

AR2098

30 TO 2000 MHz; 1 Watt Power TO-8B CASCADABLE AMPLIFIER

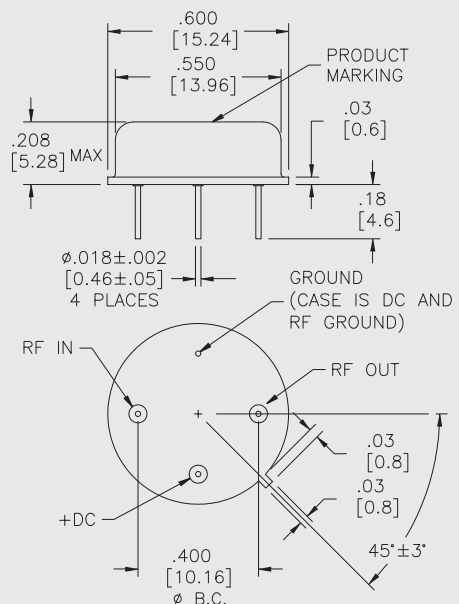
Typical Values

High Output Power	> 1 Watt
High Third Order I.P.	+42 dBm
Low Noise Figure	< 5.2 dB
High Performance Thin Film	
TO-8B Package	

AR2098

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TO-8B Package for Amplifiers



SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	30-2100 MHz	30-2000 MHz	30-2000 MHz
Small Signal Gain (Min.)	10.8 dB	10.0 dB	9.5 dB
Gain Flatness (Max.)	±0.35 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)			
100-2000 MHz	< 5.2 dB	6.0 dB	6.5 dB
30-100 MHz	< 7.5 dB	8.5 dB	9.0 dB
SWR (Max.) Input/Output	< 1.6:1	1.8:1	2.0:1
Power Output (Min.) @ 1dB comp.	> +30.0 ^A dBm	+29.0 ^A dBm	(+28.5 ^A) dBm
Reverse Isolation	20.0 dB	—	—
DC Current (Max.)	370.0 mA	380.0 mA	390.0 mA

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

^A 1.0 dBm lower below 400 MHz. () -55/+71 °C.

INTERMODULATION PERFORMANCE

Typical @ 25 °C, at 100 MHz	Vcc = 12.0	Vcc = 15.0
Second Order Harmonic Intercept Point	+74 dBm	+61 dBm
Second Order Two Tone Intercept Point	+68 dBm	+55 dBm
Third Order Two Tone Intercept Point	+41 dBm	+42 dBm

ABSOLUTE MAXIMUM RATINGS

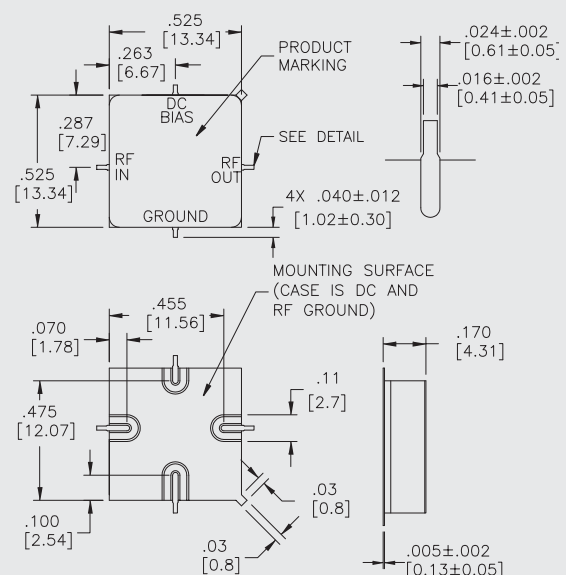
Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+110 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power ¹	+22 dBm
Maximum Short Term Input Power (1 Minute Max.)	200 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+85 °C
Thermal Resistance ² (θjc)	+10 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+57.8 °C

¹ If no load on output; decrease input power (no damage) by 10 dBm.

² Thermal resistance is based on total power dissipation.

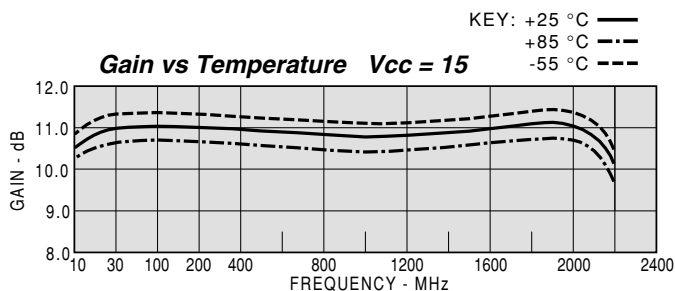
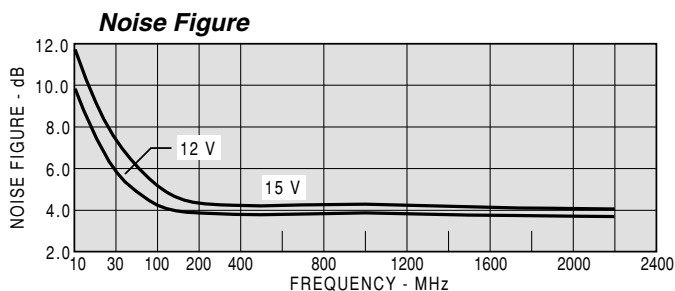
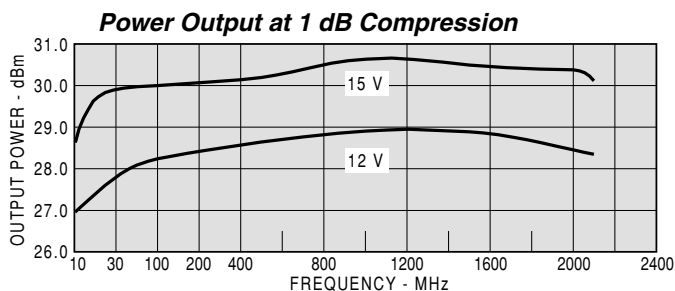
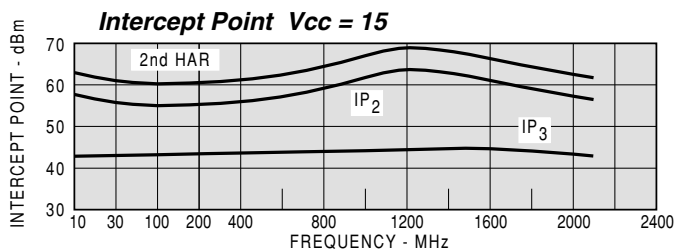
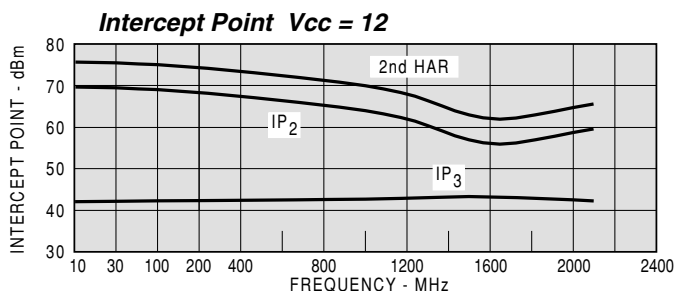
ARS2098

SMT0-8B Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

MODEL: AR2098				$V_{cc} = +15V$		$I_{cc} = 364.40 \text{ mA}$	
FREQ.	VSWR	VSWR	GAIN	GROUP DELAY	REV/ISO		
MHZ	IN	OUT	DB	NSEC	DB		
10	1.87	2.00	10.3		-20.8		
20	1.57	1.58	10.9		-20.3		
50	1.49	1.55	11.0		-20.2		
100	1.49	1.53	10.9	0.547	-20.2		
200	1.51	1.48	11.0	0.416	-20.3		
400	1.52	1.37	10.8	0.372	-20.6		
600	1.55	1.25	10.7	0.361	-21.0		
800	1.58	1.17	10.6	0.354	-21.3		
1000	1.56	1.18	10.6	0.351	-21.5		
1200	1.50	1.25	10.6	0.371	-21.4		
1400	1.45	1.31	10.7	0.368	-20.8		
1600	1.33	1.27	11.0	0.405	-20.0		
1800	1.23	1.20	11.1	0.423	-19.1		
2000	1.42	1.43	10.9	0.486	-18.3		
2200	2.02	2.21	10.0	0.519	-18.0		

MODEL: AR2098				$V_{cc} = +15V$		$I_{cc} = 364.40 \text{ mA}$	
FREQ.	S11	S11	S21	S12	S22		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	
10	0.30	-37.8	3.27	-147.6	0.091	32	0.33 157.8
20	0.22	-27.7	3.49	-166.1	0.097	15	0.22 163.8
50	0.20	-19.4	3.53	179.9	0.098	2	0.21 171.2
100	0.20	-24.1	3.52	170.1	0.098	-4	0.21 168.8
200	0.20	-40.5	3.53	155.1	0.097	-14	0.19 161.8
400	0.21	-73.6	3.47	128.3	0.093	-29	0.16 150.2
600	0.22	-100.5	3.42	102.4	0.089	-42	0.11 146.0
800	0.22	-123.2	3.38	76.8	0.086	-53	0.08 161.3
1000	0.22	-145.4	3.38	51.6	0.084	-64	0.08 -172.6
1200	0.20	-165.4	3.39	25.0	0.086	-75	0.11 -169.3
1400	0.19	172.5	3.43	-1.5	0.091	-86	0.13 179.1
1600	0.14	144.3	3.54	-30.5	0.100	-100	0.12 152.8
1800	0.10	90.8	3.58	-60.9	0.111	-116	0.09 90.5
2000	0.17	4.0	3.50	-96.1	0.122	-136	0.18 4.0
2200	0.34	-38.6	3.15	-133.4	0.126	-160	0.38 -42.8

MODEL: AR2098				$V_{cc} = +12V$		$I_{cc} = 371.30 \text{ mA}$	
FREQ.	VSWR	VSWR	GAIN	GROUP DELAY	REV/ISO		
MHZ	IN	OUT	DB	NSEC	DB		
10	1.87	2.04	10.2		-21.3		
20	1.60	1.70	10.7		-20.8		
50	1.53	1.69	10.8		-20.7		
100	1.52	1.67	10.8	0.540	-20.7		
200	1.54	1.63	10.8	0.410	-20.8		
400	1.55	1.50	10.7	0.367	-21.1		
600	1.57	1.37	10.6	0.357	-21.3		
800	1.57	1.24	10.5	0.352	-21.5		
1000	1.60	1.17	10.5	0.350	-21.4		
1200	1.53	1.17	10.5	0.370	-21.1		
1400	1.45	1.20	10.6	0.366	-20.4		
1600	1.33	1.17	10.8	0.403	-19.5		
1800	1.23	1.17	10.8	0.418	-18.7		
2000	1.44	1.50	10.6	0.475	-17.9		
2200	2.05	2.33	9.6	0.506	-17.7		