

# AC1068 AC1069

## 10 TO 1000 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC1068	AC1069
High Gain	24.5dB	24.5 dB
High Output Power	+18.5 dBm	+21.5 dBm
High Third Order I.P.	+32.0 dBm	+34.0 dBm
Low Noise Figure	3.7 dB	4.0 dB

High Performance Thin Film  
Standard Size TO-8 Package  
Available in Surface Mount

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)		5-1200 MHz	10-1000 MHz
Small Signal Gain (Min.) AC1068/AC1069	24.5 dB	23.5 dB	22.5 dB
Gain Flatness (Max.)	< ±0.25 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)			
AC1068	3.7 dB	5.0 dB	5.5 dB
AC1069	4.0 dB	5.5 dB	6.0 dB
SWR (Max.)			
Input/Output	< 1.5:1	1.7:1	1.8:1
Power Output (Min.) @ 1dB comp.			
AC1068	+18.5 dBm	+17.5 dBm	+17.0 dBm
AC1069	+21.5 dBm	+20.0 dBm	+19.5 dBm
Reverse Isolation	34.0 dB	—	—
DC Current (Max.)			
AC1068	97.0 mA	103.0 mA	110.0 mA
AC1069	129.0 mA	135.0 mA	140.0 mA

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

### INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC1068	AC1069
Second Order Harmonic Intercept Point	+54 dBm	+51 dBm
Second Order Two Tone Intercept Point	+48 dBm	+45 dBm
Third Order Two Tone Intercept Point	+32 dBm	+34 dBm

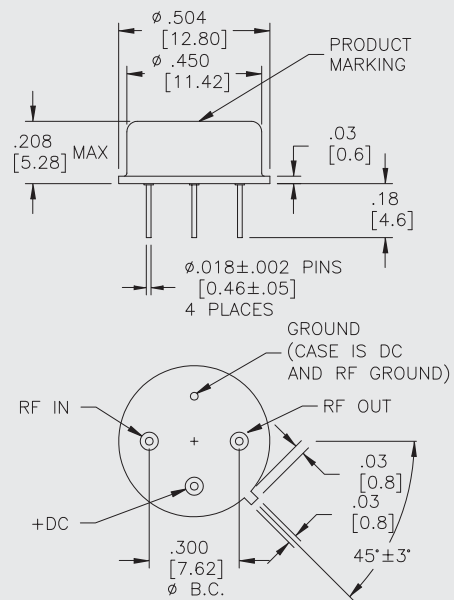
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+19 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 AC1068/AC1069	+105 °C/+95 °C
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC1068)	+26 °C/Watt
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC1069)	+23 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC1068)	+40.8 °C
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC1069)	+46.0 °C

1. Thermal resistance is based on total power dissipation.

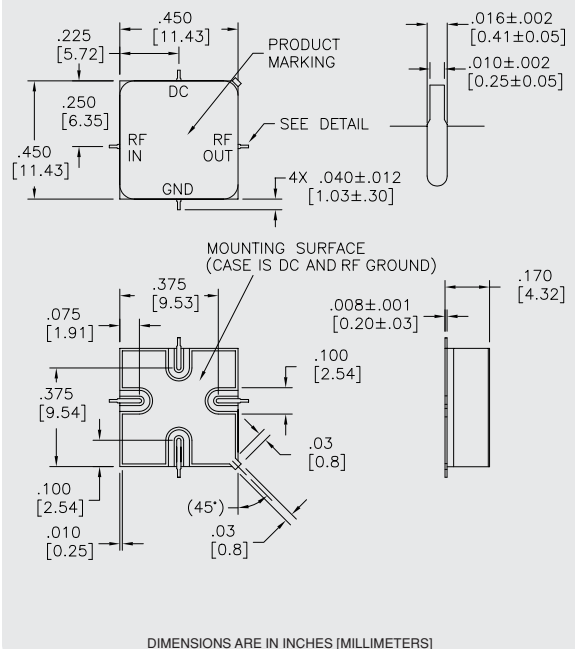
### AC1068/AC1069

#### TO-8 Package for Amplifiers



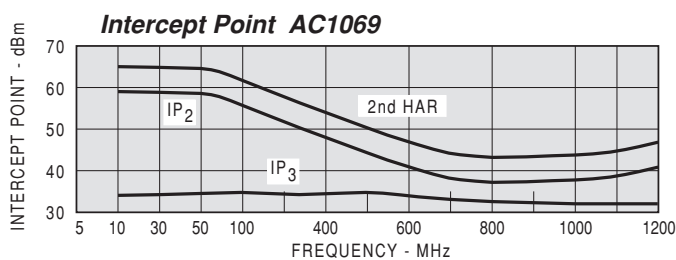
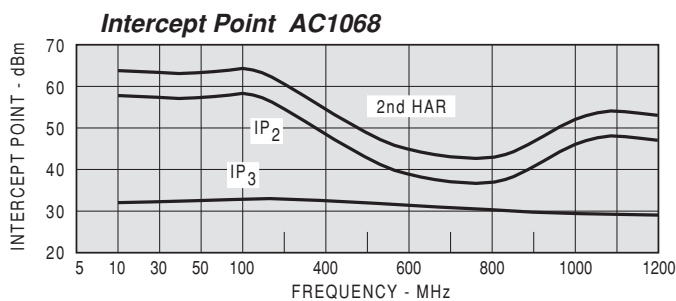
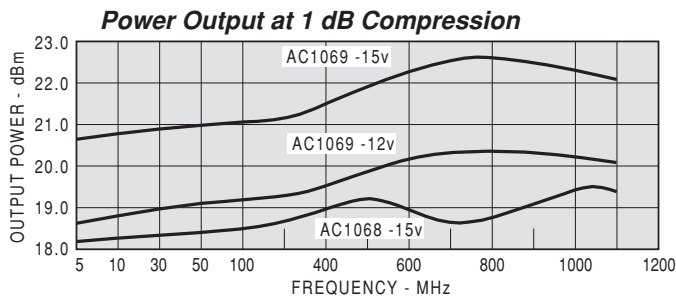
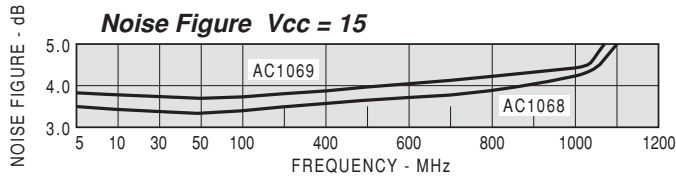
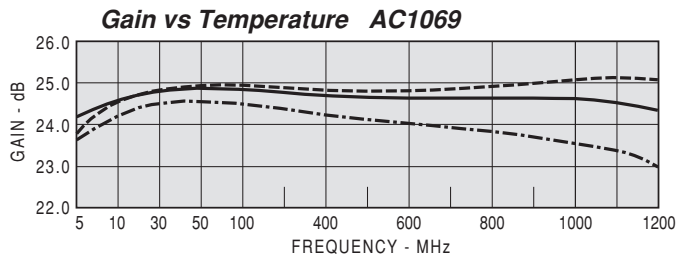
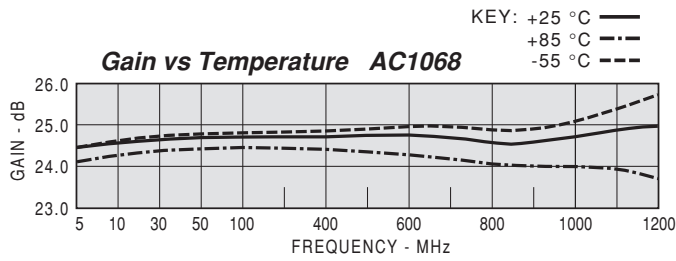
### AS1068/AS1069

#### SMTO-8 Package for Amplifiers



**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AC1069				Vcc=+15V			Icc=130.58	
FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB		
5	1.21	3.00	22.99	69				-37.2
10	1.13	1.62	24.61	31				-35.3
20	1.17	1.22	24.75	11	5.8			-35.3
50	1.18	1.12	24.66	-6	1.6			-35.1
100	1.20	1.14	24.67	-22	0.86			-35.6
200	1.22	1.18	24.68	-48	0.74			-35.3
300	1.26	1.22	24.64	-74	0.71			-35.3
400	1.30	1.26	24.57	-99	0.7			-34.9
500	1.34	1.28	24.51	-124	0.7			-35.1
600	1.38	1.28	24.44	-149	0.7			-34.7
700	1.43	1.25	24.39	-175	0.7			-34.2
800	1.46	1.19	24.35	160	0.71			-33.9
900	1.52	1.12	24.35	134	0.73			-33.7
1000	1.63	1.13	24.42	107	0.75			-33.0
1100	1.91	1.34	24.43	78	0.8			-31.8
1200	2.54	1.74	24.32	47	0.86			-31.4

Model: AC1069				LINEAR S-PARAMETERS				Icc=130.58	
				Vcc=+15V					
FREQ. MHZ	S11		S21		S12		S22		
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.09	-176.8	14.11	68.9	0.014	69.8	0.50	159.7	
10	0.06	46.2	16.99	31.4	0.017	33.5	0.24	112.0	
20	0.08	11.3	17.28	10.7	0.017	12.0	0.10	85.1	
50	0.08	-2.8	17.10	-6.2	0.018	4.4	0.06	71.9	
100	0.09	-15.1	17.12	-21.6	0.017	-3.1	0.06	61.0	
200	0.10	-36.9	17.14	-48.2	0.017	-12.1	0.08	52.1	
300	0.11	-55.3	17.05	-73.7	0.017	-18.6	0.10	48.0	
400	0.13	-73.7	16.92	-98.9	0.018	-25.2	0.11	43.9	
500	0.14	-90.7	16.80	-124.1	0.018	-32.8	0.12	40.5	
600	0.16	-109.9	16.68	-149.2	0.018	-40.0	0.12	34.4	
700	0.18	-130.1	16.57	-174.5	0.020	-49.4	0.11	23.3	
800	0.19	-153.5	16.51	160.0	0.020	-58.1	0.09	7.6	
900	0.20	178.7	16.51	133.9	0.021	-68.4	0.06	-29.6	
1000	0.24	146.8	16.63	106.9	0.022	-82.7	0.06	-112.2	
1100	0.31	112.3	16.66	78.0	0.026	-96.3	0.14	-158.2	
1200	0.43	79.8	16.44	47.0	0.027	-114.1	0.27	175.0	

Model: AC1068				Vcc=+15V			Icc=98.81	
FREQ MHZ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	GROUP DELAY NSEC	REV/ISO DB		
5	1.24	1.50	24.37	35				-34.3
10	1.23	1.25	24.51	16				-34.4
20	1.23	1.12	24.61	4	3.3			-34.4
50	1.24	1.06	24.65	-10	1.3			-34.7
100	1.24	1.06	24.62	-25	0.86			-34.7
200	1.23	1.08	24.57	-53	0.77			-34.6
300	1.22	1.13	24.51	-80	0.75			-34.2
400	1.20	1.18	24.47	-107	0.75			-34.1
500	1.18	1.25	24.47	-134	0.76			-33.9
600	1.16	1.32	24.43	-162	0.76			-33.5
700	1.18	1.37	24.39	170	0.78			-33.3
800	1.22	1.41	24.30	142	0.79			-33.2
900	1.27	1.42	24.32	113	0.81			-32.8
1000	1.26	1.39	24.35	82	0.84			-32.2
1100	1.14	1.30	24.52	49	0.92			-31.7
1200	1.31	1.16	24.51	11	1.1			-31.4

Model: AC1068				LINEAR S-PARAMETERS				Icc=98.81	
				Vcc=+15V					
FREQ. MHZ	S11		S21		S12		S22		
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.11	-33.2	16.54	35.3	0.019	21.6	0.20	-61.1	
10	0.10	-17.2	16.80	16.0	0.019	11.3	0.11	-89.4	
20	0.10	-10.5	16.99	4.2	0.019	2.9	0.06	-113.4	
50	0.11	-12.2	17.07	-9.6	0.018	1.9	0.03	-152.8	
100	0.11	-21.7	17.03	-25.2	0.018	-3.3	0.03	169.7	
200	0.10	-40.3	16.92	-53.1	0.019	-10.8	0.04	131.8	
300	0.10	-55.1	16.81	-80.1	0.019	-17.1	0.06	114.2	
400	0.09	-66.6	16.72	-107.1	0.020	-20.7	0.08	99.0	
500	0.08	-70.8	16.73	-134.4	0.020	-27.0	0.11	85.8	
600	0.07	-70.0	16.64	-161.9	0.021	-35.3	0.14	72.6	
700	0.08	-62.7	16.57	170.0	0.022	-44.1	0.16	56.9	
800	0.10	-60.6	16.41	141.6	0.022	-53.1	0.17	40.1	
900	0.12	-69.9	16.44	112.6	0.023	-62.1	0.17	21.6	
1000	0.12	-87.5	16.51	82.5	0.024	-75.5	0.16	2.9	
1100	0.07	-133.4	16.83	49.2	0.026	-86.0	0.13	-14.5	
1200	0.14	96.5	16.81	11.0	0.027	-102.9	0.07	-13.6	