

# AC4052

## 1000 TO 4000 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC4052
High Gain .....	25.0 dB
High Reverse Isolation .....	38.0 dB
Medium Output Power .....	+15.0 dBm
Low Noise Figure .....	2.2 dB
High Efficiency	
High Performance Thin Film	
Standard Size TO-8	

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	1000-4000 MHz	1000-4000 MHz	1000-4000 MHz
Small Signal Gain (Min.)	25.0 dB	23.0 dB	22.5 dB
Gain Flatness (Max.)	±0.4 dB	±0.8 dB	±0.9 dB
Noise Figure (Max.)	2.2 dB	3.2 dB	3.6 dB
SWR (Max.) Input/Output	1.3:1	1.8:1	1.9:1
Power Output (Min.) @ 1dB comp.	+15.0 dBm	+13.0 dBm	+13.0 dBm
Reverse Isolation	38.0 dB	—	—
DC Current (Max.)	68 mA	79 mA	79 mA

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

### INTERMODULATION PERFORMANCE

Typical @ 25 °C	+5 Volts	+8 Volts
Second Order Harmonic Intercept Point .....	+51 dBm	+56 dBm
Second Order Two Tone Intercept Point .....	+36 dBm	+50 dBm
Third Order Two Tone Intercept Point .....	+26 dBm	+28 dBm

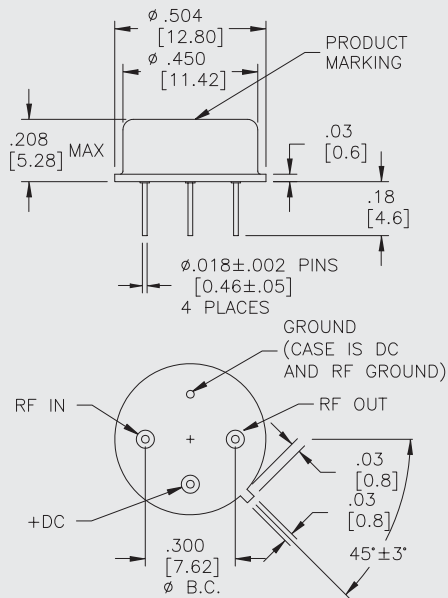
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-65 to +150 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+9 Volts
Maximum Continuous RF Input Power .....	+7 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	50 Milliwatts
Maximum Peak Power (3 µsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+125 °C
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ) .....	+58.5 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ) .....	+20.5 °C

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

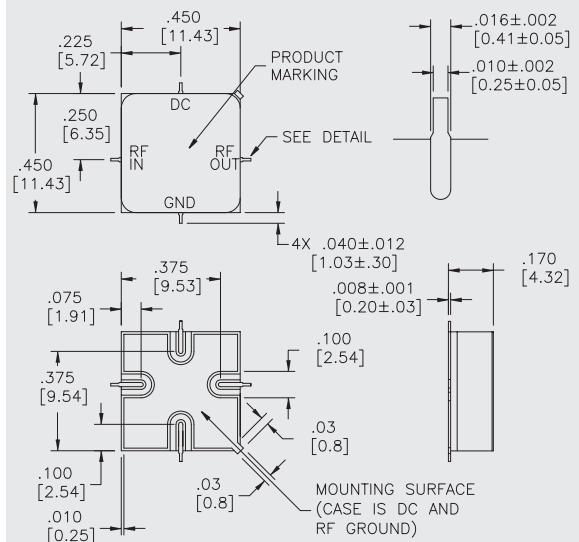
### AC4052

#### TO-8 Package for Amplifiers



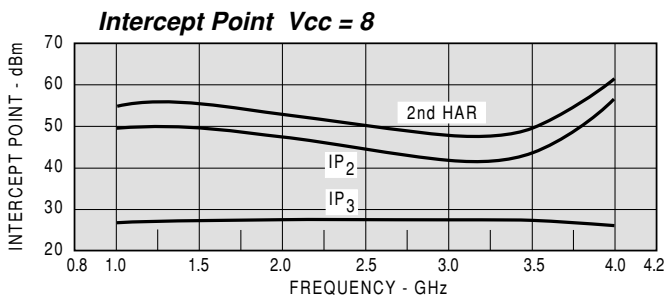
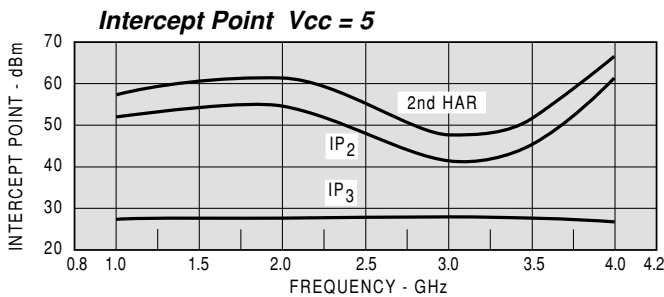
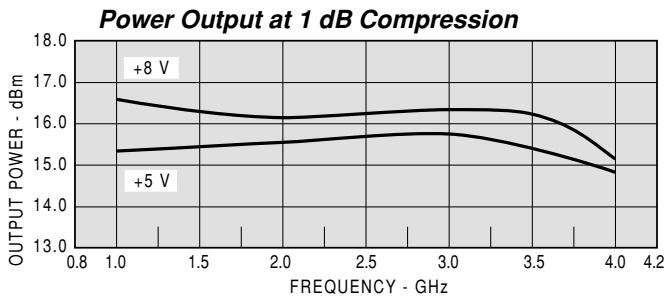
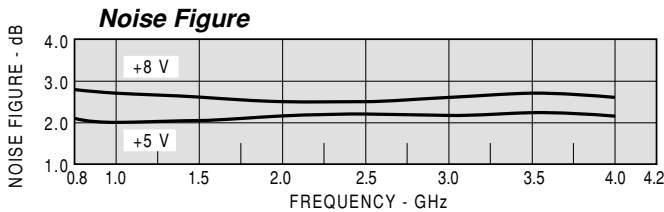
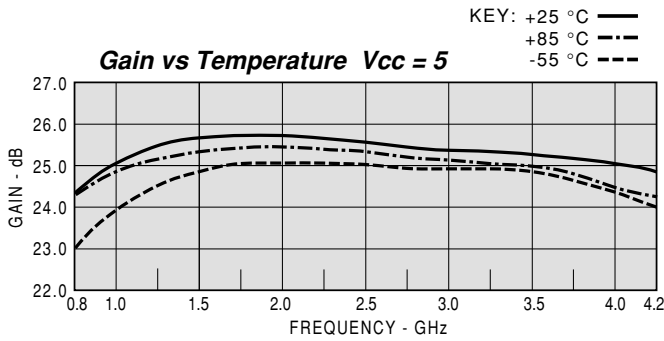
### AS4052

#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**



**TYPICAL AUTOMATIC TEST DATA**

Model: AC4052			Vcc=+5V				Icc=70.18	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO		
MHZ	IN	OUT	DB	DEG	NSEC	DB		
800	1.59	1.50	24.30	4	0.56	-36.1		
1000	1.42	1.27	25.01	-31	0.49	-36.7		
1250	1.32	1.15	25.40	-68	0.41	-36.7		
1500	1.25	1.12	25.62	-100	0.36	-37.1		
1750	1.21	1.11	25.69	-131	0.34	-37.9		
2000	1.19	1.10	25.65	-160	0.32	-37.8		
2250	1.18	1.10	25.59	172	0.31	-38.8		
2500	1.17	1.13	25.48	145	0.30	-38.8		
2750	1.15	1.15	25.37	118	0.30	-37.6		
3000	1.16	1.18	25.29	91	0.30	-38.7		
3250	1.16	1.21	25.24	65	0.30	-42.5		
3500	1.18	1.24	25.15	37	0.30	-39.7		
3750	1.23	1.31	25.00	10	0.31	-39.1		
4000	1.29	1.44	24.84	-19	0.32	-38.3		
4250	1.43	1.62	24.43	-48	0.32	-35.7		

Model: AC4052

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Model: AC4052			Vcc=+5V				Icc=70.18	
FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
800	0.23	-129.1	16.41	4.0	0.016	-21.6	0.20	43.3
1000	0.17	-134.1	17.80	-31.0	0.015	-36.2	0.12	10.6
1250	0.14	-138.4	18.62	-67.8	0.015	-70.1	0.07	-32.6
1500	0.11	-145.1	19.09	-100.5	0.014	-84.6	0.06	-68.6
1750	0.09	-149.3	19.26	-131.0	0.013	-94.5	0.05	-96.4
2000	0.09	-154.2	19.16	-159.8	0.013	-133.1	0.05	-98.9
2250	0.08	-159.1	19.02	172.0	0.012	-143.9	0.05	-98.5
2500	0.08	-168.5	18.80	145.1	0.011	-154.2	0.06	-98.7
2750	0.07	167.8	18.55	118.2	0.013	-161.4	0.07	-102.4
3000	0.07	139.0	18.38	91.5	0.012	166.8	0.08	-112.9
3250	0.07	114.0	18.29	64.5	0.008	161.3	0.09	-132.7
3500	0.08	88.1	18.09	37.2	0.010	122.0	0.11	-158.8
3750	0.10	78.1	17.79	9.6	0.011	94.9	0.13	172.4
4000	0.13	68.9	17.45	-18.9	0.012	74.8	0.18	139.3
4250	0.18	64.8	16.65	-47.7	0.016	53.1	0.24	110.4

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Model: AC4052			Vcc=+8V				Icc=76.81	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO		
MHZ	IN	OUT	DB	DEG	NSEC	DB		
800	1.57	1.53	24.14	3	0.58	-35.9		
1000	1.40	1.28	24.80	-32	0.49	-36.6		
1250	1.32	1.17	25.19	-69	0.41	-36.4		
1500	1.27	1.13	25.40	-102	0.37	-38.2		
1750	1.25	1.11	25.47	-133	0.34	-35.1		
2000	1.25	1.14	25.45	-162	0.33	-37.0		
2250	1.26	1.18	25.39	169	0.32	-37.0		
2500	1.26	1.25	25.25	142	0.31	-38.6		
2750	1.25	1.29	25.05	114	0.30	-37.8		
3000	1.26	1.34	24.95	87	0.30	-37.4		
3250	1.27	1.40	24.82	60	0.30	-40.1		
3500	1.28	1.44	24.62	32	0.30	-38.5		
3750	1.31	1.53	24.43	5	0.30	-36.0		
4000	1.33	1.67	24.27	-23	0.31	-39.1		
4250	1.42	1.88	23.95	-52	0.32	-35.0		

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Model: AC4052			Vcc=+8V				Icc=76.81	
FREQ.	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
800	0.22	-130.6	16.11	3.0	0.016	-13.7	0.21	42.7
1000	0.17	-134.0	17.39	-32.3	0.015	-34.1	0.12	12.9
1250	0.14	-135.2	18.18	-69.3	0.015	-71.9	0.08	-23.6
1500	0.12	-139.3	18.62	-102.2	0.012	-91.0	0.06	-44.9
1750	0.11	-143.2	18.78	-132.9	0.018	-94.8	0.05	-60.1
2000	0.11	-153.6	18.73	-162.2	0.014	-128.2	0.06	-65.7
2250	0.12	-164.5	18.61	169.1	0.014	-155.9	0.08	-71.0
2500	0.11	179.3	18.30	141.7	0.012	-161.2	0.11	-80.2
2750	0.11	155.8	17.88	114.3	0.013	-166.6	0.13	-91.5
3000	0.11	126.5	17.68	87.1	0.014	162.4	0.15	-100.8
3250	0.12	97.5	17.41	59.7	0.010	142.4	0.17	-127.4
3500	0.12	75.3	17.03	32.3	0.012	111.6	0.18	-150.2
3750	0.13	61.1	16.65	5.2	0.016	88.6	0.21	-175.4
4000	0.14	53.1	16.35	-22.9	0.011	81.9	0.25	154.3
4250	0.17	53.3	15.75	-51.9	0.018	40.4	0.31	124.8