

AR1094

650 TO 1100 MHz TO-8B CASCADABLE AMPLIFIER

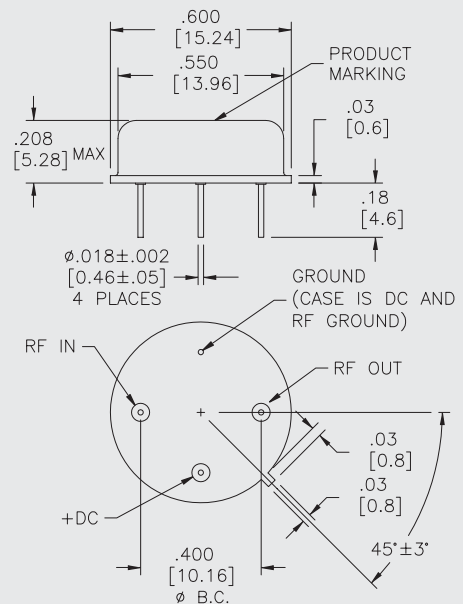
Typical Values

High Output Power	+26.5 dBm
High Third Order I.P.	+40.0 dBm
Medium Gain	14.0 dB
Low Noise Figure	2.1 dB
High Performance Thin Film TO-8B Amplifier Package	

AR1094

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TO-8B Package for Amplifiers



SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	600-1200 MHz	650-1100 MHz	650-1100 MHz
Small Signal Gain (Min.)	14.0 dB	13.5 dB	12.7 dB
Gain Flatness (Max.)	< ±0.2 dB	±0.3 dB	±0.4 dB
Noise Figure (Max.)	2.1 dB	2.6 dB	3.1 dB
SWR (Max.)	Input < 1.6:1 Output < 1.6:1	1.8:1 1.9:1	1.9:1 2.0:1
Power Output (Min.) @ 1dB comp.	+26.5 dBm	+25.5 dBm	+25.0 dBm
Reverse Isolation	40.0 dB	—	—
DC Current (Max.)	175.0 mA	185.0 mA	195.0 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C	+12 volts	+15 volts
Second Order Harmonic Intercept Point	+65 dBm	+61 dBm
Second Order Two Tone Intercept Point	+59 dBm	+55 dBm
Third Order Two Tone Intercept Point	+39 dBm	+40 dBm

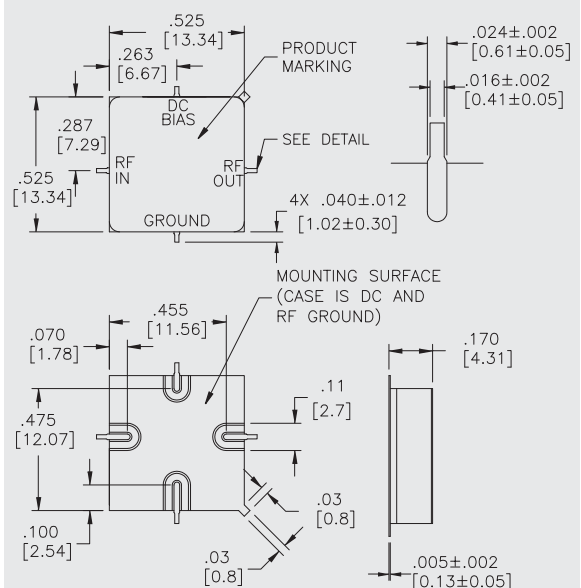
ABSOLUTE MAXIMUM RATINGS

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	+105 °C
Thermal Resistance¹ (θjc; Vcc = 15)	+12 °C/Watt
Junction Temperature Rise Above Case (Tjc; Vcc = 15) ..	+33 °C

¹ Thermal resistance is based on total power dissipation.

ARS1094

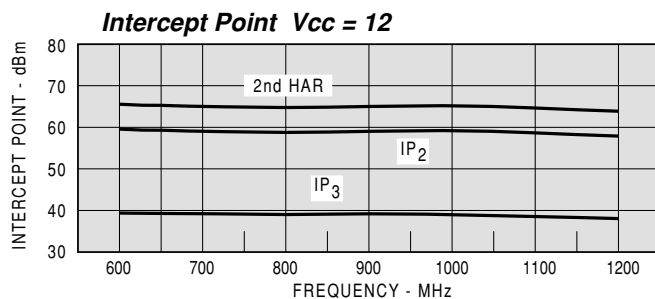
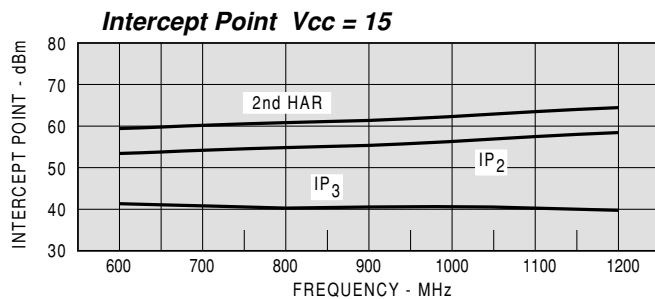
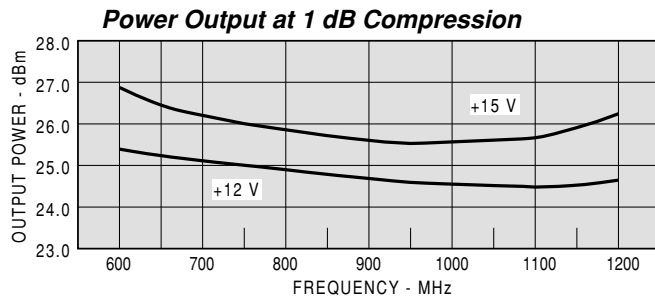
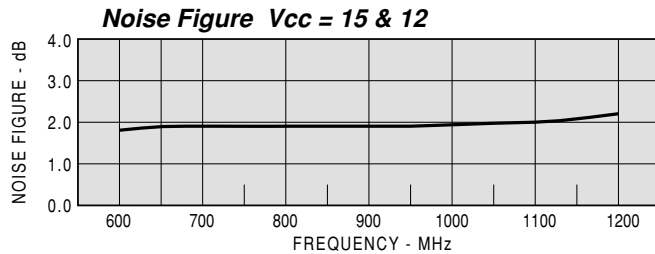
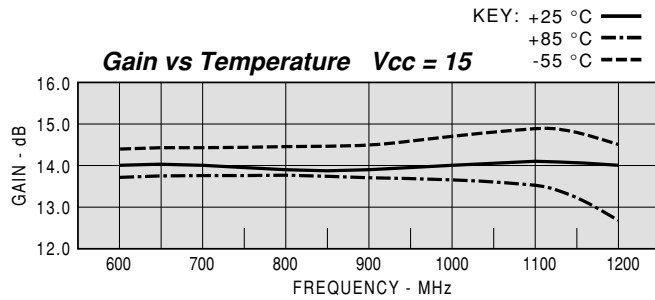
SMT0-8B Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AR1094				Vcc=+15V			lcc=177.29
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
500	1.37	1.93	14.05	92	0.51	-22.8	
550	1.39	1.83	14.00	82	0.52	-22.6	
600	1.41	1.71	13.97	73	0.51	-22.4	
650	1.43	1.61	13.97	64	0.51	-22.2	
700	1.45	1.51	13.97	54	0.53	-22.1	
750	1.47	1.42	13.97	45	0.55	-21.8	
800	1.50	1.33	13.94	35	0.55	-21.6	
850	1.52	1.26	13.93	25	0.54	-21.4	
900	1.53	1.21	13.96	15	0.57	-21.3	
950	1.53	1.19	13.97	4	0.59	-21.1	
1000	1.50	1.21	14.00	-7	0.60	-21.1	
1050	1.44	1.28	14.08	-18	0.65	-21.0	
1100	1.37	1.41	14.15	-31	0.70	-21.0	
1150	1.36	1.60	14.15	-45	0.77	-21.4	
1200	1.55	1.87	14.03	-60	0.86	-22.0	

Model: AR1094				Vcc=+15V				lcc=177.29
FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	0.16	-115.2	5.04	91.5	0.073	-42.6	0.32	144.9
550	0.16	-116.4	5.01	82.2	0.074	-47.4	0.29	140.6
600	0.17	-117.0	5.00	73.1	0.076	-52.4	0.26	136.1
650	0.18	-117.5	5.00	63.9	0.077	-58.0	0.23	131.0
700	0.18	-117.2	5.00	54.4	0.079	-64.1	0.20	126.1
750	0.19	-118.0	5.00	44.6	0.081	-70.0	0.17	120.4
800	0.20	-120.0	4.98	34.7	0.083	-77.2	0.14	112.5
850	0.21	-123.2	4.97	25.0	0.085	-84.1	0.12	102.6
900	0.21	-127.5	4.99	14.8	0.086	-92.3	0.10	86.2
950	0.21	-134.4	4.99	4.0	0.088	-100.7	0.09	63.7
1000	0.20	-144.6	5.01	-6.7	0.089	-110.3	0.10	39.4
1050	0.18	-160.6	5.06	-18.5	0.090	-121.1	0.12	18.2
1100	0.16	173.0	5.10	-31.1	0.089	-132.4	0.17	2.2
1150	0.15	129.8	5.10	-45.0	0.086	-145.6	0.23	-11.0
1200	0.22	83.8	5.03	-60.5	0.079	-160.2	0.30	-23.7

Model: AR1094				Vcc=+12V			lcc=163.54
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
500	1.40	2.03	13.81	92	0.51	-22.8	
550	1.42	1.92	13.76	82	0.52	-22.5	
600	1.44	1.81	13.74	73	0.50	-22.3	
650	1.45	1.70	13.74	64	0.51	-22.1	
700	1.47	1.59	13.76	55	0.52	-21.8	
750	1.49	1.50	13.77	45	0.55	-21.6	
800	1.52	1.42	13.75	35	0.55	-21.3	
850	1.54	1.34	13.75	25	0.54	-21.1	
900	1.55	1.28	13.79	15	0.57	-21.1	
950	1.54	1.25	13.81	4	0.60	-20.7	
1000	1.52	1.25	13.86	-7	0.61	-20.6	
1050	1.47	1.30	13.95	-18	0.65	-20.6	
1100	1.41	1.41	14.04	-31	0.72	-20.5	
1150	1.43	1.59	14.04	-46	0.79	-20.9	
1200	1.64	1.84	13.91	-61	0.88	-21.5	

Model: AR1094				Vcc=+12V				lcc=163.54
FREQ	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
500	0.17	-115.1	4.91	91.6	0.073	-40.7	0.34	146.5
550	0.17	-117.3	4.87	82.3	0.075	-44.8	0.32	142.4
600	0.18	-118.3	4.87	73.3	0.076	-50.7	0.29	138.0
650	0.19	-119.1	4.87	64.1	0.078	-55.4	0.26	133.5
700	0.19	-119.3	4.87	54.7	0.081	-60.7	0.23	128.6
750	0.20	-120.2	4.88	44.8	0.083	-67.2	0.20	123.4
800	0.21	-122.6	4.87	34.9	0.086	-74.3	0.17	116.8
850	0.21	-125.7	4.87	25.2	0.088	-81.1	0.15	108.6
900	0.22	-130.5	4.89	15.0	0.088	-88.9	0.12	96.2
950	0.21	-137.7	4.91	4.2	0.092	-97.8	0.11	79.1
1000	0.20	-148.5	4.93	-6.7	0.093	-107.9	0.11	58.3
1050	0.19	-165.3	4.98	-18.5	0.094	-118.8	0.13	36.5
1100	0.17	167.6	5.04	-31.4	0.094	-129.2	0.17	16.7
1150	0.18	126.8	5.04	-45.5	0.090	-142.4	0.23	0.2
1200	0.24	84.1	4.96	-61.4	0.084	-157.4	0.30	-15.1