

ARJ109

0.5 TO 200 MHz GULLWING CASCADABLE AMPLIFIER

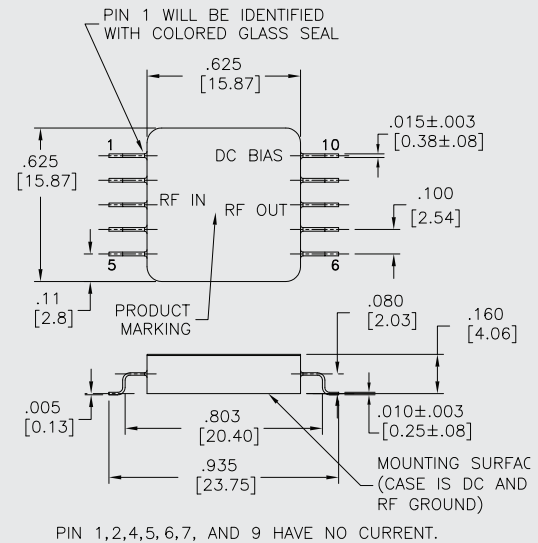
Typical Values

High Output Power	+28.5 dBm
High Second Order I.P.	+75.0 dBm
High Third Order I.P.	+44.0 dBm
High Performance Thin Film 10-pin Gullwing Package	

ARJ109

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10-pin Gullwing Package

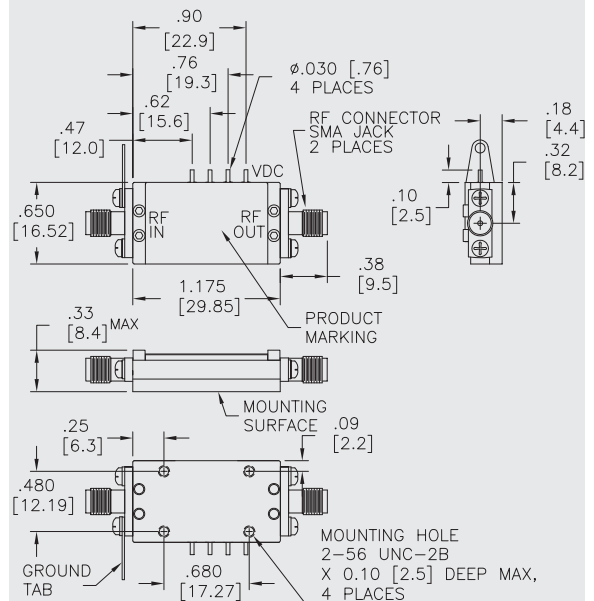


SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)		0.5-300 MHz	0.5-200 MHz
Small Signal Gain (Min.)	10.8 [^] dB	10.0 [^] dB	9.5 [^] dB
Gain Flatness (Max.)	<±0.2 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	4.5 dB	5.2 dB	5.7 dB
SWR (Max.) Input/Output	1.5:1 [†]	1.8:1 [†]	1.9:1 [†]
Power Output (Min.) @ 1 dB comp.	+28.5 dBm	+27.5 dBm	+27.0 dBm
Reverse Isolation	17.0 dB	—	—
DC Current (Max.)	235 mA	245 mA	255 mA

ACPR109

Cougarpak® CPR



INTERMODULATION PERFORMANCE

Typical @ 25 °C	+12 volts	+15 volts
Second Order Harmonic Intercept Point	+79 dBm	+81 dBm
Second Order Two Tone Intercept Point	+73 dBm	+75 dBm
Third Order Two Tone Intercept Point	+43 dBm	+44 dBm

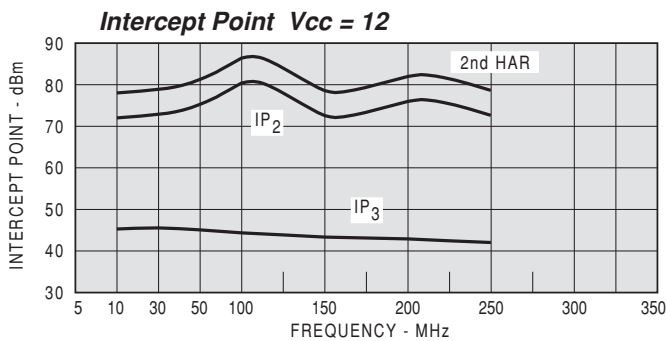
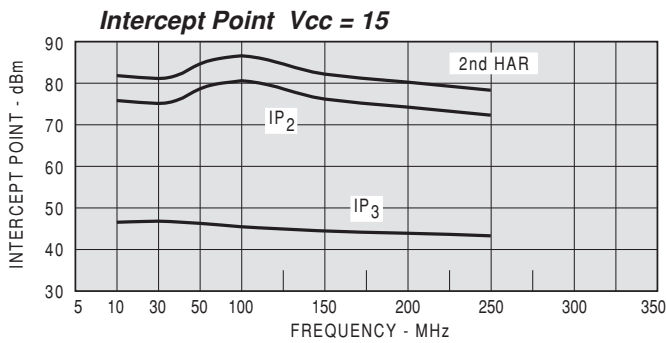
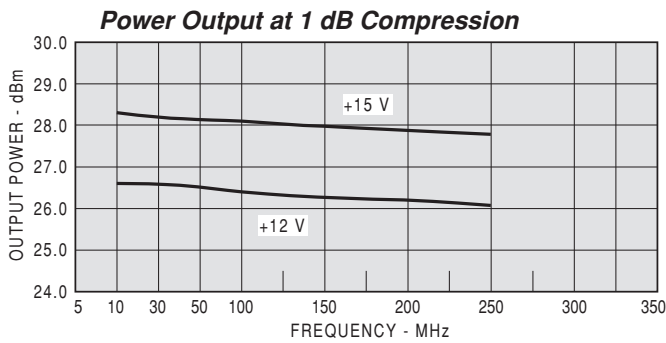
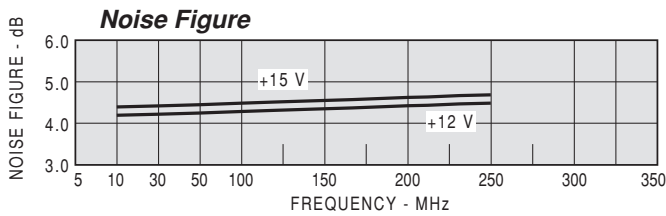
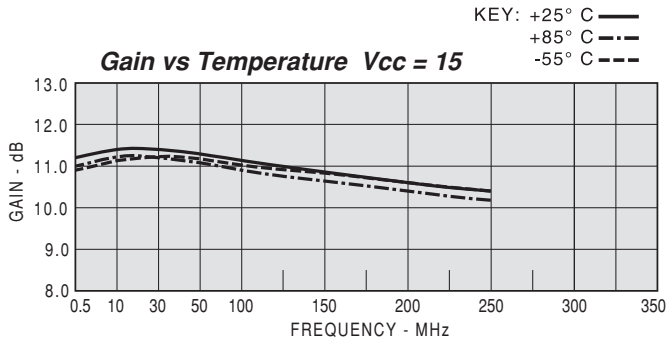
ABSOLUTE MAXIMUM RATINGS

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.)	200 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+100 °C
Thermal Resistance ¹ (θ _{jc} ; V _{cc} = 15)	+15 °C/Watt
Junction Temperature Rise Above Case (T _{jc} ; V _{cc} = 15)	+39.7 °C

¹ Thermal resistance is based on total power dissipation.

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: ARJ109 Vcc=+15V Icc=235.78

FREQ. MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
0.5	1.56	1.78	11.14	-164		-17.2
1	1.28	1.58	11.32	-172		-17.0
5	1.12	1.46	11.54	180		-16.8
10	1.11	1.45	11.55	177	1.5	-16.8
50	1.10	1.46	11.39	160	1.2	-16.9
100	1.08	1.49	11.19	140	1.1	-17.0
150	1.03	1.54	10.99	120	1.1	-17.0
200	1.03	1.60	10.76	101	1.1	-16.9
250	1.09	1.67	10.48	82	1.1	-16.8

Model: ARJ109 Vcc=+15V Icc=235.78

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.5	0.22	-56.5	3.61	-163.7	0.138	18.5	0.28	145.8
1	0.12	-53.5	3.68	-171.8	0.141	9.3	0.22	157.1
5	0.06	-24.4	3.77	179.9	0.145	1.2	0.19	172.3
10	0.05	-14.7	3.78	176.8	0.145	-1.2	0.18	175.3
50	0.05	-15.8	3.71	159.6	0.143	-11.0	0.19	175.0
100	0.04	-31.2	3.63	139.8	0.141	-21.5	0.20	169.9
150	0.02	-51.5	3.54	120.3	0.142	-32.0	0.21	162.8
200	0.01	130.5	3.45	101.0	0.142	-42.4	0.23	154.8
250	0.04	108.0	3.34	81.8	0.144	-52.8	0.25	145.7
300	0.07	92.7	3.22	62.8	0.145	-63.3	0.27	136.2

Model: ARJ109 Vcc=+12V Icc=185.57

FREQ. MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB
0.5	1.55	1.77	11.14	-164		-17.2
1	1.28	1.57	11.31	-172		-17.0
5	1.12	1.46	11.53	180		-16.8
10	1.11	1.44	11.55	177	1.5	-16.8
50	1.10	1.45	11.38	159	1.2	-16.9
100	1.07	1.48	11.18	140	1.1	-17.0
150	1.03	1.54	10.99	120	1.1	-17.0
200	1.03	1.60	10.75	101	1.1	-16.9
250	1.10	1.67	10.48	82	1.1	-16.8

Model: ARJ109 Vcc=+12V Icc=185.57

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.5	0.22	-56.8	3.61	-163.6	0.138	18.5	0.28	145.2
1	0.12	-53.8	3.68	-171.7	0.141	9.4	0.22	156.9
5	0.05	-25.0	3.77	180.0	0.144	1.1	0.19	172.2
10	0.05	-14.6	3.78	176.7	0.145	-1.3	0.18	175.2
50	0.05	-15.8	3.71	159.5	0.142	-10.8	0.18	175.3
100	0.04	-31.3	3.62	139.8	0.141	-21.4	0.19	170.6
150	0.01	-54.6	3.54	120.3	0.141	-31.6	0.21	163.4
200	0.01	132.8	3.45	101.2	0.142	-42.1	0.23	155.4
250	0.05	110.0	3.34	82.0	0.144	-52.7	0.25	146.4
300	0.08	93.5	3.22	63.0	0.145	-63.3	0.27	136.9