

# A2CP16221 8.0-16.0 GHz COUGARPAK® AMPLIFIER

Typical Values	A2CP16221
Ultra Broad Bandwidth .....	6.0-16.0 GHz
High Gain .....	20.0 dB
Low Noise Figure .....	3.8 dB
High Reverse Isolation .....	50 dB
High Performance Thin Film	
High Frequency Two-stage CougarPak® Package	

## SPECIFICATIONS\*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	8.0-16.0 GHz
Frequency (Min.)	6.0-16.0 GHz	8.0-16.0 GHz	8.0-16.0 GHz	8.0-16.0 GHz
Small Signal Gain (Min.)	20.0 dB	18.5 dB	17.5 dB	
Gain Flatness (Max.)	±0.5 dB	±1.1 dB	±1.2 dB	
Noise Figure (Max.)				
8-16 GHz	3.8 dB	4.5 dB	5.0 dB	
SWR (Max.)	1.8:1	2.0:1	2.1:1	Input/Output
Power Output (Min.) @ 1dB comp.	+24.0 dBm	+22.7 dBm	+21.7 dBm	
Reverse Isolation	50.0 dB	—	—	
DC Current (Max.)	179 mA	185 mA	188 mA	

\* Measured in a 50-ohm system at +12 Vdc unless otherwise specified.

## INTERMODULATION PERFORMANCE

Typical @ 25 °C	A2CP16221
Second Order Harmonic Intercept Point .....	+46 dBm
Second Order Two Tone Intercept Point .....	+40 dBm
Third Order Two Tone Intercept Point .....	+32 dBm

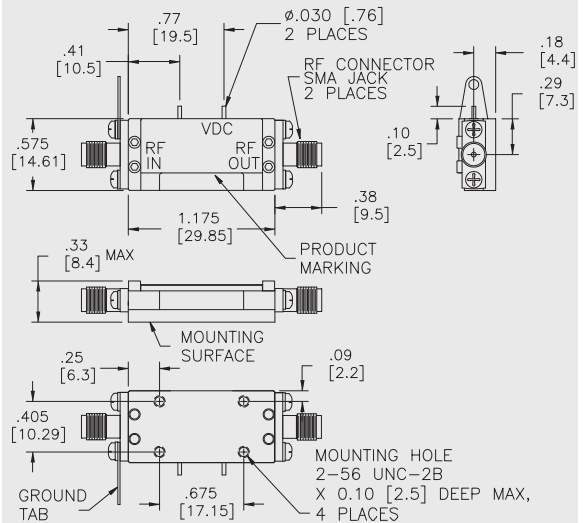
## ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-65 to +150 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+14 Volts
Maximum Continuous RF Input Power .....	+20 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	+23 dBm
Maximum Peak Power (3 μsec Max.) .....	+27 dBm
Burn-in Temperature .....	+125 °C
Thermal Resistance <sup>1</sup> (θjc) .....	+30.0 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+27.0 °C

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

## A2CP16221

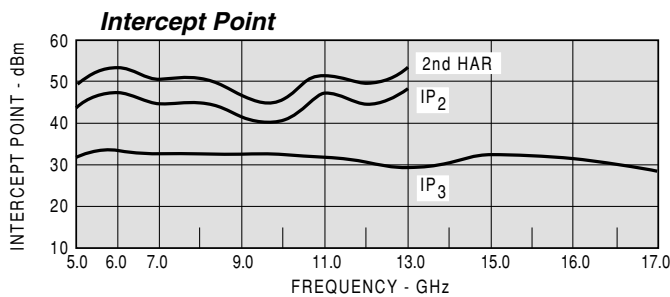
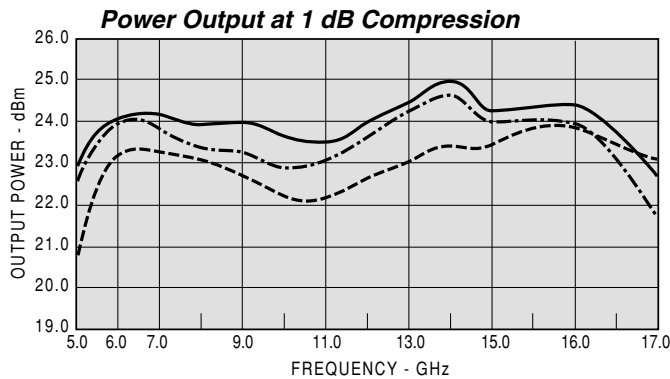
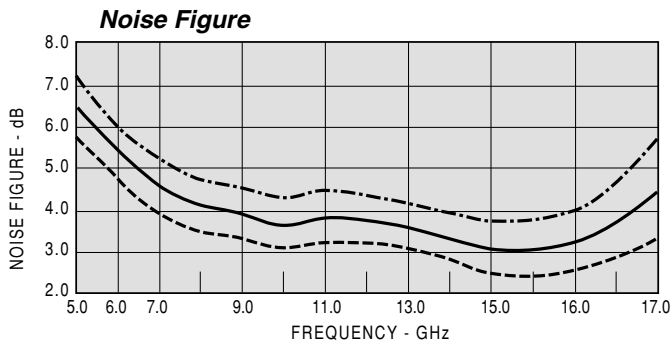
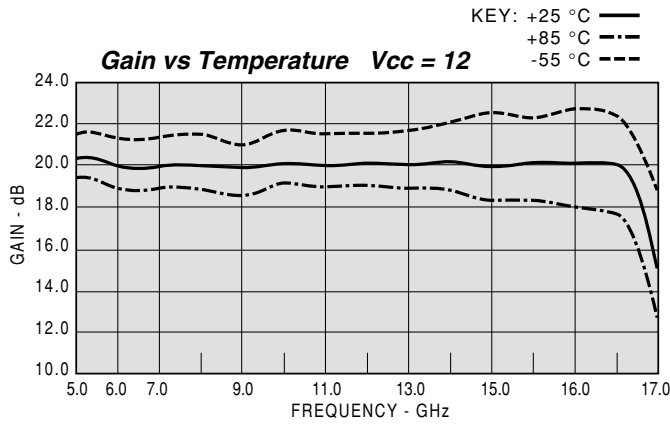
### High Frequency CougarPak® SMA Package (two-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: A2CP16221 Vcc=+12V Icc=179.10

FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
GHZ	IN	OUT	DB	DEG	NSEC	DB
7.0	1.37	1.28	19.74	78.10	0.39	-58.92
7.5	1.32	1.22	19.96	07.70	0.39	-56.64
8.0	1.32	1.18	19.77	-60.77	0.37	-55.24
8.5	1.27	1.14	19.54	-126.46	0.36	-59.54
9.0	1.16	1.11	19.45	169.85	0.35	-57.28
9.5	1.11	1.08	19.69	106.07	0.36	-53.43
10.0	1.27	1.08	20.04	40.50	0.37	-52.64
10.5	1.41	1.10	20.12	-26.86	0.37	-52.51
11.0	1.46	1.16	19.90	-92.26	0.36	-53.11
11.5	1.58	1.32	19.90	-156.42	0.36	-51.70
12.0	1.58	1.55	19.98	137.74	0.37	-50.00
12.5	1.41	1.72	19.79	72.12	0.36	-51.48
13.0	1.17	1.60	20.02	06.88	0.37	-48.62
13.5	1.10	1.29	20.26	-61.77	0.38	-47.56
14.0	1.37	1.20	20.23	-132.01	0.39	-47.15
14.5	1.57	1.30	20.02	157.76	0.40	-46.37
15.0	1.43	1.20	20.07	87.18	0.40	-46.34
15.5	1.09	1.06	20.19	10.97	0.43	-44.57
16.0	1.09	1.25	19.92	-71.37	0.48	-42.10
16.5	1.18	1.81	18.63	-160.16	0.51	-38.53
17.0	1.20	1.82	14.24	106.58	0.47	-35.94

Model: A2CP16221 Vcc=+12V Icc=179.10

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7.0	0.16	-7.70	9.67	78.19	0.00	-68.20	0.12	80.68
7.5	0.14	-53.45	9.93	7.89	0.00	-113.18	0.10	31.88
8.0	0.14	-106.88	9.73	-60.50	0.00	168.38	0.08	-23.89
8.5	0.12	-161.93	9.49	-126.18	0.00	117.38	0.07	-91.03
9.0	0.08	155.75	9.40	170.10	0.00	53.93	0.05	-155.91
9.5	0.06	153.52	9.67	106.35	0.00	-2.72	0.04	153.96
10.0	0.12	109.24	10.08	40.65	0.00	-39.75	0.04	108.48
10.5	0.17	5.54	10.13	-26.67	0.00	-109.85	0.05	61.99
11.0	0.19	-71.84	9.89	-92.01	0.00	-164.31	0.07	7.71
11.5	0.22	-125.24	9.90	-156.22	0.00	143.93	0.14	-46.40
12.0	0.22	-170.34	9.99	137.97	0.00	79.26	0.21	-95.63
12.5	0.17	148.40	9.78	72.29	0.00	15.09	0.26	-144.64
13.0	0.09	118.86	10.03	7.03	0.00	-46.93	0.23	169.40
13.5	0.06	-156.51	10.31	-61.59	0.00	-98.92	0.13	140.75
14.0	0.18	-171.19	10.25	-131.76	0.00	-170.97	0.09	165.49
14.5	0.22	141.97	9.98	158.10	0.01	123.58	0.13	149.56
15.0	0.16	84.07	10.03	87.53	0.01	53.16	0.09	118.72
15.5	0.04	12.33	10.16	11.21	0.01	-24.88	0.02	148.72
16.0	0.03	-174.46	9.82	-71.13	0.01	-112.47	0.11	-144.21
16.5	0.07	177.06	8.43	-159.58	0.01	160.86	0.28	164.44
17.0	0.10	96.64	5.11	107.36	0.02	86.91	0.29	105.18