

# ACP18012

## 8.0 TO 18.0 GHz COUGARPAK® AMPLIFIER

Typical Values	ACP18012
High Efficiency	45 mA at +5 Vdc
Medium Gain	8.5 dB
Low Noise Figure	4.0 dB
High Performance Thin Film	
High Frequency Single-stage CougarPak®	

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	8.0-18.0 GHz	8.0-18.0 GHz	8.0-18.0 GHz
Small Signal Gain (Min.)	8.5 dB	7.5 dB	7.0 dB
Gain Flatness (Max.)	±0.6 dB	±0.8 dB	±1.0 dB
Noise Figure (Max.)	4.0 dB	5.0 <sup>^</sup> dB	5.5 <sup>^</sup> dB
SWR (Max.) Input/Output	1.6:1	2.0:1	2.0:1
Power Output (Min.) @ 1dB comp. 8.0-17.0 GHz	+15.0 dBm	+13.5 <sup>†</sup> dBm	+13.0 <sup>†</sup> dBm
Reverse Isolation	23.0 dB	—	—
DC Current (Max.)	45.0 mA	50.0 mA	55.0 mA

\* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.  
<sup>^</sup> 1.5 dB higher above 16.0 GHz. <sup>†</sup> 3.0 dBm lower above 17.0 GHz.

### INTERMODULATION PERFORMANCE

Typical @ 25 °C	ACP18012
Second Order Harmonic Intercept Point	+43 dBm
Second Order Two Tone Intercept Point	+38 dBm
Third Order Two Tone Intercept Point	+25 dBm

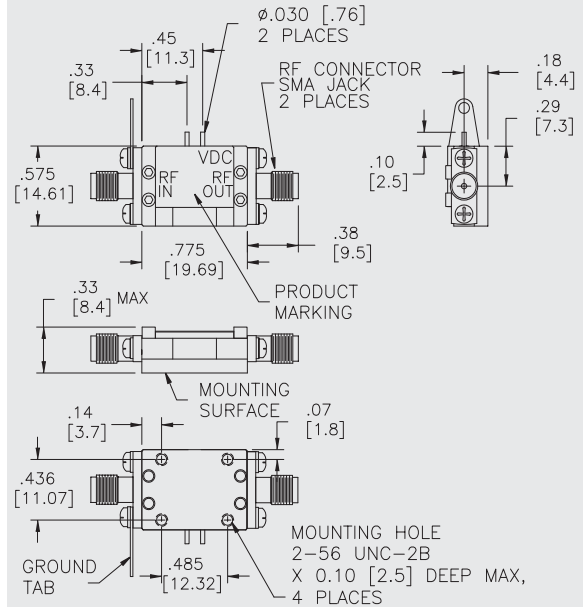
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +150 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+8 Volts
Maximum Continuous RF Input Power	+12.5 dBm
Burn-in Temperature	+125 °C
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> )	133 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> )	+30 °C

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

### ACP18012

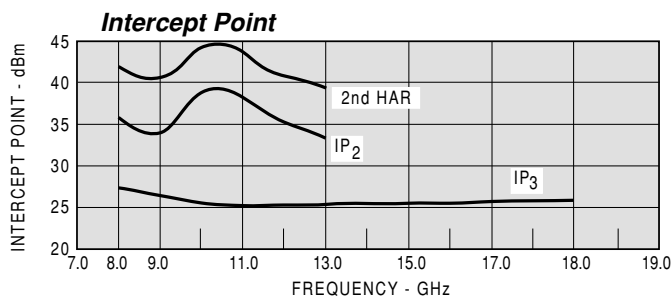
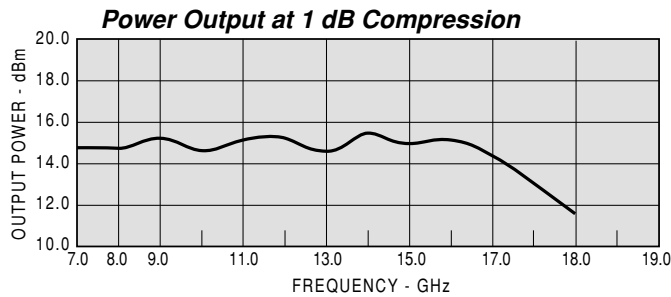
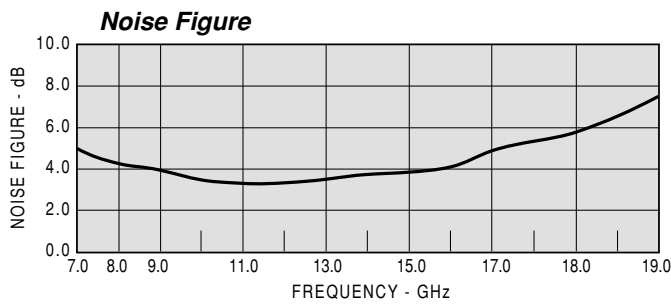
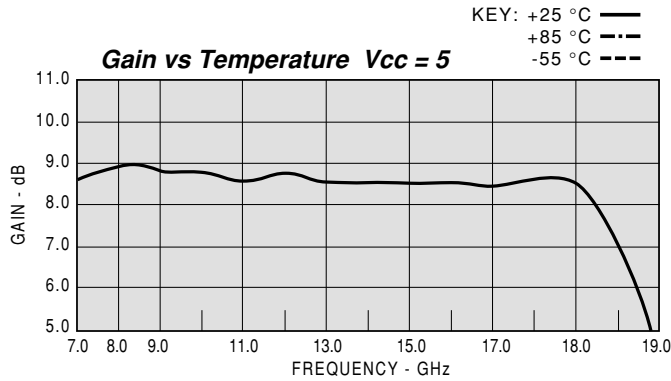
#### High Frequency CougarPak® SMA Package (single-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: ACP18012			Vcc= +5V			Icc= 45.32	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
GHZ	IN	OUT	DB	DEG	NSEC	DB	
7.0	2.21	1.42	8.51	102.59	0.11	-27.09	
7.5	2.06	1.20	8.65	83.62	0.10	-26.71	
8.0	1.83	1.24	8.78	66.36	0.08	-26.20	
8.5	1.66	1.43	8.77	46.68	0.11	-26.25	
9.0	1.64	1.55	8.60	28.88	0.12	-26.26	
9.5	1.53	1.57	8.34	14.74	0.08	-25.50	
10.0	1.45	1.52	8.31	0.23	0.08	-25.54	
10.5	1.40	1.49	8.38	-14.65	0.08	-25.09	
11.0	1.42	1.48	8.34	-30.12	0.08	-24.93	
11.5	1.38	1.41	8.55	-44.14	0.08	-23.98	
12.0	1.27	1.31	8.74	-59.36	0.07	-23.58	
12.5	1.11	1.18	8.65	-76.21	0.09	-23.16	
13.0	1.05	1.09	8.51	-92.10	0.09	-23.11	
13.5	1.15	1.10	8.55	-107.79	0.10	-22.71	
14.0	1.20	1.16	8.54	-123.98	0.08	-22.24	
14.5	1.20	1.23	8.53	-140.57	0.08	-21.95	
15.0	1.19	1.28	8.54	-157.81	0.10	-21.28	
15.5	1.13	1.25	8.56	-175.23	0.10	-21.24	
16.0	1.10	1.14	8.59	166.34	0.11	-20.72	
16.5	1.22	1.21	8.58	146.85	0.12	-20.25	
17.0	1.42	1.40	8.54	125.41	0.14	-20.26	
17.5	1.50	1.26	8.79	100.50	0.16	-20.01	
18.0	1.16	1.66	8.28	69.37	0.17	-20.32	

Model: ACP18012

Vcc= +5V

Icc= 45.32

LINEAR S-PARAMETERS

FREQ	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
7.0	0.38	61.99	2.69	102.25	0.04	32.37	0.17	98.81
7.5	0.35	43.15	2.73	83.20	0.05	12.96	0.09	39.65
8.0	0.29	24.15	2.77	66.10	0.05	-5.88	0.11	-46.98
8.5	0.25	7.92	2.76	46.49	0.05	-21.44	0.18	-83.56
9.0	0.24	-10.98	2.71	28.62	0.05	-35.35	0.21	-98.72
9.5	0.21	-27.48	2.63	14.36	0.05	-48.27	0.22	-105.60
10.0	0.18	-33.50	2.62	0.06	0.05	-65.91	0.21	-104.71
10.5	0.17	-32.52	2.64	-14.99	0.06	-74.67	0.20	-99.28
11.0	0.18	-32.23	2.62	-30.36	0.06	-87.23	0.19	-98.35
11.5	0.16	-39.18	2.69	-44.41	0.06	-100.87	0.18	-107.35
12.0	0.12	-51.92	2.75	-59.71	0.07	-113.71	0.13	-127.42
12.5	0.05	-72.70	2.71	-76.52	0.07	-127.57	0.08	-159.43
13.0	0.02	136.42	2.67	-92.39	0.07	-141.31	0.05	134.85
13.5	0.07	94.89	2.68	-108.04	0.07	-155.45	0.05	48.13
14.0	0.09	76.06	2.69	-124.34	0.08	-169.03	0.07	-10.12
14.5	0.09	47.62	2.68	-140.94	0.08	-178.67	0.10	-43.29
15.0	0.09	17.81	2.68	-158.13	0.09	-162.67	0.12	-62.69
15.5	0.06	-5.52	2.69	-175.51	0.09	-145.55	0.11	-73.37
16.0	0.05	21.51	2.70	166.06	0.09	131.48	0.06	-54.13
16.5	0.10	49.95	2.69	146.57	0.09	112.28	0.10	7.50
17.0	0.17	42.40	2.67	125.06	0.10	91.85	0.17	7.52
17.5	0.20	22.29	2.76	100.26	0.10	66.07	0.12	8.71
18.0	0.08	18.71	2.60	68.98	0.10	34.85	0.25	90.04
18.5	0.19	90.08	1.95	31.32	0.08	1.58	0.60	63.93