

# ARH609

## 10 TO 600 MHz TO-8BH CASCADABLE AMPLIFIER

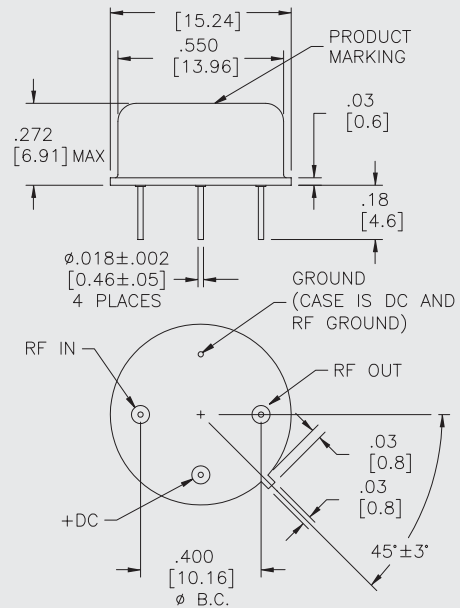
**Typical Values**

<b>Unbelievable Second Order I.P.</b> .....	<b>+74 dBm</b>
<b>High Power Output</b> .....	<b>+26.0 dBm</b>
<b>Medium Gain</b> .....	<b>13.8 dB</b>
<b>Low Phase Noise @ 10 Hz</b> .....	<b>-145 dBc/Hz</b>
<b>High Performance Thin Film</b>	
<b>Tall TO-8BH Package</b>	

**ARH609**

### ARH609

**TO-8BH Package for Amplifiers**



## SPECIFICATIONS\*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	
Frequency (Min.)	10-600 MHz	10-600 MHz	10-600 MHz	
Small Signal Gain (Min.)	13.8 <sup>^</sup> dB	13.0 <sup>^</sup> dB	12.0 <sup>^</sup> dB	
Gain Flatness (Max.)	±0.4 dB	±0.6 dB	±0.7 dB	
Noise Figure (Max.)	<5.0 dB	5.5 dB	6.0 dB	
SWR (Max.)	Input/Output	1.7:1	1.9:1	
Power Output (Min.) @ 1dB comp.	10-300 MHz	+24.5 dBm	+23.5 dBm	+23.0 dBm
	300-600 MHz	+26.0 dBm	+24.5 dBm	+24.0 dBm
Reverse Isolation	17.0 dB	—	—	
DC Current (Max.)	235 mA	242 mA	247 mA	

\* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.  
<sup>^</sup> 0.5 dB lower above 500 MHz.

## INTERMODULATION PERFORMANCE

Typical @ 25 °C	+12 volts	+15 volts
Second Order Harmonic Intercept Point .....	+76 dBm	+80 dBm
Second Order Two Tone Intercept Point .....	+70 dBm	+74 dBm
Third Order Two Tone Intercept Point .....	+38 dBm	+41 dBm

## ABSOLUTE MAXIMUM RATINGS

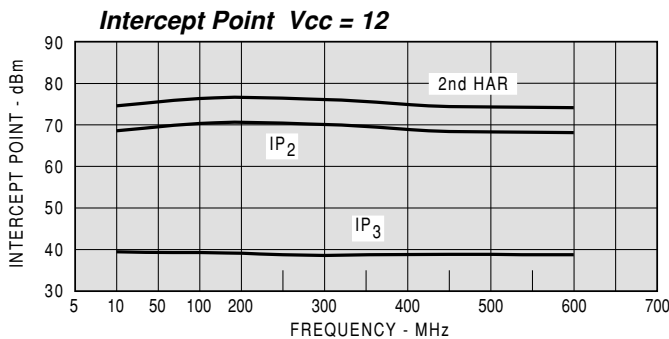
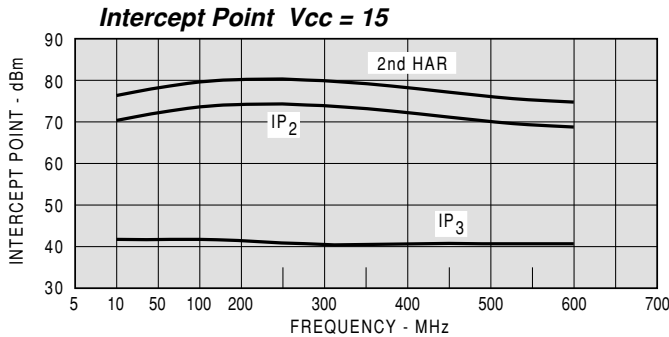
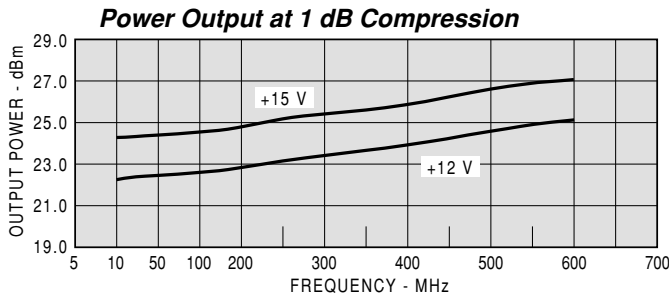
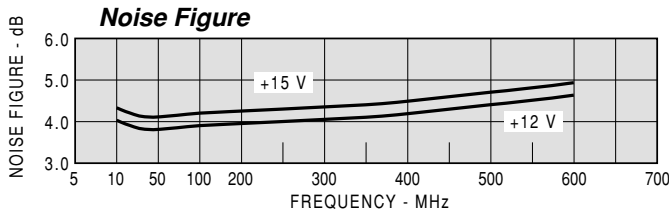
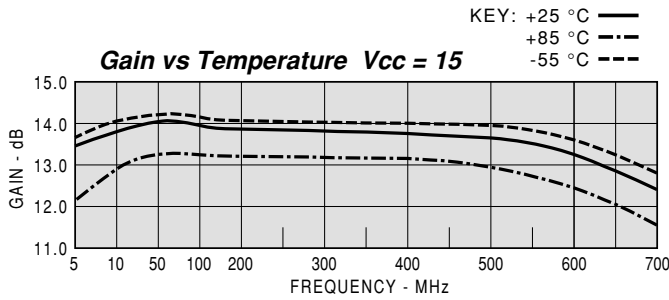
Storage Temperature .....	-62 to +125 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+17 Volts
Maximum Continuous RF Input Power .....	+20 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	125 Milliwatts
Maximum Peak Power (3 μsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+95 °C
Thermal Resistance <sup>1</sup> (θjc; Vcc = 15) .....	+12 °C/Watt
Junction Temperature Rise Above Case (Tjc; Vcc = 15) . . .	+42.3 °C

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

DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: ARH609		Vcc=+15V				Icc=233.95	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.78	1.44	13.79	20		-19.6	
10	1.48	1.42	14.08	8		-19.2	
50	1.31	1.43	14.20	-14	1.0	-19.1	
100	1.31	1.43	14.18	-31	0.92	-19.0	
150	1.31	1.44	14.12	-47	0.91	-19.1	
200	1.33	1.42	14.11	-64	0.91	-18.9	
250	1.34	1.40	14.11	-80	0.90	-18.6	
300	1.34	1.37	14.07	-96	0.91	-18.5	
350	1.34	1.33	14.05	-113	0.91	-18.2	
400	1.32	1.28	14.01	-129	0.94	-17.9	
450	1.30	1.25	13.96	-146	0.95	-17.6	
500	1.30	1.25	13.82	-164	0.98	-17.2	
550	1.32	1.33	13.64	178	0.98	-16.9	
600	1.39	1.47	13.35	160	1.00	-16.6	
650	1.52	1.66	12.95	142	1.00	-16.5	
700	1.70	1.92	12.48	124	0.99	-16.3	

Model: ARH609		LINEAR S-PARAMETERS						Icc=233.95	
		Vcc=+15V							
FREQ.		S11		S21		S12		S22	
MHz		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5		0.28	-45.5	4.89	19.9	0.105	-154.8	0.18	67.0
10		0.19	-39.8	5.06	8.4	0.109	-167.1	0.17	38.4
50		0.14	-32.6	5.13	-13.8	0.111	175.0	0.18	6.3
100		0.13	-47.0	5.12	-31.0	0.112	165.7	0.18	-1.2
150		0.14	-63.3	5.08	-47.4	0.111	159.1	0.18	-5.5
200		0.14	-81.3	5.07	-63.7	0.114	151.7	0.17	-10.2
250		0.14	-97.8	5.08	-79.9	0.118	144.1	0.17	-14.7
300		0.15	-115.0	5.05	-96.2	0.119	135.2	0.16	-18.3
350		0.14	-133.0	5.04	-112.6	0.123	128.1	0.14	-20.3
400		0.14	-154.5	5.02	-129.4	0.127	119.4	0.12	-18.3
450		0.13	179.0	4.99	-146.5	0.132	111.1	0.11	-8.7
500		0.13	148.2	4.91	-164.1	0.138	102.1	0.11	5.5
550		0.14	113.0	4.81	178.3	0.143	92.4	0.14	16.7
600		0.16	78.3	4.65	160.2	0.148	81.7	0.19	19.4
650		0.21	48.0	4.44	142.0	0.150	71.2	0.25	15.6
700		0.26	23.0	4.21	124.2	0.152	60.8	0.31	7.5
750		0.32	1.3	3.92	16.1	0.155	49.3	0.38	-3.0
800		0.38	-18.1	3.59	88.6	0.155	38.6	0.44	-14.4

Model: ARH609		Vcc=+12V				Icc=187.16	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.74	1.43	13.75	18		-19.5	
10	1.46	1.43	14.04	8		-19.1	
50	1.32	1.45	14.12	-14	1.10	-19.1	
100	1.31	1.45	14.11	-31	0.96	-19.1	
150	1.32	1.45	14.06	-48	0.90	-19.0	
200	1.33	1.43	14.01	-64	0.91	-18.9	
250	1.34	1.41	14.02	-80	0.91	-18.6	
300	1.35	1.37	14.00	-97	0.91	-18.5	
350	1.34	1.32	13.97	-113	0.91	-18.3	
400	1.32	1.27	13.90	-130	0.94	-17.9	
450	1.3	1.24	13.84	-147	0.95	-17.6	
500	1.3	1.25	13.72	-165	0.98	-17.2	
550	1.33	1.32	13.52	178	0.98	-16.9	
600	1.4	1.46	13.24	160	1.00	-16.7	
650	1.54	1.65	12.83	141	1.00	-16.5	
700	1.72	1.91	12.35	123	1.00	-16.4	

