

# ACP20015 2.0 TO 20.0 GHz COUGARPAK® AMPLIFIER

Typical Values	ACP20015
Ultra Broad Bandwidth .....	2.0-20.0 GHz
Medium Noise Figure .....	4.5 dB
Medium Output Power .....	+16.0 dBm
Medium Gain .....	10 dB
Third Order I.P. ....	+26.0 dBm
High Performance Thin Film High Frequency Single-stage CougarPak®	

## SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
<b>Frequency (Min.)</b>	2.0-20.0 GHz	2.0-20.0 GHz	2.0-20.0 GHz
<b>Small Signal Gain (Min.)</b>			
2.0-18.0 GHz	10.0 dB	9.0 dB	8.5 dB
18.0-20.0 GHz	9.5 dB	8.0 dB	7.5 dB
<b>Gain Flatness (Max.)</b>	±1.0 dB	±1.3 dB	±1.5 dB
<b>Noise Figure (Max.)</b>			
2.0-14.0 GHz	4.5 dB	5.5 dB	6.0 dB
14.0-20.0 GHz	5.5 dB	8.0 dB	9.0 dB
<b>SWR (Max.)</b>			
2.0-18.0 GHz	1.6:1	2.0:1	2.0:1
18.0-20.0 GHz	1.8:1	2.0:1	2.0:1
<b>Power Output (Min.)</b>			
@ 1dB comp. 2.0-18.0 GHz	+16.0 dBm	+15.0 dBm	+14.0 dBm
18.0-20.0 GHz	+14.0 dBm	+13.0 dBm	+12.5 dBm
<b>Reverse Isolation</b>	30.0 dB	—	—
<b>DC Current (Max.)</b>	76.0 mA	85.0 mA	90.0 mA

\* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.

## INTERMODULATION PERFORMANCE

Typical @ 25 °C	ACP20015
Second Order Harmonic Intercept Point .....	+35 dBm
Second Order Two Tone Intercept Point .....	+29 dBm
Third Order Two Tone Intercept Point .....	+26 dBm

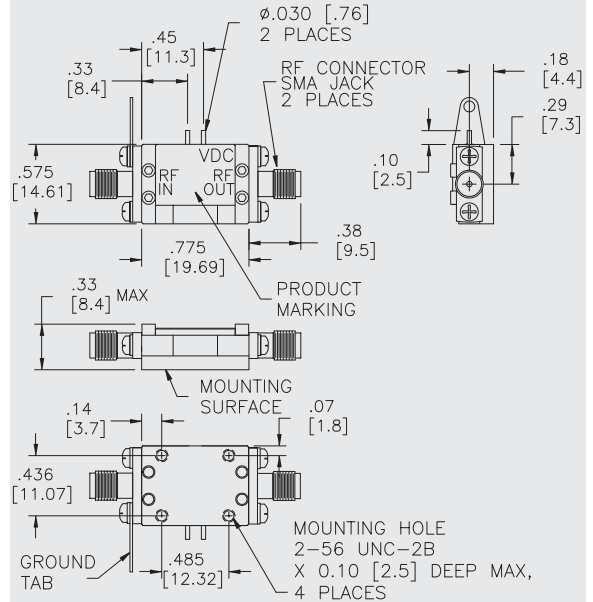
## ABSOLUTE MAXIMUM RATINGS

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) .....	+42.0 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+16.0 °C

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

## ACP20015

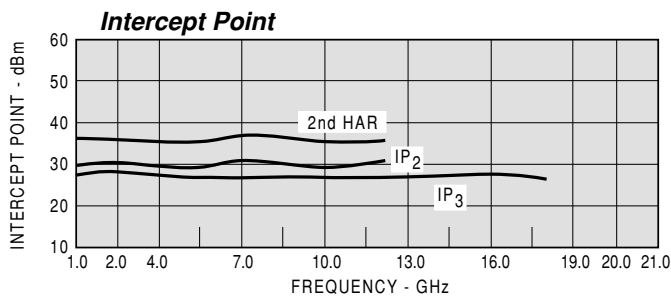
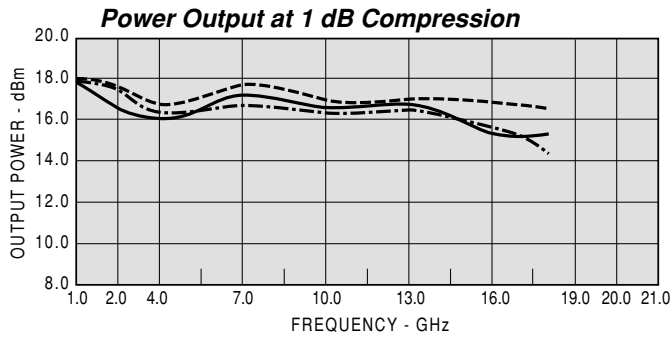
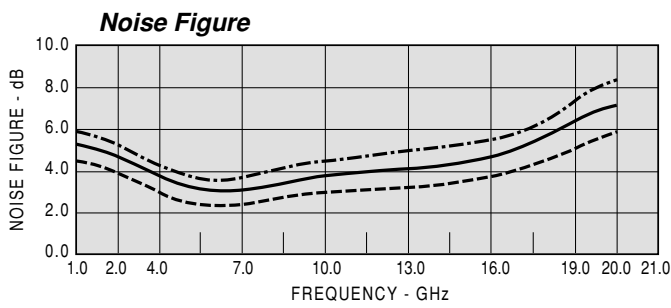
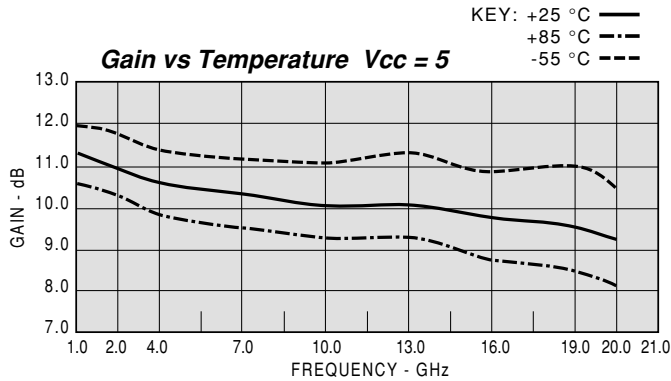
### High Frequency CougarPak® SMA Package (single-stage)



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: ACP20015 Vcc= +5V Icc= 76.42

FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
GHZ	IN	OUT	DB	DEG	NSEC	DB
1.8	1.81	1.18	11.19	114.64	0.17	-42.53
2.0	1.74	1.24	11.03	103.22	0.16	-41.03
3.0	1.53	1.53	10.90	51.05	0.14	-37.12
4.0	1.31	1.49	10.63	2.77	0.12	-36.97
5.0	1.13	1.26	10.40	-45.91	0.14	-36.22
6.0	1.01	1.07	10.39	-92.98	0.13	-34.90
7.0	1.18	1.12	10.39	-140.64	0.13	-33.37
8.0	1.25	1.33	10.46	-171.84	0.15	-31.99
9.0	1.09	1.30	10.24	123.46	0.15	-30.98
10.0	1.31	1.16	10.14	74.53	0.13	-30.56
11.0	1.51	1.20	9.96	26.99	0.13	-30.53
12.0	1.38	1.14	10.03	-21.44	0.14	-29.78
13.0	1.19	1.05	10.21	-71.81	0.15	-28.63
14.0	1.22	1.02	10.29	-124.18	0.15	-27.84
15.0	1.38	1.16	10.08	-177.67	0.15	-27.03
16.0	1.46	1.26	9.76	130.98	0.14	-26.72
17.0	1.40	1.32	9.95	78.23	0.12	-26.19
18.0	1.11	1.32	10.15	20.20	0.17	-25.56
19.0	1.25	1.31	9.90	-39.52	0.19	-24.56
20.0	1.28	1.39	9.56	-100.51	0.18	-23.76

Model: ACP20015 Vcc= +5V Icc= 76.42

LINEAR S-PARAMETERS

FREQ	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
1.8	0.27	-177	3.58	115.10	0.01	42.05	0.10	-43.79
2.0	0.26	170.81	3.53	103.75	0.01	34.34	0.10	-67.19
3.0	0.20	119.86	3.45	51.95	0.01	-18.40	0.20	-146.22
4.0	0.13	67.59	3.38	2.26	0.01	-70.16	0.19	144.44
5.0	0.06	2.91	3.30	-45.51	0.02	-110.70	0.11	83.58
6.0	0.01	95.52	3.28	-92.11	0.02	-157.98	0.04	33.26
7.0	0.09	76.95	3.28	-139.66	0.02	159.79	0.06	126.22
8.0	0.12	42.32	3.29	171.95	0.03	114.48	0.15	100.62
9.0	0.04	-24.26	3.25	124.44	0.03	69.47	0.14	79.32
10.0	0.14	178.12	3.22	74.85	0.03	27.30	0.09	103.59
11.0	0.22	141.46	3.14	26.93	0.03	-23.49	0.11	117.62
12.0	0.17	111.87	3.17	-20.85	0.03	-63.91	0.07	87.93
13.0	0.10	98.12	3.24	-71.54	0.04	-114.27	0.02	28.17
14.0	0.12	101.31	3.25	-124.14	0.04	-161.24	0.03	135.12
15.0	0.17	76.24	3.19	-177.23	0.05	147.31	0.09	93.33
16.0	0.18	65.86	3.09	129.77	0.05	97.99	0.12	89.09
17.0	0.17	58.09	3.05	77.59	0.04	51.42	0.14	96.30
18.0	0.04	101.58	3.22	21.14	0.05	-4.23	0.14	124.46
19.0	0.07	143.50	3.21	-39.95	0.06	-63.80	0.10	131.49
20.0	0.12	-155.08	2.98	-100.10	0.06	-122.05	0.13	-149.09