

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

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50° C	-55 to +85° C
Frequency (Min.)	0.5-300 MHz	0.5-200 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
DC Current (Max.)	235 mA	245 mA	255 mA

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

[^] 0.5 dB lower Above 150 MHz. [†] 0.2:1 higher below 1 MHz

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

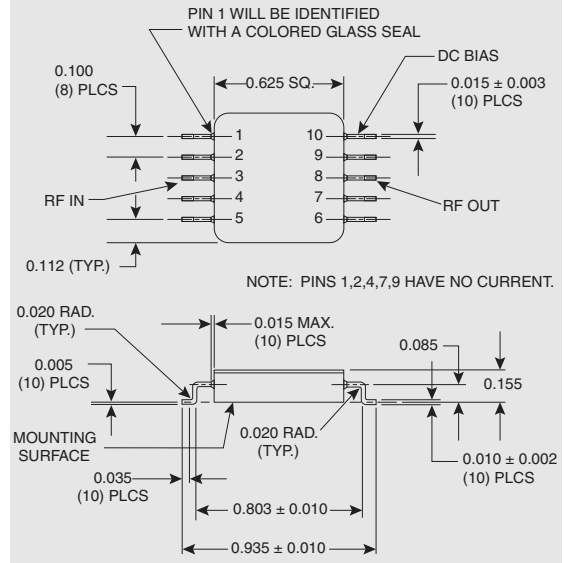
ABSOLUTE MAXIMUM RATINGS

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 (θjc; Vcc = 15)	+15° C/Watt
Junction Temperature Rise Above Case (Tjc; Vcc = 15) ..	+39.7° C

¹ Thermal resistance is based on total power dissipation.

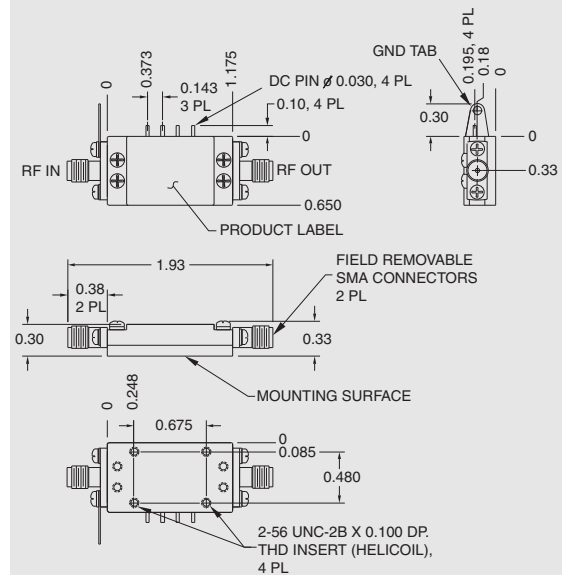
ARJ109

10-pin Gullwing Package



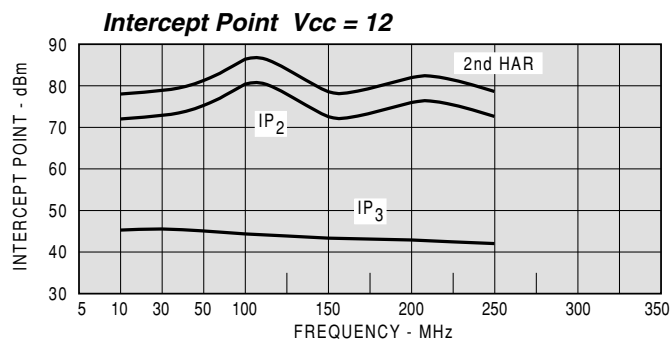
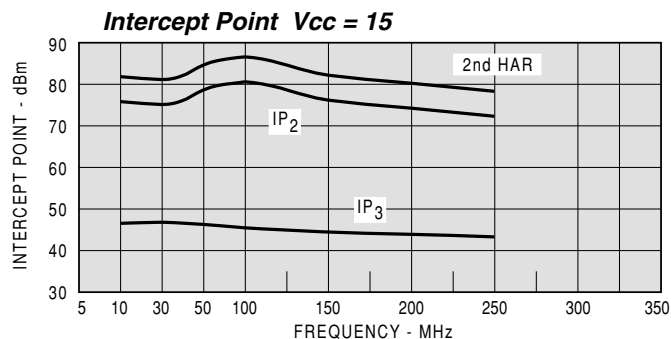
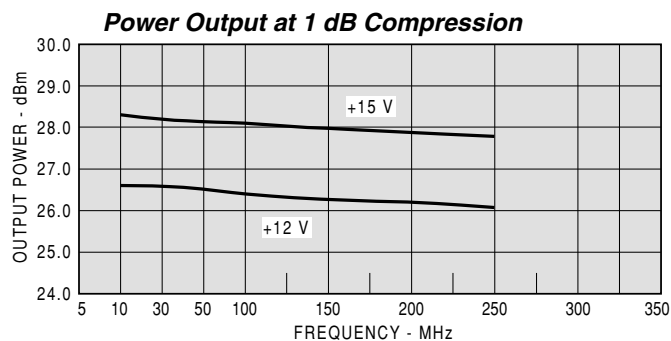
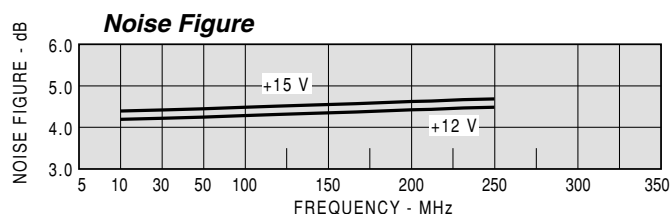
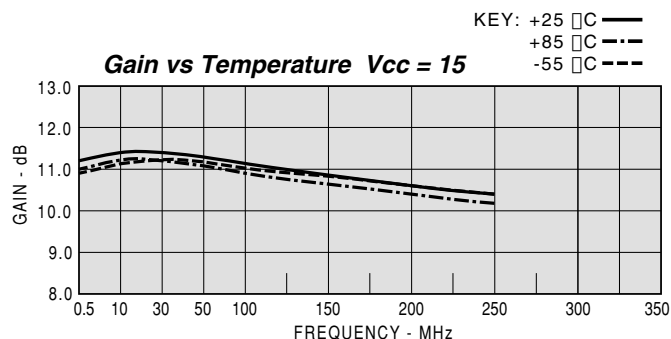
ACPR109

Cougarpak® CPR



DIMENSIONS ARE IN INCHES (MILLIMETERS)

TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

Model: ARJ109		Vcc=+15V				lcc=235.78
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
MHZ	IN	OUT	DB	DEG	NSEC	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				lcc=235.78
FREQ.	S11	S21	S12	S22		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG
0.5	0.22	-56.5	3.61	-163.7	0.138	18.5
1	0.12	-53.5	3.68	-171.8	0.141	9.3
5	0.06	-24.4	3.77	179.9	0.145	1.2
10	0.05	-14.7	3.78	176.8	0.145	-1.2
50	0.05	-15.8	3.71	159.6	0.143	-11.0
100	0.04	-31.2	3.63	139.8	0.141	-21.5
150	0.02	-51.5	3.54	120.3	0.142	-32.0
200	0.01	130.5	3.45	101.0	0.142	-42.4
250	0.04	108.0	3.34	81.8	0.144	-52.8
300	0.07	92.7	3.22	62.8	0.145	-63.3

Model: ARJ109		Vcc=+12V				lcc=185.57
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
MHZ	IN	OUT	DB	DEG	NSEC	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				lcc=185.57
FREQ.	S11	S21	S12	S22		
MHz	MAG	ANG	MAG	ANG	MAG	ANG
0.5	0.22	-56.8	3.61	-163.6	0.138	18.5
1	0.12	-53.8	3.68	-171.7	0.141	9.4
5	0.05	-25.0	3.77	180.0	0.144	1.1
10	0.05	-14.6	3.78	176.7	0.145	-1.3
50	0.05	-15.8	3.71	159.5	0.142	-10.8
100	0.04	-31.3	3.62	139.8	0.141	-21.4
150	0.01	-54.6	3.54	120.3	0.141	-31.6
200	0.01	132.8	3.45	101.2	0.142	-42.1
250	0.05	110.0	3.34	82.0	0.144	-52.7
300	0.08	93.5	3.22	63.0	0.145	-63.3