

AC2069

10 TO 2000 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

High Output Power	AC2069 +20.0 dBm
Medium Gain	15.0 dB
High Performance Thin Film Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	5-2100 MHz	10-2000 MHz	10-2000 MHz
Small Signal Gain (Min.)	15.0 dB	14.0 dB	13.0 dB
Gain Flatness (Max.)	< ±0.5 dB	±0.7 dB	±1.0 dB
Noise Figure (Max.)	6.0 dB	7.5 dB	8.0 dB
SWR (Max.)	Input/Output < 1.7:1	2.0:1	2.0:1
Power Output (Min.) @ 1dB comp.	10-400 MHz 400-2000 MHz	+18.7 dBm +20.0 dBm	+18.0 dBm +18.5 dBm +17.5 dBm +18.0 dBm
Reverse Isolation	28.0 dB	—	—
DC Current (Max.)	130.0 mA	134.0 mA	137.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	+12 volts	+15 volts
Second Order Harmonic Intercept Point	+61 dBm	+54 dBm
Second Order Two Tone Intercept Point	+55 dBm	+48 dBm
Third Order Two Tone Intercept Point	+30 dBm	+32 dBm

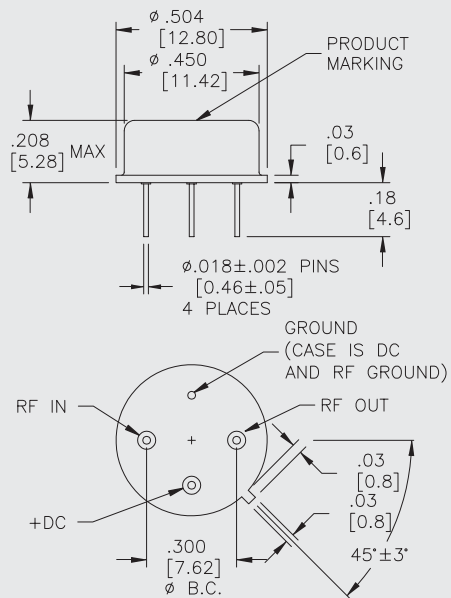
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+18 Volts
Maximum Continuous RF Input Power	+13 dBm
Maximum Short Term Input Power (1 Minute Max.)	100 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+85 °C
Thermal Resistance ¹ (θjc)	+18 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+36.6 °C

¹ Thermal resistance is based on total power dissipation.

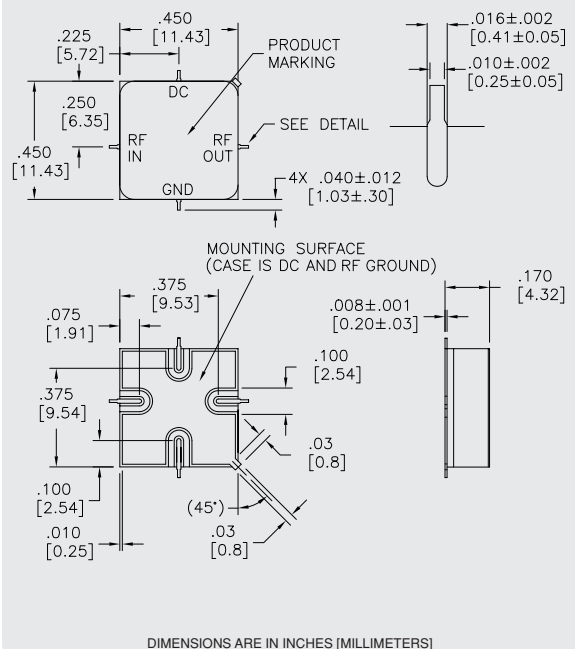
AC2069

TO-8 Package for Amplifiers



AS2069

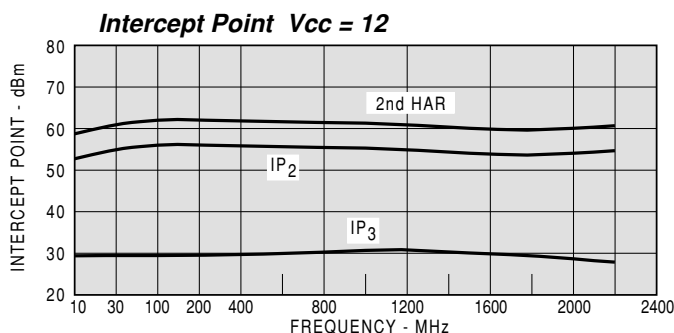
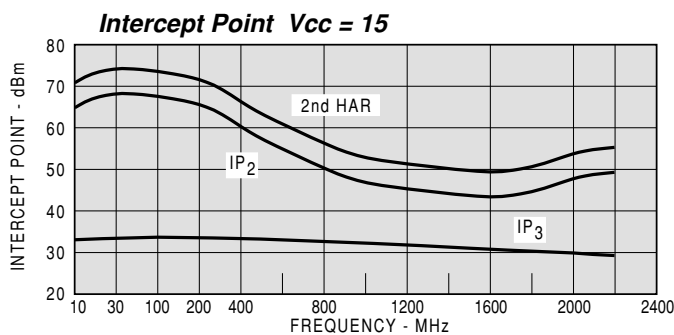
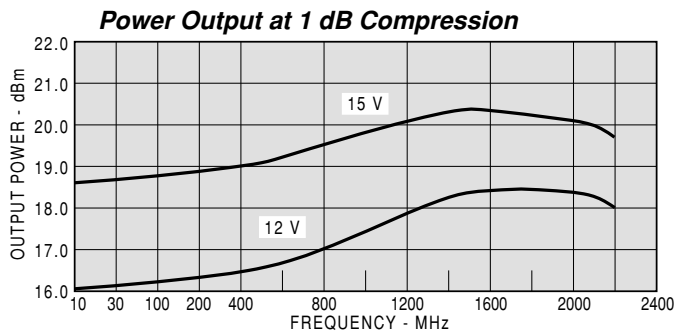
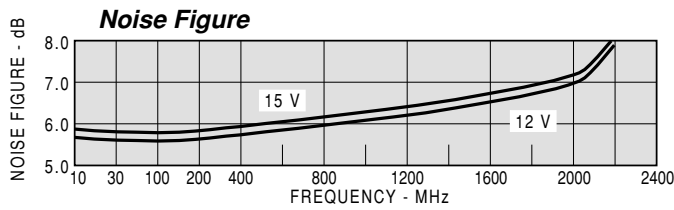
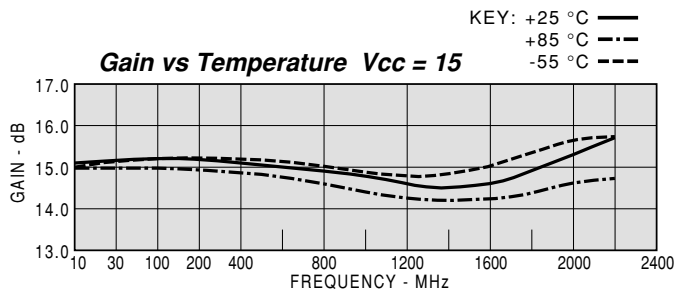
SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC2069 Vcc=+15V Icc=127.85

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
5	1.21	2.36	14.05	55		-30.1
10	1.04	1.46	15.07	25		-28.8
20	1.02	1.17	15.15	9		-28.5
50	1.02	1.07	15.15	-4	1.2	-28.7
100	1.04	1.05	15.17	-16	0.66	-28.8
200	1.08	1.06	15.19	-36	0.57	-28.7
400	1.17	1.07	15.11	-75	0.53	-28.7
600	1.25	1.07	15.00	-113	0.52	-28.5
800	1.32	1.07	14.86	-150	0.51	-28.4
1000	1.38	1.09	14.69	-174	0.50	-28.4
1200	1.42	1.18	14.58	-198	0.50	-28.0
1400	1.44	1.29	14.50	-212	0.50	-27.4
1600	1.44	1.45	14.55	-216	0.50	-27.0
1800	1.45	1.63	14.81	-207	0.54	-26.0
2000	1.44	1.80	15.30	-180	0.55	-24.8
2200	1.53	1.97	15.69	-151	0.6	-23.4

Model: AC2069 Vcc=+15V Icc=127.85

LINEAR S-PARAMETERS

FREQ. MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.10	-140.4	5.04	54.6	0.031	67.2	0.40	157.3
10	0.02	-132.0	5.67	24.9	0.036	32.4	0.19	112.9
20	0.01	-84.1	5.72	8.9	0.038	14.4	0.08	84.2
50	0.01	-69.6	5.72	-4.2	0.037	5.1	0.03	65.5
100	0.02	-72.5	5.74	-16.1	0.036	-2.6	0.02	30.6
200	0.04	-84.6	5.75	-36.5	0.037	-8.4	0.03	-17.5
400	0.08	-99.4	5.69	-75.1	0.037	-19.9	0.03	-65.2
600	0.11	-112.0	5.62	-112.7	0.038	-31.0	0.03	-92.2
800	0.14	-120.5	5.53	-149.8	0.038	-41.8	0.03	-94.7
1000	0.16	-127.0	5.43	-173.7	0.038	-52.2	0.04	-66.4
1200	0.17	-133.3	5.36	-197.6	0.040	-66.3	0.08	-60.3
1400	0.18	-141.5	5.31	-211.9	0.043	-78.1	0.13	-73.5
1600	0.18	-152.9	5.34	-216.2	0.044	-92.1	0.18	-92.5
1800	0.18	-172.1	5.50	-207.7	0.050	-106.2	0.24	-114.8
2000	0.18	-156.5	5.82	-176.6	0.058	-122.2	0.29	-144.7
2200	0.21	-108.9	6.09	-151.0	0.067	-143.3	0.33	-175.7
2300	0.25	84.8	5.94	-74.9	0.072	-154.7	0.35	-153.1

Model: AC2069 Vcc=+12V Icc=101.13

FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB
5	1.21	2.33	13.92	54		-30.0
10	1.04	1.45	14.92	25		-28.7
20	1.02	1.17	15.00	9		-28.6
50	1.03	1.07	15.00	-4	1.2	-28.5
100	1.04	1.05	15.01	-16	0.67	-28.7
200	1.09	1.06	15.03	-37	0.57	-28.7
400	1.18	1.08	14.94	-76	0.54	-28.6
600	1.27	1.09	14.81	-114	0.53	-28.3
800	1.35	1.10	14.68	-152	0.52	-28.2
1000	1.42	1.12	14.50	-172	0.51	-28.1
1200	1.47	1.20	14.38	-195	0.50	-27.5
1400	1.49	1.29	14.29	-210	0.50	-26.9
1600	1.50	1.43	14.35	-216	0.50	-26.4
1800	1.53	1.59	14.61	-207	0.54	-25.4
2000	1.54	1.75	15.08	-182	0.57	-24.1
2200	1.68	1.93	15.29	-157	0.62	-22.6

Model: AC2069 Vcc=+12V Icc=101.13

LINEAR S-PARAMETERS

FREQ.	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.09	-138.7	4.97	54.1	0.032	67.2	0.40	156.3
10	0.02	-126.3	5.57	24.7	0.037	32.4	0.18	111.5
20	0.01	-80.7	5.63	8.8	0.037	14.0	0.08	82.1
50	0.01	-64.8	5.62	-4.4	0.037	4.0	0.03	59.9
100	0.02	-72.4	5.63	-16.4	0.037	-2.2	0.03	25.2
200	0.04	-85.0	5.64	-37.0	0.037	-8.5	0.03	-18.5
400	0.08	-100.3	5.58	-76.0	0.037	-18.3	0.04	-62.9
600	0.12	-113.0	5.50	-114.1	0.038	-29.2	0.04	-88.2
800	0.15	-121.8	5.42	-151.6	0.039	-39.8	0.05	-98.0
1000	0.17	-129.6	5.31	-171.6	0.039	-51.5	0.06	-85.8
1200	0.19	-136.7	5.23	-195.2	0.042	-64.7	0.09	-81.2
1400	0.20	-146.4	5.18	-210.2	0.045	-76.4	0.13	-91.3
1600	0.20	-159.5	5.22	-216.6	0.048	-90.7	0.18	-108.0
1800	0.21	-179.7	5.38	-207.0	0.054	-106.2	0.23	-129.8
2000	0.21	-147.3	5.68	-124.4	0.063	-124.2	0.27	-160.3
2200	0.25	-102.2	5.81	-156.9	0.074	-144.9	0.32	-159.4
2300	0.30	79.9	5.58	-80.6	0.077	-157.0	0.35	-137.3