

ACP16012 6.0 TO 16.0 GHz COUGARPAK® AMPLIFIER

Typical Values	ACP16012
High Efficiency	45 mA at +5 Vdc
Medium Output Power	+15.2 dBm
Medium Gain	9.5 dB
Low Noise Figure	3.5 dB
High Performance Thin Film High Frequency Single-stage CougarPak®	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	6.0-16.0 GHz	6.0-16.0 GHz	6.0-16.0 GHz
Small Signal Gain (Min.)	9.5 dB	8.5 dB	8.0 dB
Gain Flatness (Max.)	±0.5 dB	±1.0 dB	±1.0 dB
Noise Figure (Max.)	3.5 dB	4.7 dB	5.2 dB
SWR (Max.)	Input <1.8:1 Output <1.5:1	2.0:1†	2.0:1†
Power Output (Min.)	+15.2 dBm	+13.5^ dBm	+13.0^ dBm
Reverse Isolation	23.0 dB	—	—
DC Current (Max.)	45.0 mA	49.0 mA	50.0 mA

* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.
^ 1.0 dB lower below 7.0 GHz. † 0.2 higher below 7.0 GHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	ACP16012
Second Order Harmonic Intercept Point	+45 dBm
Second Order Two Tone Intercept Point	+40 dBm
Third Order Two Tone Intercept Point	+27 dBm

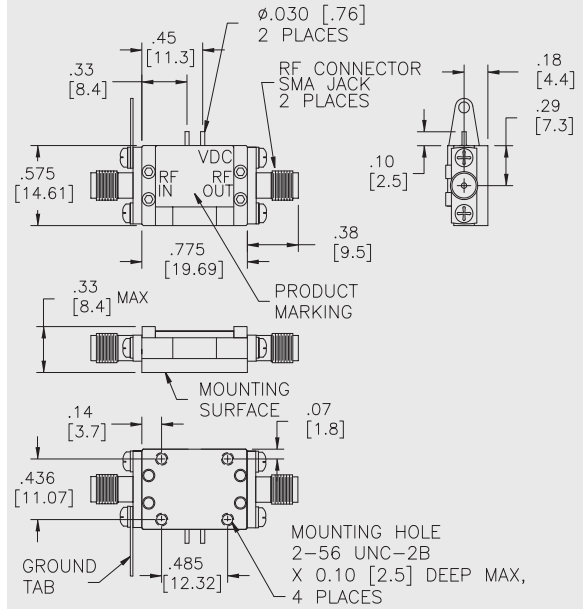
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65 to +150 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+8 Volts
Maximum Continuous RF Input Power	+11.5 dBm
Burn-in Temperature	+125 °C
Thermal Resistance ¹ (θ _{jc})	+120 °C/Watt
Junction Temperature Rise Above Case (T _{jc})	+27 °C

¹ Thermal resistance is based on total power dissipation.

ACP16012

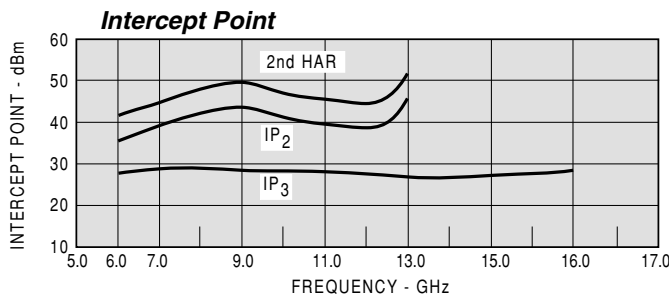
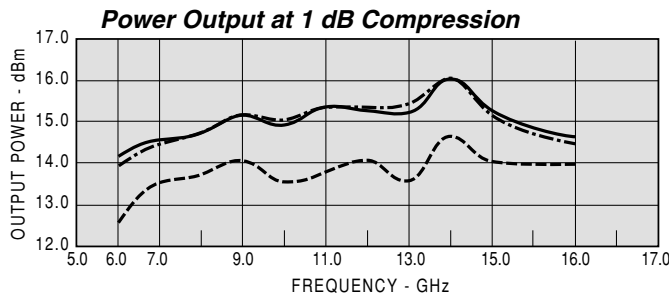
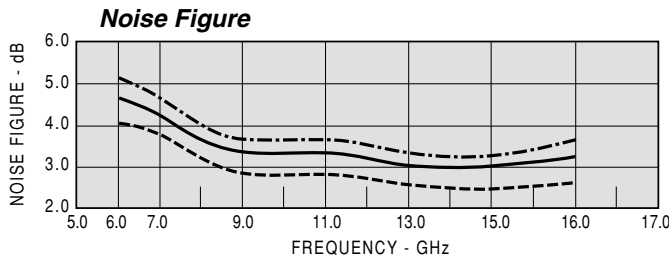
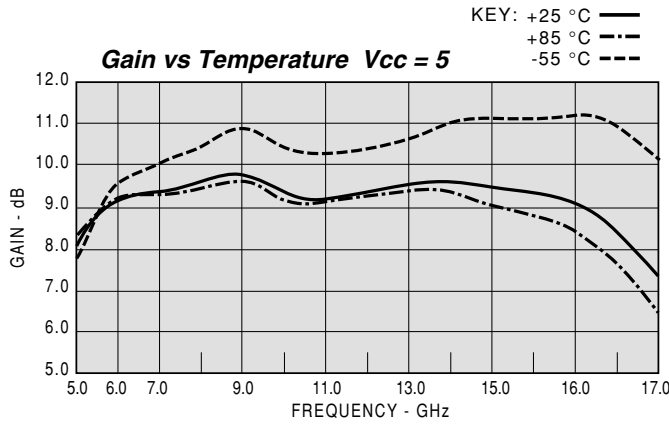
High Frequency CougarPak® SMA Package (single-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: ACP16012 Vcc= +5V Icc= 44.59

FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
GHZ	IN	OUT	DB	DEG	NSEC	DB
6.0	1.57	1.93	9.24	-128.12	0.25	-27.19
6.4	1.71	1.80	9.35	-162.90	0.24	-26.75
7.0	1.85	1.58	9.41	148.07	0.22	-26.30
7.4	1.86	1.44	9.47	116.24	0.22	-25.99
8.0	1.71	1.24	9.57	68.93	0.22	-25.40
8.4	1.55	1.18	9.71	37.37	0.22	-25.08
9.0	1.40	1.18	9.86	-9.74	0.21	-24.38
9.4	1.45	1.17	9.83	-41.53	0.22	-24.10
10.0	1.67	1.13	9.56	-88.39	0.21	-23.99
10.4	1.71	1.14	9.33	-118.39	0.21	-23.93
11.0	1.44	1.19	9.27	-162.23	0.21	-23.68
11.4	1.32	1.22	9.39	167.92	0.21	-23.23
12.0	1.34	1.26	9.44	122.20	0.22	-22.59
12.4	1.41	1.31	9.45	91.50	0.21	-22.26
13.0	1.53	1.39	9.47	45.21	0.21	-21.69
13.4	1.61	1.44	9.49	14.02	0.21	-21.32
14.0	1.76	1.50	9.44	-33.17	0.22	-20.90
14.4	1.85	1.47	9.38	-65.58	0.23	-20.74
15.0	1.79	1.36	9.36	-114.28	0.23	-20.41
15.4	1.60	1.22	9.35	-147.65	0.24	-20.15
16.0	1.51	1.23	9.10	158.65	0.26	-20.08
16.4	1.93	1.48	8.52	-121.41	0.26	-20.54

Model: ACP16012 Vcc= +5V Icc= 44.59

LINEAR S-PARAMETERS

FREQ	S11		S21		S12		S22	
GHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
6.0	0.22	-34.42	2.92	131.71	0.04	53.52	0.30	-87.52
6.4	0.26	-54.19	2.92	113.47	0.05	36.69	0.27	-103.31
7.0	0.30	-84.01	2.96	88.70	0.05	13.15	0.21	-126.78
7.4	0.30	-101.15	2.98	74.21	0.05	0.41	0.17	-140.27
8.0	0.27	-123.09	3.09	53.44	0.05	-16.23	0.10	-144.85
8.4	0.23	-128.11	3.06	39.49	0.06	-28.29	0.09	-126.61
9.0	0.19	-120.12	3.10	17.13	0.06	-51.21	0.10	-111.16
9.4	0.20	-110.29	3.08	3.27	0.06	-62.29	0.09	-106.83
10.0	0.25	-121.48	2.99	-17.07	0.06	-82.60	0.07	-89.89
10.4	0.25	-147.02	2.94	-29.36	0.07	-93.68	0.07	-61.89
11.0	0.16	150.17	2.93	-48.02	0.07	-106.66	0.10	-40.39
11.4	0.14	103.97	2.93	-60.40	0.07	-119.51	0.10	-33.87
12.0	0.17	69.71	2.92	-79.34	0.07	-136.99	0.10	-19.43
12.4	0.20	57.98	2.96	-93.40	0.08	-147.75	0.11	-12.86
13.0	0.23	47.76	3.07	-113.28	0.08	-165.35	0.15	-17.73
13.4	0.23	43.64	3.09	-128.60	0.09	-179.43	0.18	-31.45
14.0	0.25	37.05	3.01	-149.89	0.09	160.41	0.20	-59.43
14.4	0.27	28.99	2.87	-164.20	0.10	149.20	0.19	-78.58
15.0	0.27	10.69	2.91	172.62	0.10	128.18	0.15	-110.67
15.4	0.22	3.30	2.93	156.58	0.10	112.93	0.08	-144.38
16.0	0.19	35.97	2.84	128.79	0.10	86.42	0.13	62.49
16.4	0.31	48.14	2.62	108.92	0.09	68.20	0.25	32.20
17.0	0.49	39.10	2.14	80.80	0.08	45.38	0.33	6.65