

ACP16021

8.0 TO 16.0 GHz COUGARPAK® AMPLIFIER

Typical Values

	ACP16021
Medium Output Power	+24.0 dBm
Medium Gain	9.5 dB
Low Noise Figure	3.4 dB
High Performance Thin Film High Frequency Single-stage CougarPak®	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	8.0-16.5 GHz	8.0-16.0 GHz	8.0-16.0 GHz
Small Signal Gain (Min.)	9.5 dB	8.5 [^] dB	8.0 [^] dB
Gain Flatness (Max.)	±0.5 dB	±0.7 dB	±0.7 dB
Noise Figure (Max.)	3.4 dB	4.5 dB	5.2 dB
SWR (Max.)	Input 1.6:1† Output 1.3:1	2.0:1† 1.7:1	2.0:1† 1.8:1
Power Output @ 1 dB (Min.)	+24.0 dBm	+22.0 dBm	+21.5 dBm
Reverse Isolation	25.0 dB	—	—
DC Current (Max.)	117.0 mA	123.0 mA	126.0 mA

* Measured in a 50-ohm system at +12 Vdc unless otherwise specified.
[^] 0.5 dB lower above 15.0 GHz. † 0.2 higher below 7.5 GHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C

	ACP16021
Second Order Harmonic Intercept Point	+50 dBm
Second Order Two Tone Intercept Point	+45 dBm
Third Order Two Tone Intercept Point	+30 dBm

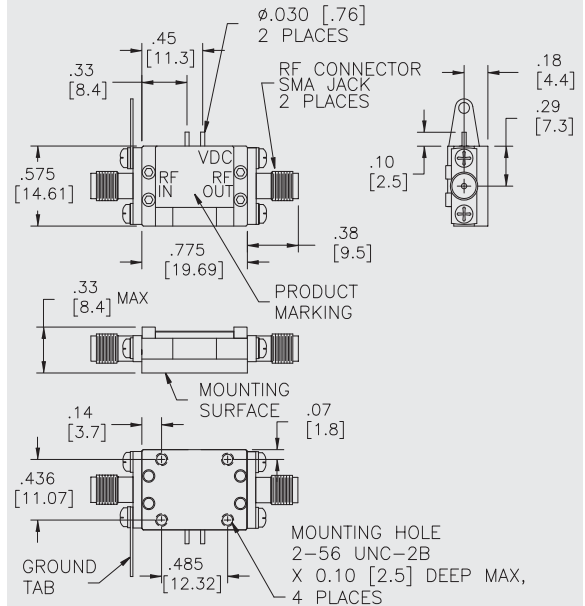
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +150 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+14 Volts
Maximum Continuous RF Input Power	+19 dBm
Maximum Short Term Input Power (1 Minute Max.)	22 dBm
Maximum Peak Power (3 μsec Max.)	27 dBm
Burn-in Temperature	+125 °C
Thermal Resistance ¹ (θjc)	25 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+35 °C

¹ Thermal resistance is based on total power dissipation.

ACP16021

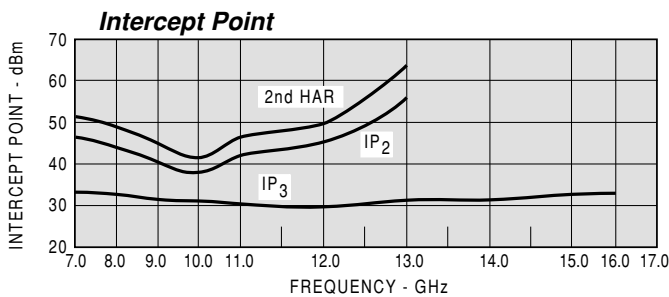
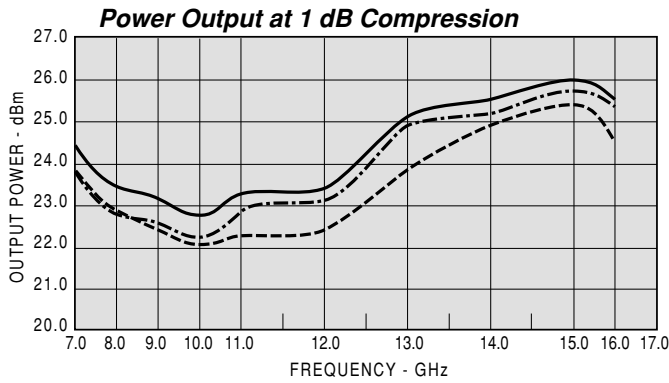
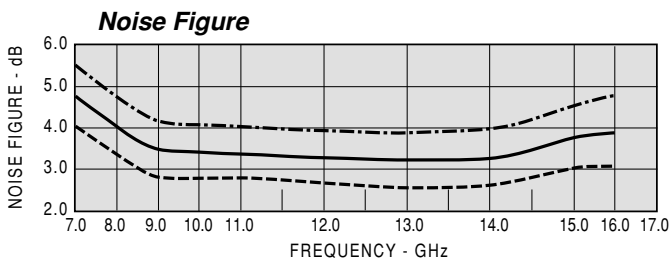
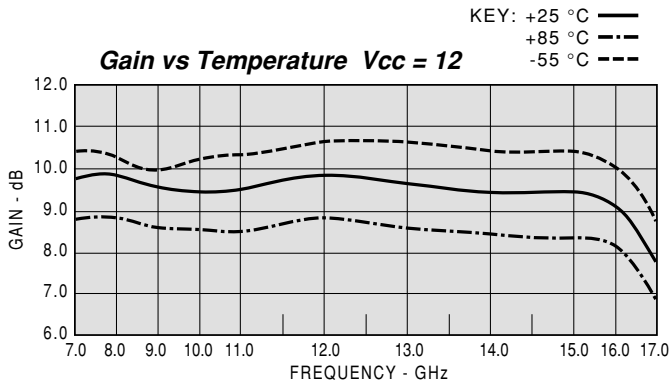
High Frequency CougarPak® SMA Package (single-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: ACP16021			Vcc= +12V			lcc= 115.65	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
GHZ	IN	OUT	DB	DEG	NSEC	DB	
6.0	1.99	1.35	10.38	93.20	0.13	-30.34	
6.5	2.10	1.38	10.07	70.01	0.11	-29.83	
7.0	1.96	1.38	9.80	51.08	0.10	-30.12	
7.5	1.81	1.30	9.68	31.45	0.12	-29.46	
8.0	1.64	1.24	9.86	10.78	0.12	-29.03	
8.5	1.59	1.19	9.61	-8.32	0.11	-28.76	
9.0	1.78	1.16	9.64	-27.61	0.11	-28.83	
9.5	1.85	1.20	9.52	-45.97	0.10	-28.33	
10.0	1.70	1.23	9.49	-64.20	0.11	-28.38	
10.5	1.57	1.25	9.47	-82.69	0.09	-27.20	
11.0	1.45	1.31	9.46	-100.72	0.09	-27.46	
11.5	1.40	1.31	9.66	-119.46	0.13	-25.93	
12.0	1.59	1.25	9.90	-140.96	0.10	-25.58	
12.5	1.64	1.31	9.55	-161.00	0.12	-25.29	
13.0	1.73	1.33	9.59	-179.80	0.07	-24.66	
13.5	1.53	1.24	9.44	159.83	0.13	-23.76	
14.0	1.32	1.23	9.48	137.49	0.13	-22.78	
14.5	1.22	1.17	9.29	116.12	0.13	-22.50	
15.0	1.27	1.05	9.28	93.49	0.13	-22.51	
15.5	1.43	1.09	9.11	70.06	0.13	-22.15	
16.0	1.39	1.24	8.97	44.86	0.14	-21.73	
16.5	1.08	1.22	8.50	16.40	0.17	-21.66	
17.0	1.77	1.20	7.33	-11.51	0.15	-21.97	
17.5	2.02	1.37	6.35	-34.56	0.12	-22.32	

Model: ACP16021

Vcc= +12V

lcc= 115.65

LINEAR S-PARAMETERS

FREQ	S11		S21		S12		S22	
GHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
6.0	0.33	-43.08	3.30	93.21	0.03	26.05	0.15	170.64
6.5	0.36	-71.06	3.19	69.97	0.03	9.92	0.16	131.32
7.0	0.32	-92.94	3.10	51.06	0.03	-5.33	0.16	101.31
7.5	0.29	-113.60	3.05	31.63	0.03	-22.95	0.13	75.48
8.0	0.24	-118.57	3.12	10.72	0.03	-39.20	0.11	40.30
8.5	0.23	-115.75	3.03	-8.43	0.04	-57.93	0.09	6.08
9.0	0.28	-123.55	3.04	-27.61	0.04	-70.23	0.08	-25.04
9.5	0.30	-141.88	2.99	-45.89	0.04	-86.37	0.09	-31.95
10.0	0.26	-179.10	2.98	-64.14	0.04	-101.09	0.11	-27.33
10.5	0.22	117.48	2.98	-82.67	0.04	-114.99	0.11	-30.48
11.0	0.19	40.69	2.98	-100.74	0.04	-131.03	0.14	-36.81
11.5	0.17	5.27	3.04	-119.46	0.05	-142.57	0.13	-31.32
12.0	0.23	20.40	3.13	-141.02	0.05	-161.58	0.11	-27.52
12.5	0.24	10.61	3.00	-161.02	0.06	-178.68	0.14	-33.91
13.0	0.27	-7.48	3.01	-179.73	0.06	-168.49	0.14	-40.52
13.5	0.21	-21.65	2.97	159.93	0.06	150.97	0.11	-55.84
14.0	0.14	-48.77	2.98	137.52	0.07	131.04	0.10	-78.11
14.5	0.10	-32.35	2.93	116.07	0.07	113.95	0.07	-77.77
15.0	0.12	1.76	2.92	93.42	0.07	93.04	0.02	-67.36
15.5	0.18	-14.36	2.85	70.09	0.08	75.38	0.04	-28.13
16.0	0.16	-41.45	2.81	44.81	0.08	51.80	0.11	1.42
16.5	0.04	17.44	2.67	16.54	0.08	26.22	0.10	-2.59
17.0	0.28	50.39	2.33	-11.41	0.08	-0.23	0.09	-6.42
17.5	0.34	25.53	2.08	-34.53	0.08	-21.12	0.16	7.51
18.0	0.27	-18.70	2.05	-64.98	0.08	-54.13	0.13	-12.89