TELEDYNE
MICROWAVE SOLUTIONS
Everywhereyoulook™

Rev. 5/10

ACP14012

6.0 TO 14.0 GHz COUGARPAK® AMPLIFIER

Typical Values	ACP14012
High Efficiency	43 mA at +5 Vdc
Medium Output Power	+14.5 dBm
Medium Gain	10.5 dB
Low Noise Figure	3.0 dB

High Performance Thin Film
High Frequency Single-stage CougarPak®

SPECIFICATIONS*

Parameter	Typical	Guaranteed 0 to 50 °C	Guaranteed -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.)	10.5 dB	10.0^ dB	9.5^ dB
Gain Flatness (Max.)	±0.5 dB	±1.0 dB	±1.0 dB
Noise Figure (Max.)			
6.0-8.0 GHz	4.0 dB	5.0 dB	5.5 dB
8.0-14.0 GHz	3.0 dB	4.0 dB	4.5 dB
SWR (Max.)	1.6:1	2.0:1	2.0:1
Power Output (Min.)	+14.5 dBm	+13.0 dBm	+12.5 dBm
Reverse Isolation	20.0 dB	—	—
DC Current (Max.)	43.0 mA	45.0 mA	47.0 mA

* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.
^ 0.5 dB lower below 7.0 GHz and above 13.0 GHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	ACP14012
Second Order Harmonic Intercept Point	+40 dBm
Second Order Two Tone Intercept Point	+35 dBm
Third Order Two Tone Intercept Point	+26 dBm

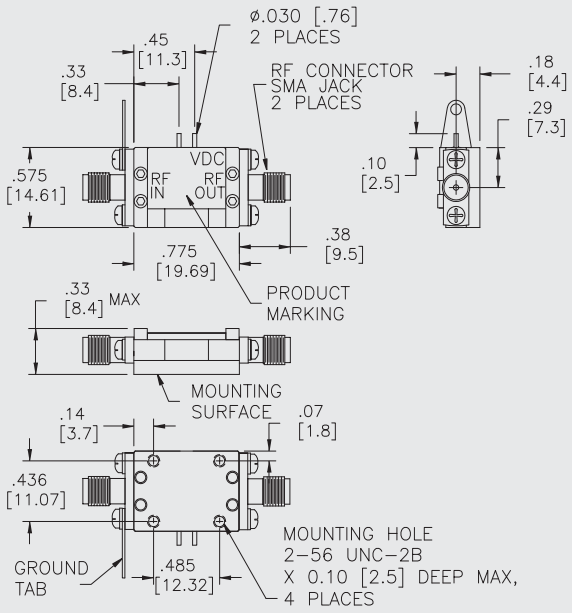
ABSOLUTE MAXIMUM RATINGS

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)	+10.5 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+2.5 °C

[1] Thermal resistance is based on total power dissipation.

ACP14012

High Frequency CougarPak® SMA Package (single-stage)

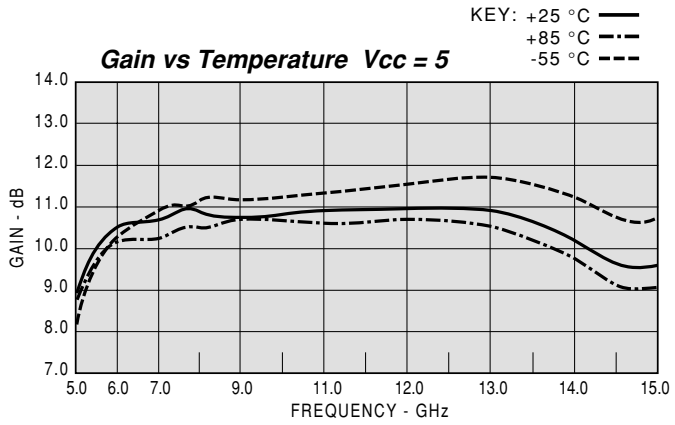


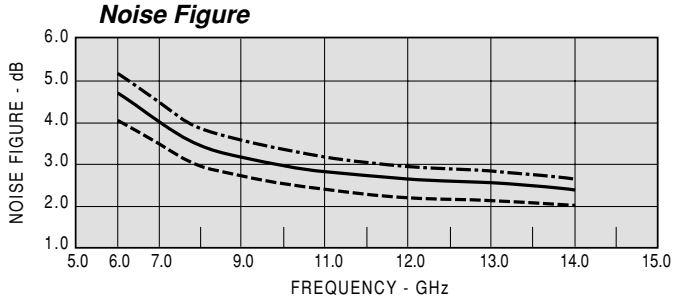
DIMENSIONS ARE IN INCHES [MILLIMETERS]

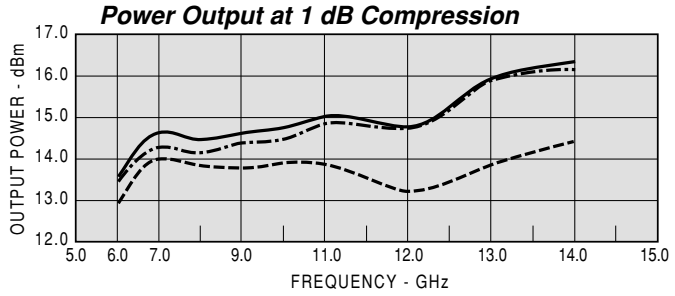
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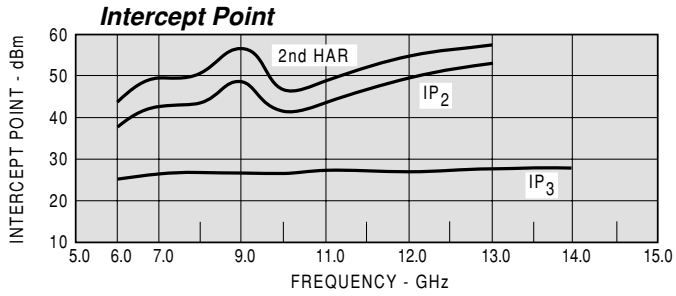
ACP14012

TYPICAL PERFORMANCE









TYPICAL AUTOMATIC TEST DATA

Model: ACP14012 Vcc= +5V Icc= 43.66

FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
GHZ	IN	OUT	DB	DEG	NSEC	DB
5.5	1.81	1.53	10.11	52.64	00.18	-25.34
6.0	1.80	1.23	10.47	19.52	00.18	-24.44
6.5	1.76	1.06	10.60	-11.80	00.18	-24.29
7.0	1.64	1.23	10.73	-42.40	00.17	-23.31
7.5	1.44	1.44	10.84	-71.45	00.17	-22.57
8.0	1.19	1.57	10.93	-99.36	00.19	-22.11
8.5	1.10	1.61	10.71	-124.40	00.14	-21.52
9.0	1.28	1.63	10.75	-151.42	00.15	-21.00
9.5	1.33	1.57	10.77	-178.54	00.14	-20.62
10.0	1.17	1.41	10.74	156.18	0.14	-20.22
10.5	1.11	1.22	10.75	129.97	0.14	-19.90
11.0	1.37	1.22	10.78	103.85	0.13	-19.74
11.5	1.58	1.33	10.78	78.07	0.14	-19.47
12.0	1.60	1.39	10.86	51.74	0.14	-18.99
12.5	1.48	1.37	10.85	24.57	0.15	-18.65
13.0	1.31	1.28	10.81	-3.16	0.15	-18.12
13.5	1.27	1.12	10.63	-32.41	0.16	-17.61
14.0	1.41	1.10	10.07	-61.62	0.16	-17.29
14.5	1.57	1.45	9.30	-87.59	0.15	-16.98

LINEAR S-PARAMETERS

Model: ACP14012 Vcc= +5V Icc= 43.66

FREQ	S11		S21		S12		S22	
GHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5.5	0.30	123.61	3.09	158.29	0.05	82.16	0.20	161.23
6.0	0.30	114.30	3.26	134.30	0.05	58.34	0.10	143.52
6.5	0.29	105.45	3.35	112.16	0.06	38.07	0.03	-157.92
7.0	0.25	97.49	3.40	91.69	0.06	19.45	0.11	-117.16
7.5	0.18	85.59	3.49	72.10	0.07	2.51	0.18	-126.73
8.0	0.08	66.21	3.61	54.18	0.07	-15.48	0.22	-135.76
8.5	0.05	-88.45	3.43	35.80	0.08	-32.05	0.24	-140.05
9.0	0.14	-121.07	3.37	17.57	0.08	-45.43	0.23	-141.97
9.5	0.15	-139.80	3.38	2.72	0.08	-58.87	0.20	-145.09
10.0	0.08	-150.81	3.41	-13.36	0.09	-76.78	0.14	-145.53
10.5	0.07	-48.10	3.43	-30.31	0.09	-89.89	0.08	-110.76
11.0	0.17	-50.03	3.40	-47.03	0.10	-103.58	0.11	-67.47
11.5	0.23	-65.44	3.40	-62.19	0.10	-117.47	0.16	-62.85
12.0	0.23	-84.18	3.44	-77.63	0.10	-133.11	0.18	-67.39
12.5	0.18	-101.17	3.47	-96.63	0.11	-148.01	0.17	-79.61
13.0	0.12	-111.15	3.51	-117.02	0.11	-165.38	0.13	-91.45
13.5	0.10	-94.41	3.37	-135.14	0.12	176.96	0.06	-112.42
14.0	0.15	-79.65	3.20	-153.72	0.13	160.07	0.05	48.90
14.5	0.23	-88.50	2.98	-172.36	0.13	140.11	0.18	26.88
15.0	0.28	-104.14	2.83	170.21	0.12	123.81	0.30	6.31