

ARH209

10 TO 250 MHz TO-8BH CASCADABLE AMPLIFIER

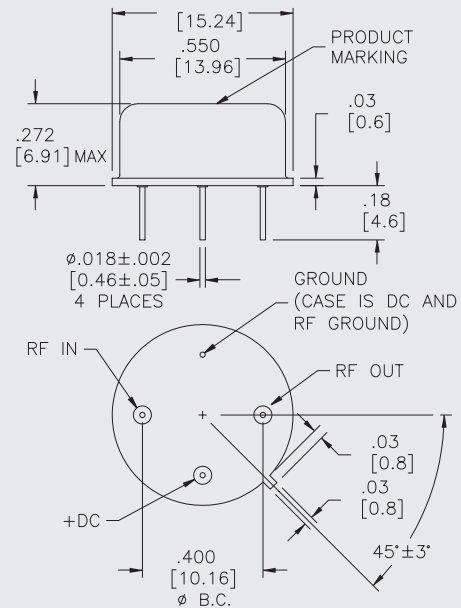
Typical Values

High Output Power	+28.0 dBm
High Second Order I.P.	+70 dBm
High Third Order I.P.	+44 dBm
High Performance Thin Film	
Tall TO-8BH Package	

ARH209

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TO-8BH Package for Amplifiers



SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	10-300 MHz	10-250 MHz	10-250 MHz
Small Signal Gain (Min.)	10.8 dB	10.0 dB	9.5 dB
Gain Flatness (Max.)	±0.5 dB	±0.8 dB	±1.0 dB
Noise Figure (Max.)	5.0 dB	5.7 dB	6.3 dB
SWR (Max.) Input/Output	<1.5:1	1.8:1	1.9:1
Power Output (Min.) @ 1dB comp.	+28.0 dBm	+27.0 dBm	+26.5 dBm
Reverse Isolation	17.0 dB	—	—
DC Current (Max.)	235 mA	245 mA	255 mA

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

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 100 MHz

Second Order Harmonic Intercept Point	+76 dBm
Second Order Two Tone Intercept Point	+70 dBm
Third Order Two Tone Intercept Point	+44 dBm

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ABSOLUTE MAXIMUM RATINGS

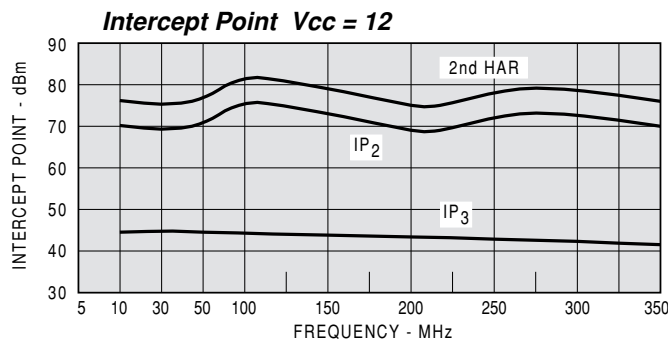
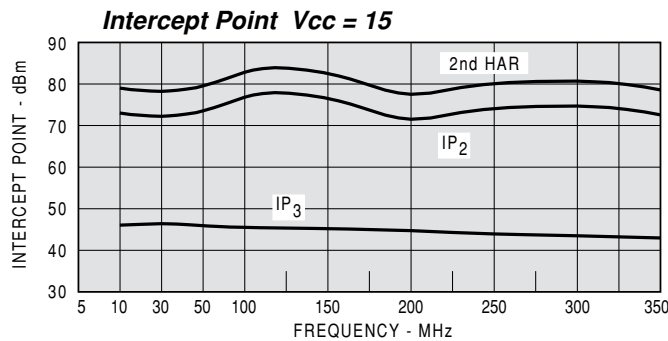
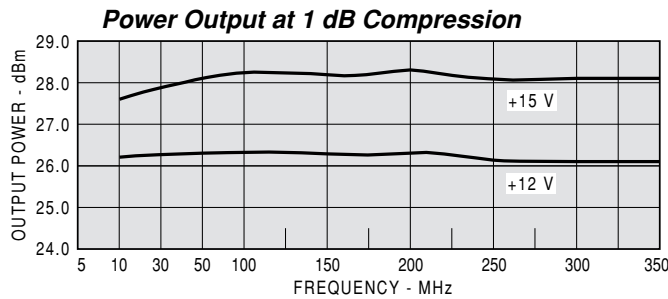
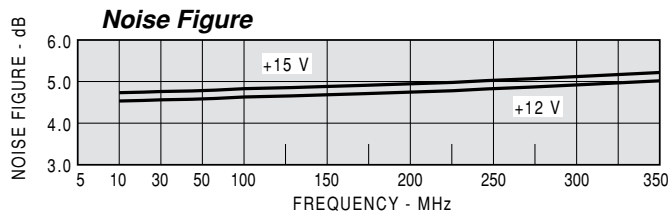
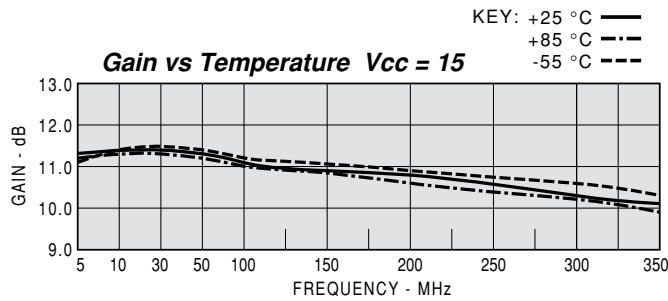
Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+17 Volts
Maximum Continuous RF Input Power	+20 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+100 °C
Thermal Resistance¹ (θjc)	+11 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+39.7 °C

¹ Thermal resistance is based on total power dissipation.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: ARH209		Vcc=+15V				Icc=235.4	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.36	1.39	11.37	-176		-17.3	
10	1.30	1.33	11.47	180		-17.2	
30	1.27	1.30	11.41	171	1.1	-17.2	
50	1.27	1.32	11.38	164	0.95	-17.2	
100	1.24	1.37	11.24	149	0.87	-17.2	
150	1.21	1.44	11.03	134	0.84	-17.2	
200	1.15	1.52	10.87	119	0.84	-17.1	
250	1.09	1.63	10.68	103	0.84	-17.0	
300	1.03	1.73	10.43	89	0.83	-16.9	
350	1.06	1.84	10.16	74	0.83	-16.8	

LINEAR S-PARAMETERS

Model: ARH209		Vcc=+15V				Icc=235		
FREQ.	S11	S21	S12	S22				
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.15	-29	3.70	-175.6	0.137	6	0.16	155.6
30	0.12	-14.8	3.72	171.1	0.137	-3.5	0.13	178.3
50	0.12	-18.4	3.71	164.3	0.138	-7.1	0.14	-177.4
100	0.11	-31.5	3.65	148.6	0.138	-13.5	0.16	-172.7
150	0.09	-45.8	3.56	133.6	0.137	-20.2	0.18	-173.8
200	0.07	-62.5	3.50	118.5	0.139	-27.1	0.21	-176.5
250	0.04	-81.2	3.42	103.4	0.141	-34.2	0.24	178.1
300	0.01	-127.7	3.32	88.5	0.144	-41.7	0.27	171.2
350	0.03	106.3	3.22	73.6	0.145	-48.7	0.30	163.1
400	0.07	81.2	3.12	58.8	0.147	-56.9	0.33	154.5
450	0.10	64.1	2.99	44.0	0.150	-64.9	0.36	145.3

Model: ARH209		Vcc=+12V				Icc=185.4	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.36	1.38	11.32	-176		-17.3	
10	1.30	1.32	11.43	180		-17.1	
30	1.28	1.30	11.38	171	0.99	-17.2	
50	1.27	1.32	11.33	164	0.97	-17.2	
100	1.25	1.37	11.18	149	0.86	-17.3	
150	1.21	1.43	10.97	133	0.85	-17.2	
200	1.16	1.53	10.81	118	0.83	-17.1	
250	1.09	1.63	10.61	103	0.84	-17.0	
300	1.03	1.73	10.35	88	0.83	-16.9	
350	1.06	1.84	10.07	73	0.83	-16.8	

LINEAR S-PARAMETERS

Model: ARH209		Vcc=+12V				Icc=185.47		
FREQ.	S11	S21	S12	S22				
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.15	-28.6	3.68	-175.6	0.137	6	0.16	155.2
10	0.13	-19.8	3.73	180.0	0.139	2	0.14	165.5
30	0.12	-15.0	3.71	171.1	0.138	-3.5	0.13	178.4
50	0.12	-18.3	3.69	164.1	0.138	-7.2	0.14	-177.0
100	0.11	-32.6	3.62	148.6	0.137	-13.8	0.15	-172.4
150	0.10	-46.8	3.54	133.4	0.137	-20.4	0.18	-173.5
200	0.07	-64.3	3.47	118.4	0.139	-27.3	0.21	-176.0
250	0.04	-84.1	3.39	103.2	0.141	-34.0	0.24	178.2
300	0.02	-133.8	3.29	88.2	0.143	-41.4	0.27	171.4
350	0.03	112.9	3.19	73.3	0.145	-49.1	0.30	163.3
400	0.07	84.1	3.08	58.4	0.147	-56.8	0.33	154.6
450	0.10	65.6	2.96	43.5	0.149	-64.8	0.36	145.4