

AC4054

800 TO 4000 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

Ultra Broad Bandwidth	800 to 4000 MHz
High Gain	20.0 dB
Low Noise Figure	3.0 dB
High Performance Thin Film	
Standard Size TO-8 Package	

AC4054

800 to 4000 MHz
20.0 dB
3.0 dB

SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	0.8-4.2 GHz	0.8-4.0 GHz	0.8-4.0 GHz
Small Signal Gain (Min.)	20.0 dB	19.0 dB	18.0 dB
Gain Flatness (Max.)	±0.3 dB	±0.7 dB	±0.9 dB
Noise Figure (Max.)	3.0 dB	3.5 dB	4.0 dB
SWR (Max.) Input/Output	1.3:1	1.7:1	1.9:1
Power Output (Min.) @ 1dB comp.	+16.5 dBm	+15.5 dBm	+15.0 dBm
Reverse Isolation	41.0 dB	—	—
DC Current (Max.)	70 mA	74 mA	78 mA

* Measured in a 50-ohm system at +5.0 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 2000 MHz

AC4054

Second Order Harmonic Intercept Point	+42 dBm
Second Order Two Tone Intercept Point	+36 dBm
Third Order Two Tone Intercept Point	+25 dBm

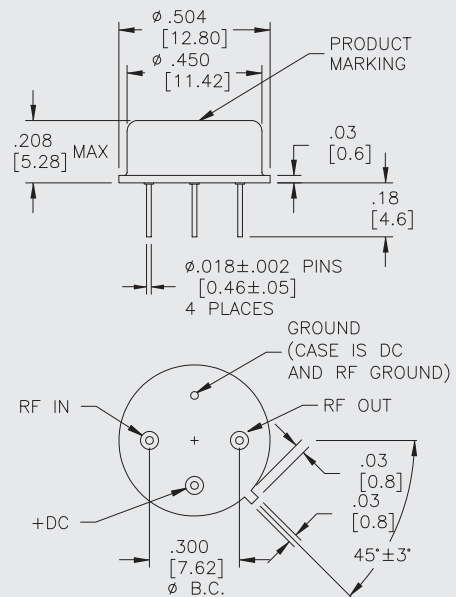
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+7 Volts
Maximum Continuous RF Input Power	+20 dBm
Maximum Short Term Input Power (1 Minute Max.)	125 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature	+125 °C
Thermal Resistance ¹ (θjc)	+37 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+13.9 °C

¹ Thermal resistance is based on total power dissipation.

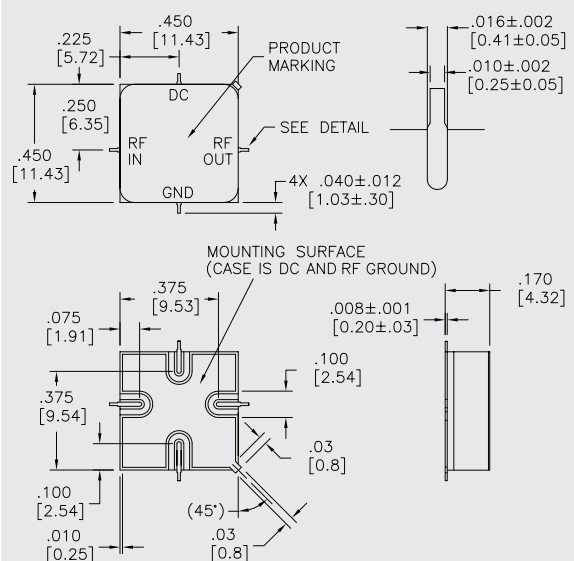
AC4054

TO-8 Package for Amplifiers



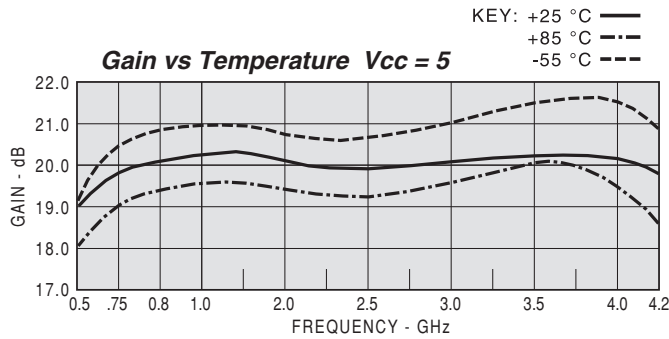
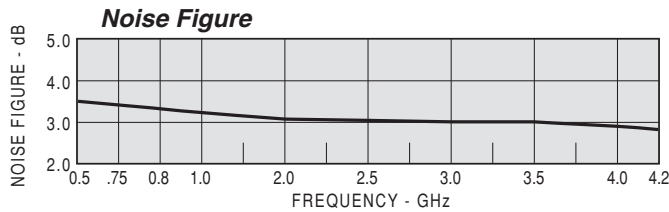
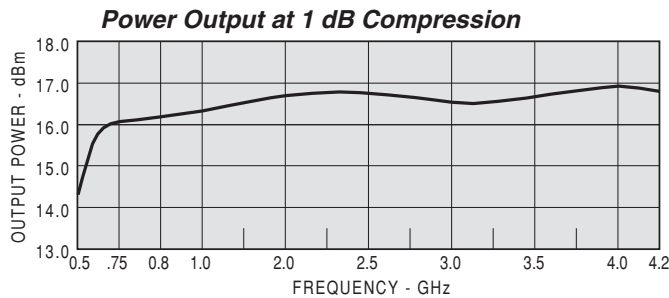
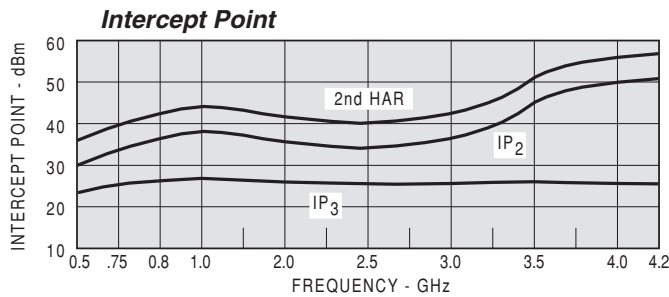
AS4054

SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE



TYPICAL AUTOMATIC TEST DATA

MODEL: AC4054				$V_{cc} = +5V$		$I_{cc} = 71.37 \text{ mA}$	
FREQ	VSWR	VSWR	GAIN	GROUP DELAY	REV/ISO		
MHZ	IN	OUT	DB	NSEC	DB		
750	1.75	1.28	20.1	0.522	-41.1		
800	1.68	1.27	20.2	0.522	-41.1		
1000	1.51	1.33	20.5	0.474	-41.2		
1250	1.40	1.47	20.7	0.419	-42.0		
1500	1.34	1.55	20.8	0.390	-43.1		
1750	1.32	1.59	20.7	0.376	-44.8		
2000	1.27	1.53	20.3	0.352	-47.7		
2250	1.26	1.40	20.1	0.334	-48.9		
2500	1.26	1.25	20.1	0.333	-48.2		
2750	1.26	1.14	20.2	0.333	-45.7		
3000	1.26	1.15	20.2	0.332	-42.8		
3250	1.26	1.24	20.3	0.342	-40.1		
3500	1.26	1.32	20.3	0.364	-37.9		
3750	1.22	1.40	20.2	0.355	-36.5		
4000	1.20	1.53	20.0	0.369	-35.8		
4250	1.25	1.55	19.6	0.398	-34.8		

MODEL: AC4054				$V_{cc} = +5V$				$I_{cc} = 71.37 \text{ mA}$	
FREQ.	S11		S21		S12		S22		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
750	0.27	-118.5	10.11	-12.4	0.009	25	0.12	131.5	
800	0.25	-122.3	10.24	-21.1	0.009	22	0.12	139.7	
1000	0.20	-135.2	10.59	-52.3	0.009	12	0.14	159.5	
1250	0.17	-147.4	10.82	-86.5	0.008	1	0.19	159.2	
1500	0.14	-156.8	10.91	-118.0	0.007	-10	0.22	149.0	
1750	0.14	-165.8	10.81	-148.2	0.006	-27	0.23	135.7	
2000	0.12	-173.5	10.38	-176.2	0.004	-42	0.21	119.1	
2250	0.12	-175.6	10.16	157.3	0.004	-67	0.17	105.1	
2500	0.12	-178.4	10.17	131.0	0.004	-98	0.11	85.3	
2750	0.12	176.3	10.18	104.6	0.005	-123	0.07	41.3	
3000	0.12	171.5	10.23	78.4	0.007	-138	0.07	-25.1	
3250	0.12	164.6	10.37	51.2	0.010	-148	0.11	-66.1	
3500	0.11	153.4	10.32	22.0	0.013	-157	0.14	-85.8	
3750	0.10	134.7	10.19	-6.3	0.015	-166	0.17	-90.7	
4000	0.09	111.7	9.95	-35.9	0.016	-171	0.21	-99.8	
4250	0.11	86.2	9.53	-68.1	0.018	-173	0.22	-109.6	