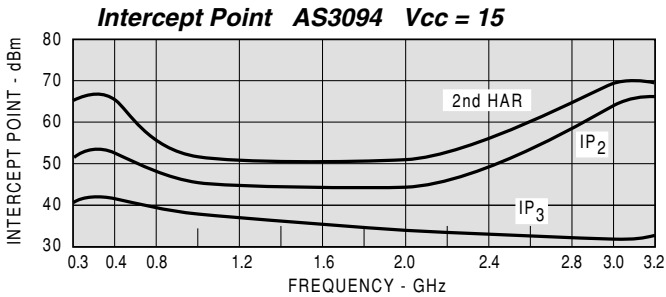
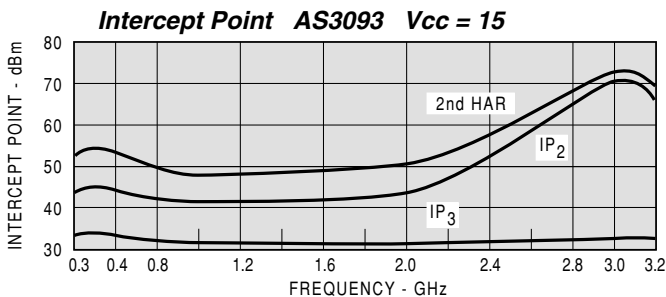
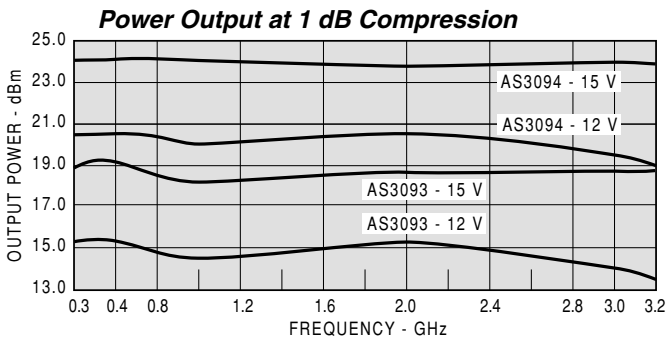
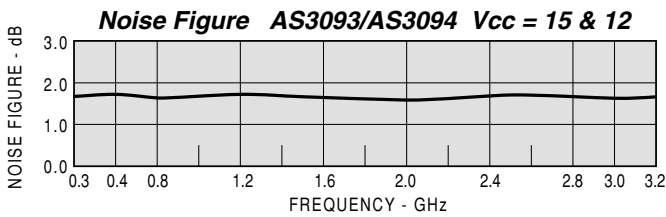
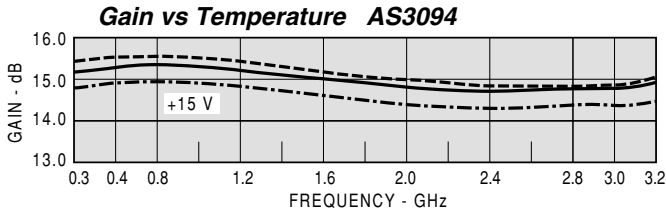
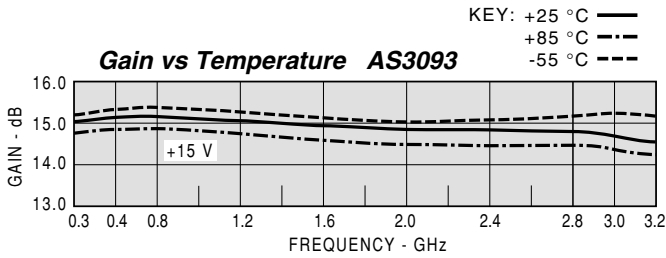
#### SMT0-8 Package for Amplifiers



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	DB	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				Vcc= +15V				Icc= 54.78	
FREQ.	S11		S21		S12		S22		
MHZ	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	DB	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				Vcc= +15V				Icc= 108.44	
FREQ.	S11		S21		S12		S22		
MHZ	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	