

# ACP14016

## 6.0 TO 14.0 GHz COUGARPAK® AMPLIFIER

**Typical Values**

	<b>ACP14016</b>
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®	

### 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

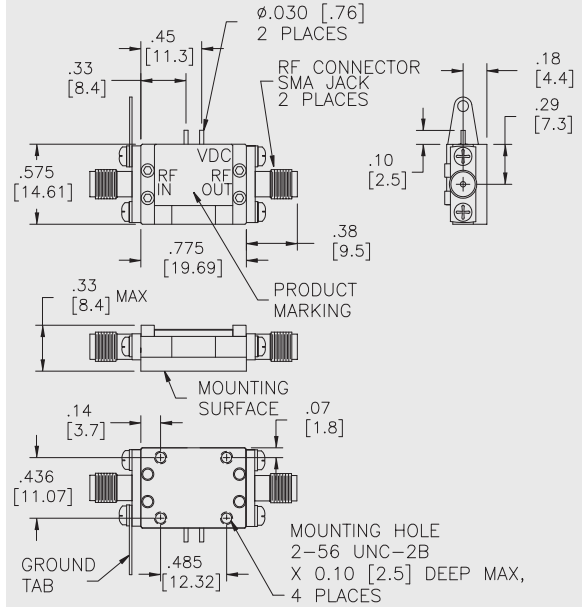
### ABSOLUTE MAXIMUM RATINGS

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 <sup>1</sup> (θjc) .....	+7.6 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+2.5 °C

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

### ACP14016

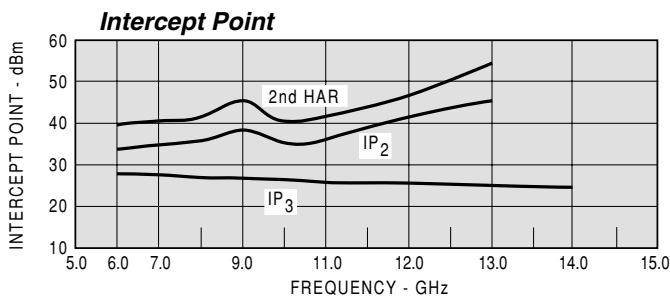
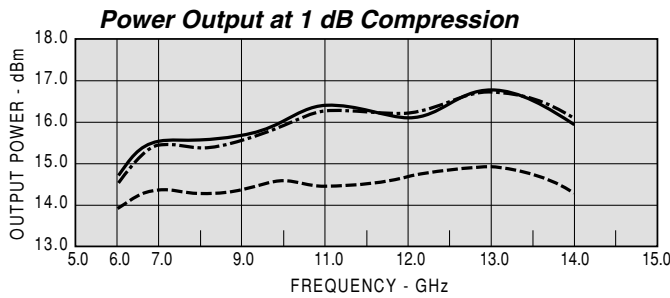
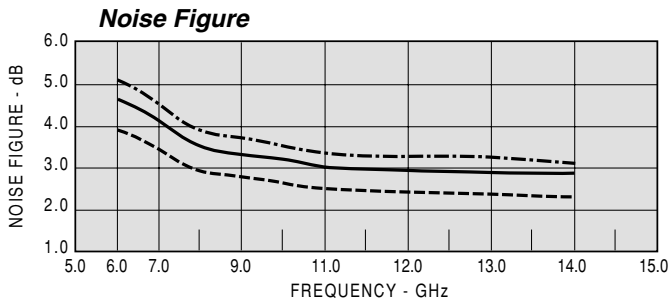
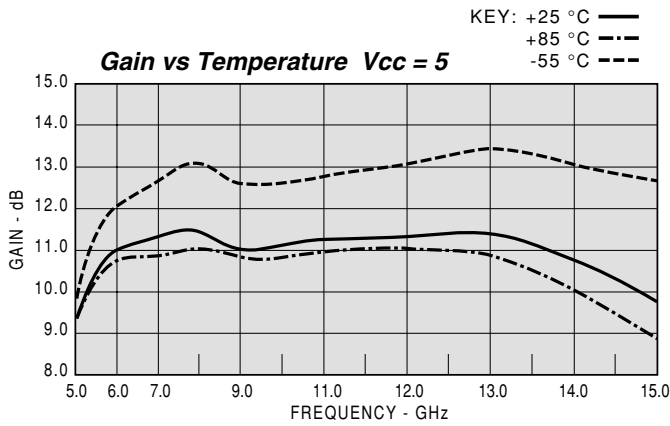
#### High Frequency CougarPak® SMA Package (single-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: ACP14016 Vcc= +5V lcc= 63.64

FREQ	SWR	SWR	GAIN	PHASE	DELAY	lcc= 63.64
GHZ	IN	OUT	DB	DEG	NSEC	REV/ISO
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

Model: ACP14016 Vcc= +5V lcc= 63.64

LINEAR S-PARAMETERS

FREQ	S11		S21		S12		S22	
	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