

# AC457

## 10 TO 400 MHz TO-8 CASCADABLE AMPLIFIER

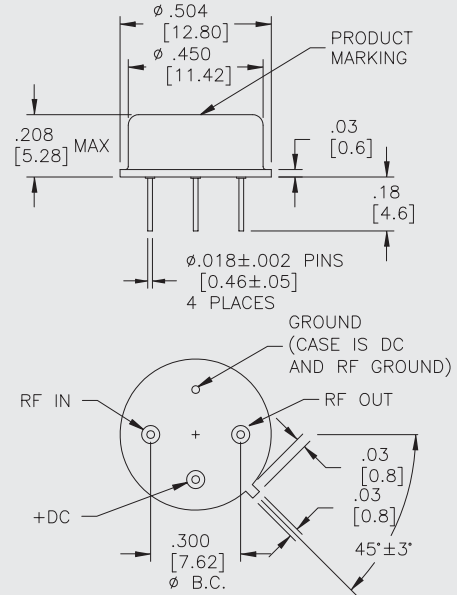
**Typical Values**

High Output Level at +5 Volts .....	<b>+10.5 dBm</b>
High Efficiency .....	<b>15 mA Current Drain</b>
Low Noise Figure .....	<b>3.0 dB</b>
High Performance Thin Film Standard Size TO-8 Package	

**AC457**

### AC457

#### TO-8 Package for Amplifiers



## SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	5-450 MHz	10-400 MHz	10-400 MHz
Small Signal Gain (Min.)	15.3 dB	14.5 dB	14.0 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 < 1.3:1 Output < 1.7:1	1.8:1 2.0:1	1.9:1 2.0:1
Power Output (Min.) @ 1dB comp.	+10.5 dBm	+9.0 dBm	+8.5 dBm
Reverse Isolation	21.0 dB	—	—
DC Current (Max.)	15.5 mA	17.5 mA	18.5 mA

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

## INTERMODULATION PERFORMANCE

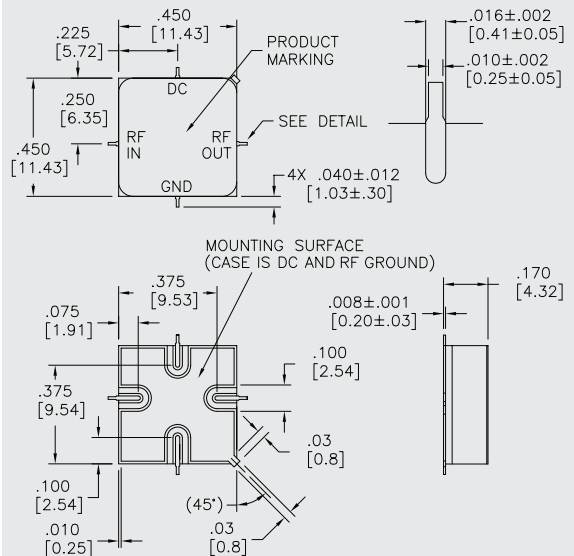
**Typical @ 25 °C**

Second Order Harmonic Intercept Point .....	<b>+43 dBm</b>
Second Order Two Tone Intercept Point .....	<b>+37 dBm</b>
Third Order Two Tone Intercept Point .....	<b>+25 dBm</b>

**AC457**

### AS457

#### SMT0-8 Package for Amplifiers



## ABSOLUTE MAXIMUM RATINGS

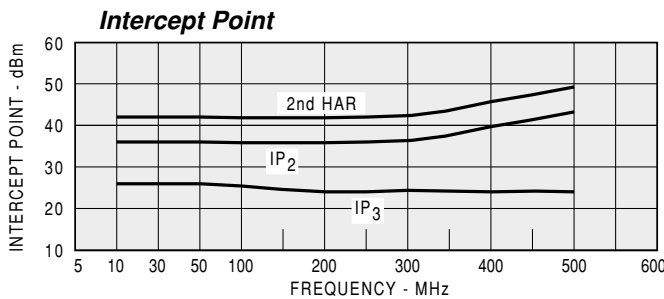
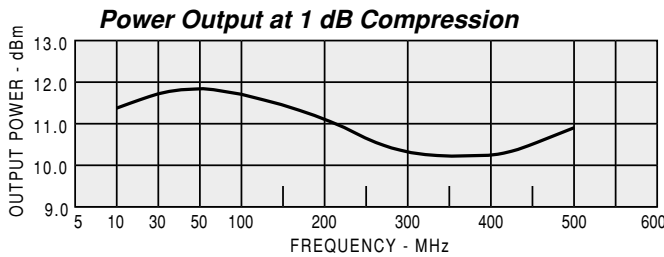
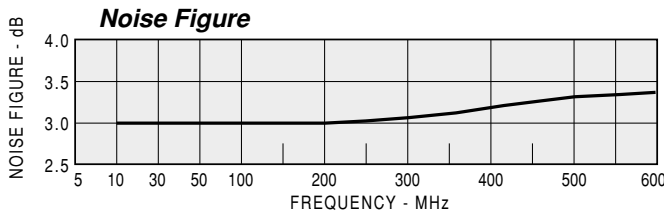
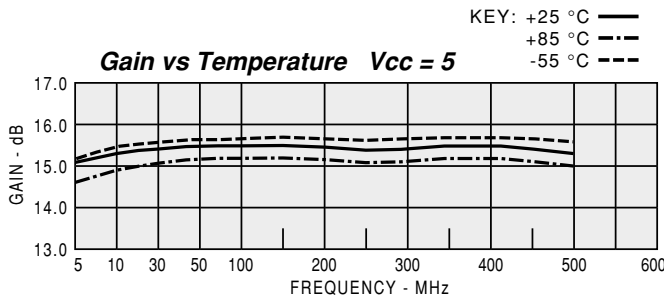
Storage Temperature .....	-62 to +125 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+10 Volts
Maximum Continuous RF Input Power .....	+13 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	50 Milliwatts
Maximum Peak Power (3 μsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+125 °C
Thermal Resistance <sup>1</sup> (θjc) .....	+46 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+4.0 °C

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

DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AC457				Vcc=+5V		Icc=15.68	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	
MHZ	IN	OUT	DB	NSEC			
5	1.65	2.09	15.2				-22.9
10	1.29	1.59	15.4				-22.0
20	1.18	1.37	15.7	2.116			-21.6
50	1.09	1.31	15.6	1.262			-21.5
100	1.14	1.40	15.5	0.982			-21.6
150	1.15	1.47	15.4	0.791			-21.5
200	1.20	1.50	15.4	0.809			-21.4
250	1.20	1.50	15.5	0.834			-21.3
300	1.14	1.48	15.5	0.893			-21.0
350	1.08	1.41	15.5	0.900			-20.7
400	1.10	1.32	15.6	0.935			-20.5
450	1.34	1.36	15.6	1.080			-20.2
500	1.61	1.71	15.4	1.164			-20.2
550	2.21	2.45	14.8	1.249			-20.6

Model: AC457				Vcc=+5V				Icc=15.68	
FREQ	S11		S21		S12		S22		
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.25	-60.7	5.78	-159.1	0.071	17.0	0.35	143.1	
10	0.13	-65.1	5.89	-171.8	0.079	8.0	0.23	144.1	
20	0.08	-60.2	6.10	-179.4	0.083	2.0	0.16	153.3	
50	0.04	-0.5	6.04	167.1	0.084	-6.0	0.13	179.5	
100	0.07	16.2	5.98	149.5	0.083	-16.0	0.17	-171.0	
150	0.07	31.4	5.87	135.2	0.084	-23.0	0.19	-173.3	
200	0.09	26.8	5.88	120.6	0.085	-31.0	0.20	-178.9	
250	0.09	13.2	5.93	105.5	0.086	-40.0	0.20	172.4	
300	0.06	17.3	5.98	89.4	0.089	-48.0	0.19	159.6	
350	0.04	24.8	5.95	73.3	0.092	-59.0	0.17	139.7	
400	0.05	125.8	5.99	56.5	0.095	-70.0	0.14	104.0	
450	0.15	133.5	6.00	37.1	0.098	-84.0	0.15	44.5	
500	0.23	123.7	5.91	16.4	0.098	-98.0	0.26	-4.0	
550	0.38	105.6	5.48	-6.4	0.093	-115.0	0.42	-36.1	
600	0.49	89.6	4.78	-28.8	0.085	-132.0	0.58	-61.4	
650	0.58	72.1	4.03	-49.1	0.073	-148.0	0.71	-82.2	

Model: AC457				Vcc=+8V		Icc=24.98	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO	DB	
MHZ	IN	OUT	DB	NSEC			
5	1.65	2.14	15.6				-23.2
10	1.29	1.64	15.7				-22.2
20	1.13	1.42	16.0	2.080			-21.8
50	1.05	1.35	15.9	1.226			-21.7
100	1.08	1.42	15.9	0.960			-21.8
150	1.17	1.46	15.7	0.775			-21.8
200	1.21	1.46	15.7	0.804			-21.8
250	1.26	1.44	15.8	0.818			-21.6
300	1.19	1.39	15.9	0.878			-21.4
350	1.14	1.31	15.9	0.886			-21.2
400	1.12	1.22	15.9	0.911			-21.0
450	1.28	1.28	16.0	1.038			-20.8
500	1.58	1.62	15.8	1.115			-20.9
550	2.12	2.28	15.3	1.229			-21.2

Model: AC457				Vcc=+8V				Icc=24.98	
FREQ	S11		S21		S12		S22		
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
5	0.25	-66.9	5.99	-159.3	0.070	16.0	0.36	145.8	
10	0.13	-75.4	6.11	-171.7	0.078	8.0	0.24	147.1	
20	0.06	-76.1	6.31	-179.2	0.081	2.0	0.17	155.3	
50	0.02	-19.2	6.25	167.5	0.082	-7.0	0.15	175.6	
100	0.04	38.2	6.20	150.3	0.082	-16.0	0.17	-177.8	
150	0.08	52.2	6.11	136.3	0.081	-24.0	0.19	-179.9	
200	0.09	37.7	6.12	121.9	0.082	-32.0	0.19	175.0	
250	0.12	32.1	6.18	107.1	0.083	-41.0	0.18	167.5	
300	0.09	33.1	6.25	91.3	0.085	-50.0	0.16	156.1	
350	0.06	48.2	6.22	75.6	0.087	-60.0	0.13	137.5	
400	0.05	88.2	6.24	59.0	0.089	-72.0	0.10	98.4	
450	0.12	121.0	6.28	40.2	0.091	-85.0	0.12	30.3	
500	0.22	119.1	6.19	20.1	0.090	-99.0	0.24	-13.0	
550	0.36	102.6	5.85	-1.8	0.087	-115.0	0.39	-40.7	
600	0.48	88.6	5.22	-23.7	0.079	-131.0	0.55	-63.2	
650	0.57	71.5	4.46	-44.2	0.068	-147.0	0.69	-82.9	