

# AC3033 1000 TO 3000 MHz TO-8 CASCADABLE AMPLIFIER

<b>Typical Values</b>	<b>AC3033</b>
Ultra Low DC Power Consumption .....	0.1 Watt
Low DC Voltage .....	3.0 Volts
Low Noise Figure .....	2.4 dB
High Gain .....	21.0 dB
High Reverse Isolation .....	38.0 dB
High Performance Thin Film Standard Size TO-8 Package	

## SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	1000-3000 MHz	1000-3000 MHz	1000-3000 MHz
Small Signal Gain (Min.)	21.0 dB	20.0 dB	18.5 dB
Gain Flatness (Max.)	±0.5 dB	±0.8 dB	±0.9 dB
Noise Figure (Max.)	2.4 dB	2.7 dB	3.5 dB
SWR (Max.) Input/Output	1.2:1	1.7:1	1.9:1
Power Output (Min.) @ 1dB comp.	+4.5 dBm	+4.0 dBm	+3.5 dBm
Reverse Isolation	38.0 dB	—	—
DC Current (Max.)	35 mA	38 mA	40 mA

\* Measured in a 50-ohm system at +3 Vdc unless otherwise specified.

## INTERMODULATION PERFORMANCE

<b>Typical @ 25 °C; 1000 MHz</b>	<b>AC3033</b>
Second Order Harmonic Intercept Point .....	+34 dBm
Second Order Two Tone Intercept Point .....	+28 dBm
Third Order Two Tone Intercept Point .....	+17 dBm

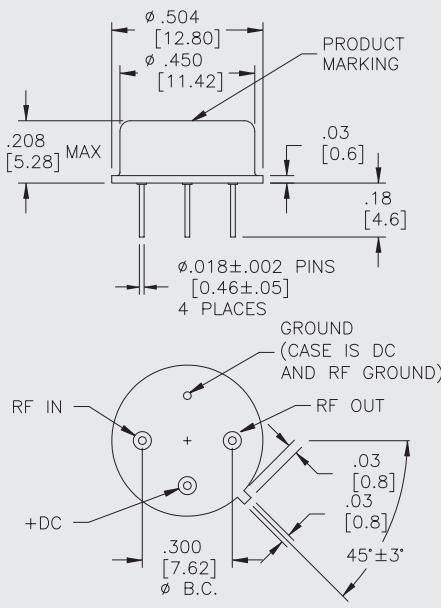
## ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-62 to 125 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+7 Volts
Maximum Continuous RF Input Power .....	+17 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	100 Milliwatts
Maximum Peak Power (3 μsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+125 °C
Thermal Resistance <sup>1</sup> (θjc) .....	+18 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+2 °C

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

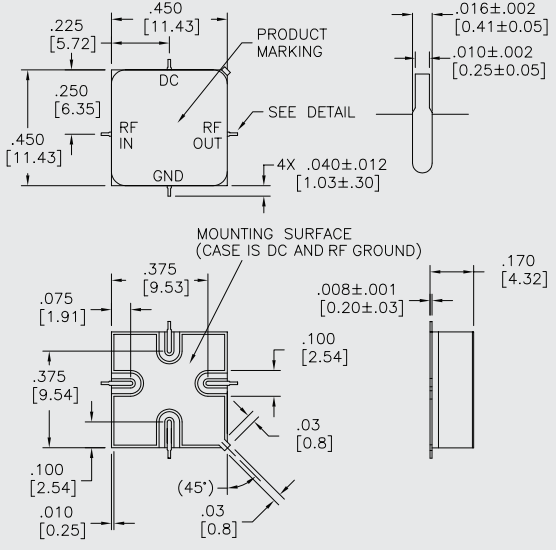
### AC3033

#### TO-8 Package for Amplifiers



### AS3033

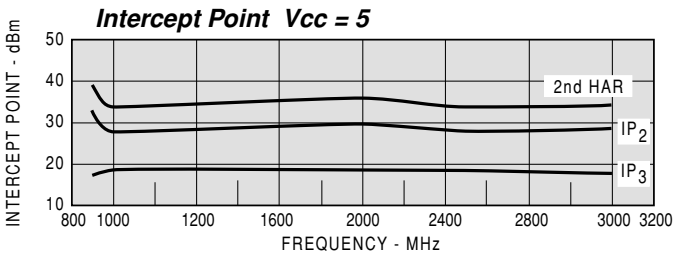
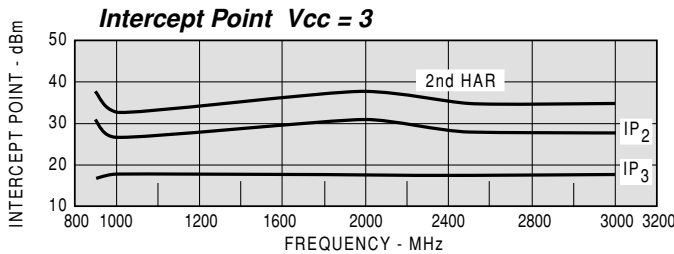
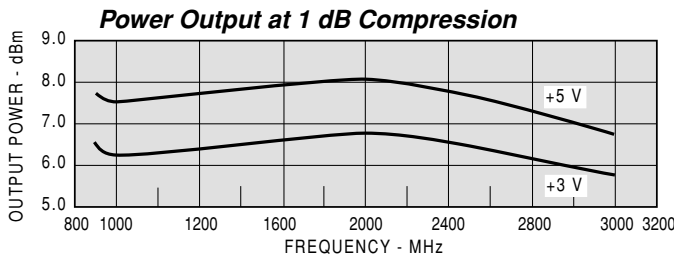
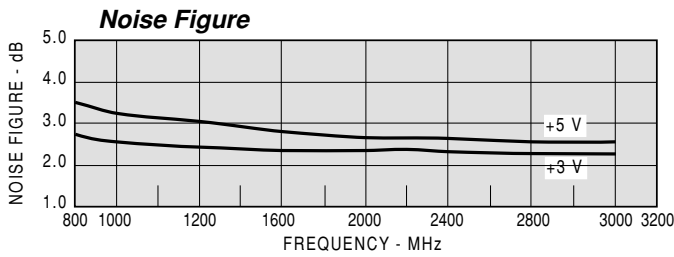
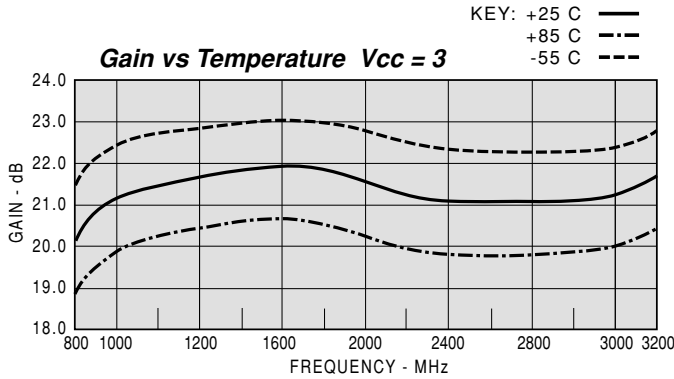
#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AC3033		Vcc=+3V					lcc=34.84
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
600	1.74	2.53	18.14	12	0.52	-40.20	
800	1.51	1.69	20.20	-23	0.49	-38.40	
1000	1.36	1.33	21.25	-55	0.44	-38.00	
1200	1.24	1.21	21.76	-84	0.41	-38.80	
1400	1.14	1.24	22.01	-111	0.38	-38.60	
1600	1.08	1.31	22.03	-138	0.37	-39.50	
1800	1.12	1.39	21.82	-163	0.34	-39.50	
2000	1.19	1.47	21.65	173	0.34	-37.70	
2200	1.25	1.50	21.36	150	0.32	-37.50	
2400	1.32	1.50	21.19	129	0.29	-36.40	
2600	1.33	1.48	21.08	108	0.29	-36.00	
2800	1.30	1.40	21.16	86	0.30	-35.00	
3000	1.23	1.30	21.31	65	0.30	-33.60	
3200	1.18	1.18	21.77	42	0.32	-33.10	
3400	1.24	1.12	22.25	17	0.34	-32.70	
3600	1.49	1.22	22.66	-10	0.38	-32.50	

Model: AC3033		LINEAR S-PARAMETERS								lcc=34.84
		Vcc=+3V								
FREQ.		S11		S21		S12		S22		
MHz		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
600		0.27	-85.9	8.08	12.4	0.010	29.3	0.43	78.6	
800		0.20	-103.8	10.24	-22.6	0.012	2.2	0.26	48.5	
1000		0.15	-117.8	11.55	-54.6	0.013	-19.7	0.14	14.7	
1200		0.11	-129.0	12.24	-83.9	0.011	-40.8	0.09	-33.4	
1400		0.07	-129.2	12.61	-111.4	0.012	-69.4	0.11	-80.5	
1600		0.04	-117.2	12.64	-138.3	0.011	-99.5	0.13	-112.8	
1800		0.05	-74.6	12.34	-163.0	0.011	-115.8	0.16	-127.9	
2000		0.09	-74.4	12.09	172.7	0.013	-135.3	0.19	-140.2	
2200		0.11	-80.9	11.70	149.9	0.013	-161.0	0.20	-152.6	
2400		0.14	-93.5	11.47	128.7	0.015	179.1	0.20	-160.3	
2600		0.14	-109.0	11.33	107.7	0.016	161.2	0.19	-169.8	
2800		0.13	-126.7	11.42	86.5	0.018	151.2	0.17	-178.0	
3000		0.10	-149.0	11.62	64.9	0.021	135.6	0.13	176.0	
3200		0.08	166.7	12.25	42.1	0.022	124.3	0.08	178.3	
3400		0.11	104.0	12.96	17.5	0.023	108.7	0.06	-136.7	
3600		0.20	65.1	13.59	-10.0	0.024	95.1	0.10	-112.3	

Model: AC3033		Vcc=+5V					lcc=44.26
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
600	1.74	2.53	18.14	12	0.52	-40.20	
600	1.68	2.50	19.23	10	0.52	-40.10	
800	1.47	1.66	21.19	-25	0.48	-38.50	
1000	1.34	1.29	22.22	-56	0.44	-38.50	
1200	1.24	1.16	22.73	-85	0.40	-39.00	
1400	1.14	1.20	23.03	-113	0.38	-39.40	
1600	1.06	1.26	23.04	-140	0.38	-40.10	
1800	1.04	1.32	22.87	-165	0.35	-39.50	
2000	1.12	1.38	22.70	171	0.34	-38.90	
2200	1.19	1.40	22.42	148	0.32	-38.00	
2400	1.25	1.39	22.25	127	0.30	-36.10	
2600	1.26	1.36	22.14	105	0.30	-35.60	
2800	1.22	1.30	22.20	84	0.30	-35.20	
3000	1.14	1.21	22.35	62	0.30	-34.00	
3200	1.09	1.17	22.80	39	0.32	-33.80	
3400	1.20	1.26	23.24	14	0.35	-33.50	
3600	1.46	1.41	23.59	-14	0.39	-33.00	

Model: AC3033		LINEAR S-PARAMETERS								lcc=44.26
		Vcc=+5V								
FREQ.		S11		S21		S12		S22		
MHz		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
600		0.25	-91.2	9.15	9.8	0.010	28.1	0.43	81.0	
800		0.19	-110.6	11.47	-24.7	0.012	1.5	0.25	52.1	
1000		0.15	-127.4	12.91	-56.2	0.012	-17.1	0.13	18.9	
1200		0.11	-143.1	13.70	-85.4	0.011	-43.9	0.07	-34.2	
1400		0.07	-154.5	14.17	-112.6	0.011	-67.8	0.09	-89.9	
1600		0.03	-175.1	14.20	-139.9	0.010	-98.5	0.12	-124.4	
1800		0.02	-52.7	13.92	-164.7	0.011	-118.4	0.14	-136.8	
2000		0.06	-56.7	13.64	170.9	0.011	-135.9	0.16	-146.6	
2200		0.09	-66.4	13.21	148.0	0.013	-161.2	0.17	-156.9	
2400		0.11	-81.9	12.95	126.5	0.016	178.6	0.16	-161.3	
2600		0.11	-98.7	12.79	105.1	0.017	160.3	0.15	-167.1	
2800		0.10	-116.3	12.89	83.6	0.017	147.1	0.13	-169.8	
3000		0.07	-138.0	13.10	61.8	0.020	133.2	0.10	-165.2	
3200		0.04	159.3	13.80	38.8	0.020	122.6	0.08	-138.9	
3400		0.09	82.2	14.52	14.0	0.021	103.9	0.11	-112.1	
3600		0.19	52.6	15.12	-14.1	0.022	95.4	0.17	-114.9	