

ACP14016

6.0 TO 14.0 GHz COUGARPAK® AMPLIFIER

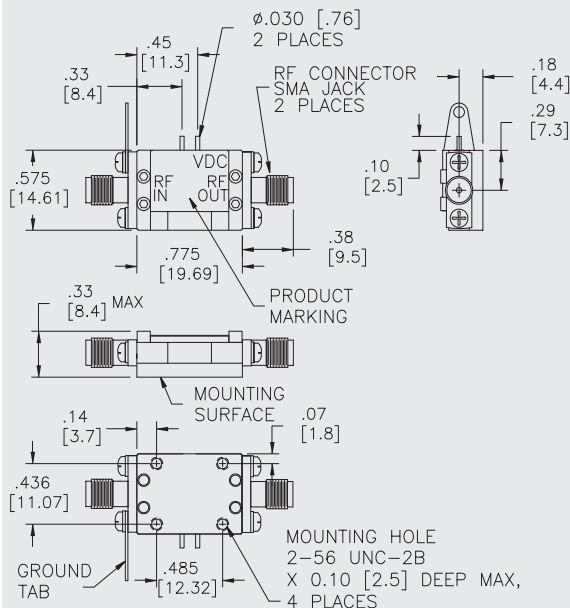
Typical Values

High Efficiency	65 mA at +5 Vdc
Medium Output Power	+16.0 dBm
Medium Gain	11.2 dB
Low Noise Figure	3.2 dB
High Performance Thin Film	
High Frequency Single-stage CougarPak®	

ACP14016

ACP14016

High Frequency CougarPak® SMA Package (single-stage)



SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	6.0-14.0 GHz	6.0-14.0 GHz	6.0-14.0 GHz
Small Signal Gain (Min.)	11.2 dB	10.5 dB	9.5 dB
Gain Flatness (Max.)	±0.5 dB	±0.8 dB	±1.3 dB
Noise Figure (Max.)			
6.0-8.0 GHz	4.0 dB	5.0 dB	5.5 dB
8.0-14.0 GHz	3.2 dB	4.0 dB	4.5 dB
SWR (Max.)	1.6:1	2.0:1	2.0:1
Power Output (Min.)	+16.0 dBm	+14.0 dBm	+13.5 dBm
Reverse Isolation	21.0 dB	—	—
DC Current (Max.)	65.0 mA	67.0 mA	70.0 mA

* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

Typical @ 25 °C

ACP14016

Second Order Harmonic Intercept Point	+50 dBm
Second Order Two Tone Intercept Point	+45 dBm
Third Order Two Tone Intercept Point	+26 dBm

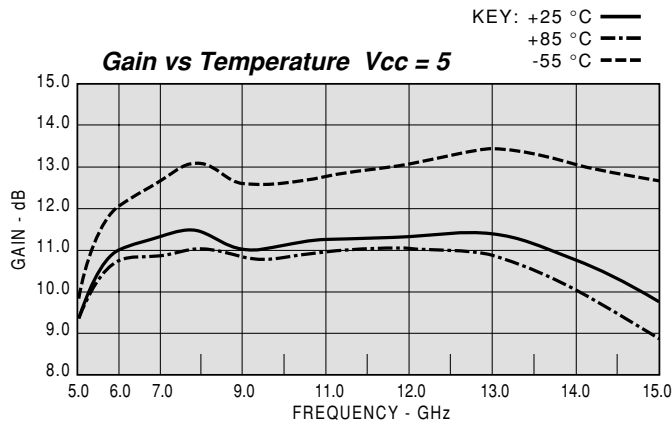
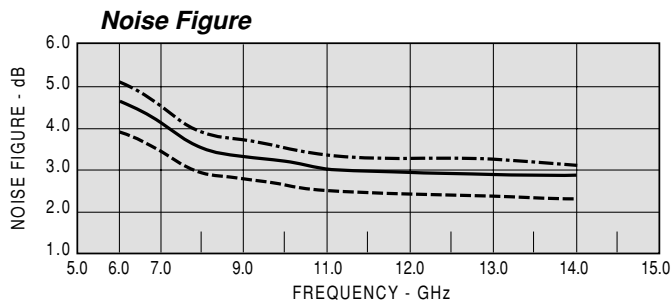
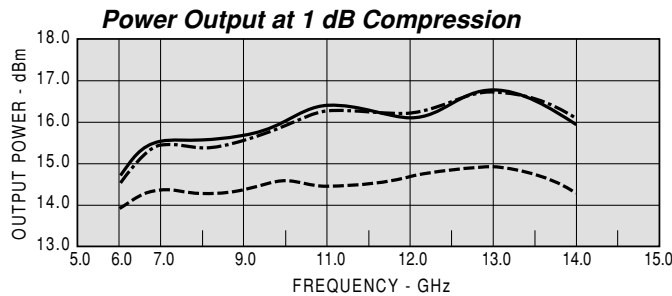
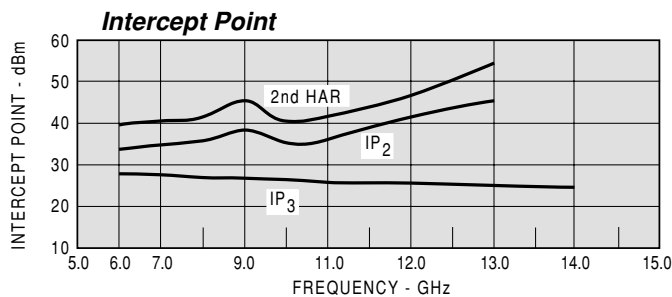
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +150 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+8 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 ¹ (θjc)	+7.6 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+2.5 °C

¹ Thermal resistance is based on total power dissipation.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

Model: ACP14016				Vcc= +5V		Icc= 63.64	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	DB
GHZ	IN	OUT	DB	DEG	NSEC		
5.5	1.68	1.54	10.56	58.57	00.18		-26.42
6.0	1.75	1.26	11.04	26.10	00.18		-25.66
6.5	1.79	1.06	11.16	-05.08	00.18		-25.14
7.0	1.73	1.22	11.38	-35.16	00.16		-24.47
7.5	1.59	1.43	11.52	-63.38	00.16		-23.70
8.0	1.33	1.56	11.58	-90.10	00.17		-23.13
8.5	1.13	1.62	11.22	-118.01	00.15		-22.63
9.0	1.23	1.68	11.23	-143.84	00.16		-22.25
9.5	1.30	1.64	11.33	-168.47	00.14		-21.92
10.0	1.18	1.47	11.30	165.81	0.13		-21.41
10.5	1.09	1.30	11.40	140.53	0.14		-20.91
11.0	1.32	1.19	11.41	115.28	0.14		-20.65
11.5	1.56	1.18	11.40	89.56	0.14		-20.34
12.0	1.63	1.22	11.42	63.74	0.14		-20.18
12.5	1.56	1.23	11.56	37.41	0.15		-19.57
13.0	1.41	1.17	11.59	9.60	0.15		-19.28
13.5	1.21	1.03	11.37	-19.01	0.15		-18.85
14.0	1.28	1.17	10.92	-46.67	0.15		-18.31
14.5	1.62	1.46	10.44	-75.03	0.14		-17.76

LINEAR S-PARAMETERS									
Model: ACP14016			Vcc= +5V				Icc= 63.64		
FREQ		S11		S21		S12		S22	
GHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5.5	0.24	133.59	3.24	164.25	0.04	86.95	0.21	162.87	
6.0	0.25	124.41	3.48	140.35	0.05	63.54	0.12	150.77	
6.5	0.27	114.72	3.59	118.34	0.05	43.42	0.05	-166.71	
7.0	0.25	104.30	3.64	97.86	0.05	27.54	0.12	-118.22	
7.5	0.22	88.82	3.72	78.73	0.06	7.26	0.20	-122.50	
8.0	0.14	65.63	3.86	61.85	0.06	-8.48	0.26	-130.35	
8.5	0.07	-2.70	3.67	43.69	0.06	-23.76	0.28	-135.78	
9.0	0.10	-87.52	3.62	25.66	0.07	-37.78	0.27	-137.64	
9.5	0.12	-119.99	3.64	11.48	0.07	-51.38	0.23	-139.23	
10.0	0.07	-140.29	3.68	-4.11	0.07	-68.28	0.17	-137.21	
10.5	0.04	-29.12	3.73	-20.29	0.08	-81.11	0.11	-115.10	
11.0	0.16	-35.78	3.72	-36.94	0.08	-93.57	0.11	-80.40	
11.5	0.23	-55.58	3.76	-52.01	0.08	-108.38	0.14	-63.82	
12.0	0.25	-78.87	3.77	-67.58	0.09	-122.08	0.15	-58.62	
12.5	0.23	-100.81	3.83	-86.00	0.09	-138.40	0.14	-62.64	
13.0	0.18	-118.90	3.90	-105.25	0.10	-154.94	0.12	-64.80	
13.5	0.11	-114.73	3.78	-123.81	0.10	-171.75	0.05	-54.67	
14.0	0.13	-79.25	3.57	-142.46	0.11	172.80	0.09	25.8	
14.5	0.24	-72.05	3.28	-160.89	0.11	151.62	0.21	22.14	
15.0	0.32	-78.96	3.11	-176.95	0.11	135.58	0.33	2.41	