

ACP14021 6.0 TO 14.0 GHz COUGARPAK® AMPLIFIER

Typical Values	ACP14021
Medium Output Power	+25.0 dBm
Medium Gain	10.3 dB
Low Noise Figure	3.8 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.)	10.3 dB	9.7 dB	9.0 dB
Gain Flatness (Max.)	±0.5 dB	±0.6 dB	±0.6 dB
Noise Figure (Max.)	3.8 [^] dB	4.5 [^] dB	6.0 [^] dB
SWR (Max.)	Input	1.8:1	2.0:1
	Output	1.5:1	1.9:1
Power Output (Min.) @ 1dB comp.	+25.0 dBm	+23.5 dBm	+23.0 dBm
Reverse Isolation	25.0 dB	—	—
DC Current (Max.)	117 mA	123 mA	128 mA

* Measured in a 50-ohm system at +12 Vdc unless otherwise specified.
[^] 1.5 dB higher below 9.0 GHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	ACP14021
Second Order Harmonic Intercept Point	+55 dBm
Second Order Two Tone Intercept Point	+50 dBm
Third Order Two Tone Intercept Point	+33 dBm

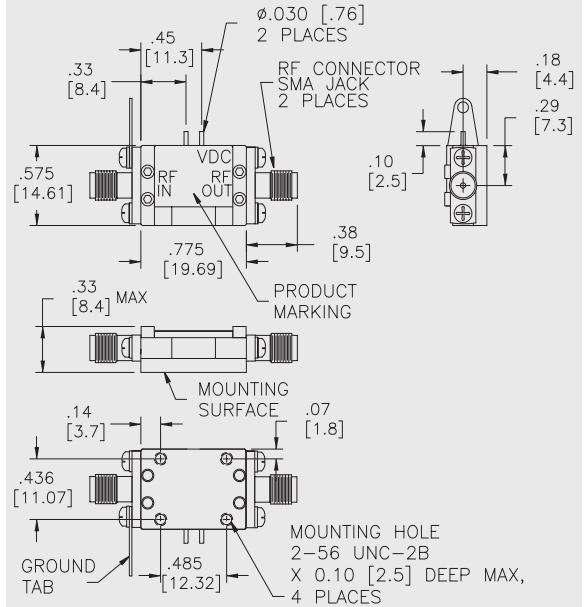
ABSOLUTE MAXIMUM RATINGS

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)	+18.2 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+25.7 °C

¹ Thermal resistance is based on total power dissipation.

ACP14021

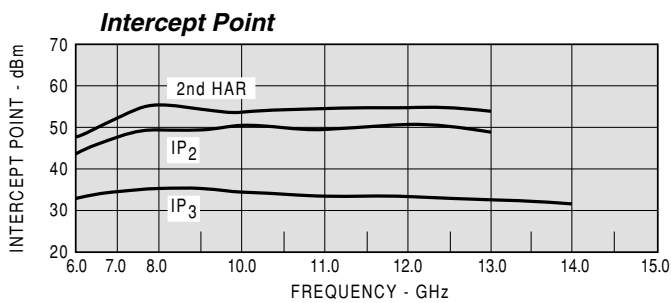
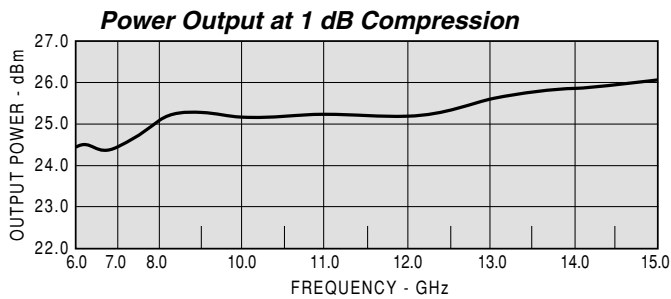
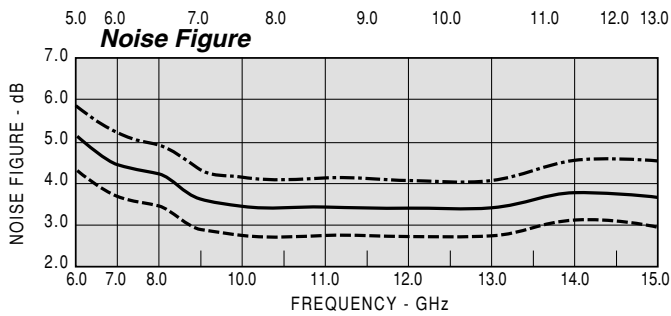
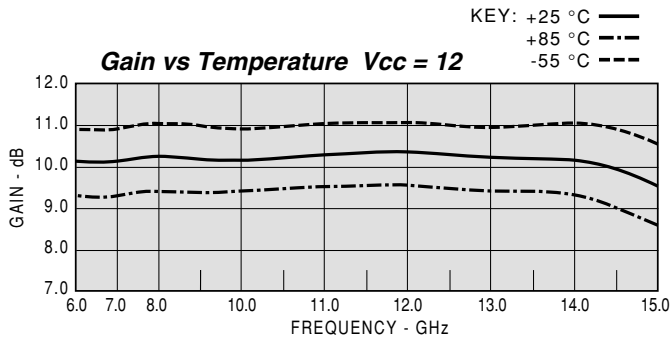
High Frequency CougarPak® SMA Package (single-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: ACP14021			Vcc= +12V		Icc= 116.78	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
GHZ	IN	OUT	DB	DEG	NSEC	DB
5.0	1.96	1.87	10.08	159.82	0.15	-29.91
5.5	1.86	1.65	10.32	132.49	0.14	-29.58
6.0	1.79	1.54	10.19	108.98	0.12	-29.80
6.5	1.84	1.41	10.34	88.43	0.10	-29.22
7.0	1.76	1.31	10.17	68.06	0.12	-29.03
7.5	1.69	1.24	10.25	48.51	0.10	-28.93
8.0	1.62	1.10	10.25	30.90	0.11	-28.23
8.5	1.56	1.11	10.25	12.68	0.10	-27.73
9.0	1.64	1.20	10.12	-5.56	0.10	-27.51
9.5	1.71	1.23	10.07	-22.43	0.10	-27.59
10.0	1.54	1.16	10.16	-38.81	0.10	-26.92
10.5	1.46	1.10	10.29	-55.73	0.09	-27.16
11.0	1.37	1.14	10.29	-74.22	0.10	-26.15
11.5	1.41	1.21	10.18	-92.20	0.11	-25.40
12.0	1.17	1.24	10.35	-109.38	0.07	-25.47
12.5	1.14	1.28	10.15	-127.92	0.11	-24.47
13.0	1.29	1.33	10.17	-144.72	0.07	-23.74
13.5	1.58	1.21	10.13	-163.87	0.13	-23.29
14.0	1.44	1.16	10.28	-174.99	0.12	-21.89
14.5	1.40	1.09	10.03	-154.22	0.12	-21.50
15.0	1.18	1.13	9.84	-132.33	0.13	-21.26
15.5	1.45	1.28	9.40	-107.97	0.13	-21.24

Model: ACP14021			LINEAR S-PARAMETERS				Icc= 116.78	
FREQ	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.0	0.32	47.20	3.20	159.80	0.03	82.90	0.30	-58.04
5.5	0.30	5.51	3.30	132.26	0.03	61.07	0.25	-77.55
6.0	0.28	-35.00	3.24	108.81	0.03	40.80	0.21	-99.56
6.5	0.30	-67.52	3.29	88.16	0.03	25.06	0.17	-123.21
7.0	0.27	-93.14	3.22	67.84	0.04	7.57	0.14	-147.96
7.5	0.26	-115.82	3.26	48.46	0.04	-7.54	0.10	-160.40
8.0	0.23	-123.69	3.25	30.92	0.04	-23.96	0.05	-148.60
8.5	0.22	-126.63	3.25	12.68	0.04	-38.35	0.06	-104.40
9.0	0.24	-134.62	3.22	-5.80	0.04	-53.09	0.09	-98.78
9.5	0.26	-148.85	3.18	-22.65	0.04	-64.18	0.10	-93.67
10.0	0.21	171.38	3.22	-39.03	0.05	-79.65	0.08	-84.20
10.5	0.19	108.64	3.26	-55.88	0.04	-95.29	0.05	-63.56
11.0	0.16	41.89	3.28	-74.43	0.05	-108.80	0.07	-29.18
11.5	0.17	-7.65	3.23	-92.38	0.05	-122.26	0.10	-1.29
12.0	0.08	-37.24	3.29	-109.72	0.05	-133.06	0.11	9.24
12.5	0.07	172.92	3.22	-127.88	0.06	-150.25	0.13	-3.77
13.0	0.12	94.43	3.22	-144.92	0.07	-163.65	0.13	-15.97
13.5	0.23	57.71	3.23	-164.35	0.07	-179.63	0.10	-26.10
14.0	0.18	17.37	3.27	-174.67	0.08	-163.55	0.07	-68.72
14.5	0.17	-26.73	3.18	-153.94	0.08	-144.31	0.04	-57.65
15.0	0.08	-11.63	3.11	-131.99	0.09	-126.96	0.06	101.80
15.5	0.18	44.79	2.95	-107.75	0.09	-106.55	0.13	87.16
16.0	0.39	20.84	2.58	-83.32	0.08	-83.20	0.29	55.05