

# AC453

## 10 TO 400 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values	AC453
Medium Gain .....	14.8 dB
Low Noise Figure .....	2.8 dB
Low Current Drain .....	10.5 mA
High Performance Thin Film Standard Size TO-8 Package	

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	
Frequency (Min.)	10-500 MHz	10-400 MHz	10-400 MHz	
Small Signal Gain (Min.)	14.8 dB	13.5 dB	13.0 dB	
Gain Flatness (Max.)	±0.4 dB	±0.5 dB	±0.7 dB	
Noise Figure (Max.)	2.8 dB	4.0 dB	4.5 dB	
SWR (Max.)	Input	1.5:1	1.8:1	1.9:1
	Output	1.5:1	2.0:1	2.0:1
Power Output (Min.) @ 1dB comp.	+5.5 dBm	+4.5 dBm	+4.0 dBm	
Reverse Isolation	18.0 dB	—	—	
DC Current (Max.)	10.5 mA	12 mA	13 mA	

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

### INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC453
Second Order Harmonic Intercept Point .....	+30 dBm
Second Order Two Tone Intercept Point .....	+24 dBm
Third Order Two Tone Intercept Point .....	+17 dBm

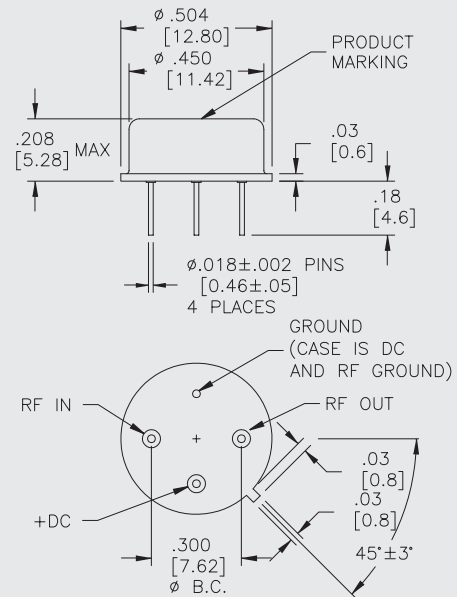
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-62 to +150 °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) .....	+112.5 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+5.5 °C

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

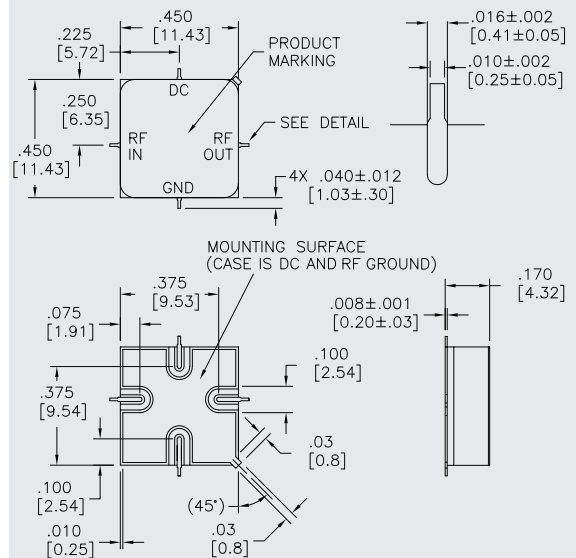
### AC453

#### TO-8 Package for Amplifiers



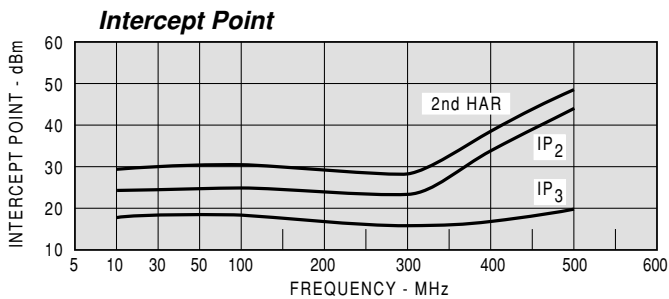
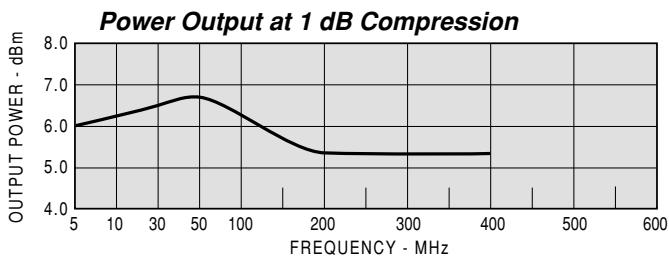
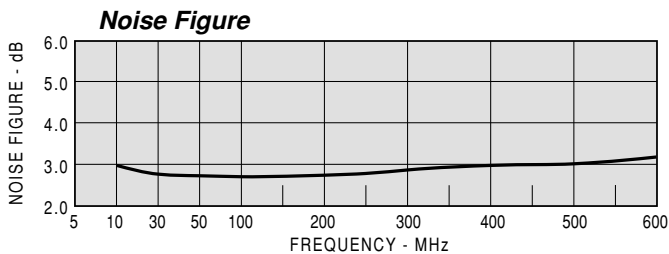
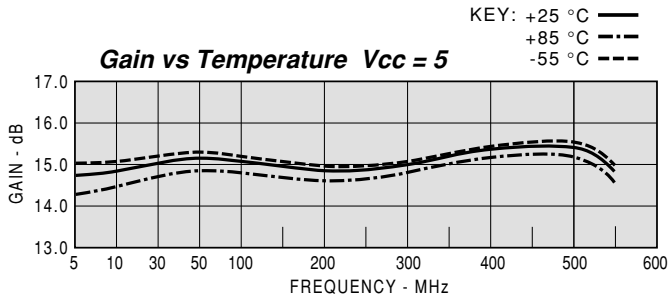
### AS453

#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**



**TYPICAL AUTOMATIC TEST DATA**

Model: AC453		Vcc=+5V				Icc=10.53	
FREQ	SWR	SWR	GAIN	PHASE	GROUP DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.59	1.76	14.64	-163		-21.9	
10	1.34	1.40	14.76	-173		-21.1	
20	1.21	1.24	14.94	180	2.00	-21.1	
50	1.15	1.17	15.04	167	1.20	-20.8	
100	1.23	1.31	14.95	150	0.93	-20.9	
150	1.31	1.44	14.81	135	0.83	-21.0	
200	1.34	1.52	14.75	121	0.81	-21.0	
250	1.35	1.53	14.79	106	0.81	-21.0	
300	1.31	1.48	14.95	91	0.85	-20.8	
350	1.21	1.37	15.15	74	0.89	-20.8	
400	1.09	1.19	15.39	57	0.99	-20.3	
450	1.18	1.19	15.57	37	1.10	-20.0	
500	1.54	1.63	15.50	15	1.20	-20.1	

Model: AC453		LINEAR S-PARAMETERS						Vcc=+5V		Icc=10.53	
FREQ.	S11	S21		S12		S22					
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG			
5	0.23	-55.0	5.40	-163.1	0.080	13.1	0.27	135.5			
10	0.14	-46.3	5.47	-173.1	0.088	7.4	0.17	137.9			
20	0.10	-33.4	5.59	179.6	0.088	3.4	0.11	147.5			
50	0.07	3.6	5.65	167.0	0.091	-7.7	0.08	-165.3			
100	0.10	23.2	5.59	150.2	0.090	-19.0	0.13	-146.5			
150	0.13	21.7	5.50	135.2	0.089	-26.4	0.18	-150.1			
200	0.15	15.5	5.46	120.6	0.089	-35.4	0.20	-156.4			
250	0.15	5.6	5.49	105.9	0.089	-44.5	0.21	-165.1			
300	0.13	-6.7	5.59	90.5	0.091	-55.1	0.19	-175.2			
350	0.09	-24.5	5.72	74.4	0.092	-66.4	0.16	169.5			
400	0.04	-76.3	5.88	56.7	0.097	-76.4	0.09	138.5			
450	0.08	174.2	6.01	36.8	0.100	-90.6	0.09	31.6			
500	0.21	141.9	5.96	14.6	0.099	-107.4	0.24	-18.0			
550	0.35	117.4	5.56	-10.1	0.091	-126.1	0.45	-45.2			

Model: AC453		Vcc=8V				Icc=15.65	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
5	1.54	1.78	15.03	-164		-22.2	
10	1.28	1.44	15.14	-173		-21.4	
20	1.16	1.30	15.31	180	2.00	-21.6	
50	1.09	1.21	15.42	167	1.10	-21.1	
100	1.20	1.32	15.33	151	0.91	-21.3	
150	1.29	1.41	15.20	136	0.82	-21.3	
200	1.33	1.47	15.18	122	0.80	-21.3	
250	1.34	1.46	15.23	107	0.80	-21.5	
300	1.31	1.41	15.39	92	0.84	-21.2	
350	1.21	1.29	15.57	76	0.88	-20.9	
400	1.07	1.12	15.78	59	0.96	-20.9	
450	1.13	1.16	15.98	40	1.10	-20.6	
500	1.47	1.60	15.94	19	1.20	-20.7	

Model: AC453		LINEAR S-PARAMETERS						Vcc=8V		Icc=15.65	
FREQ.	S11	S21		S12		S22					
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG			
5	0.21	-61.7	5.64	-163.6	0.078	13.1	0.28	139.3			
10	0.12	-55.0	5.72	-173.3	0.085	5.9	0.18	143.2			
20	0.07	-42.9	5.83	179.6	0.083	2.7	0.13	151.7			
50	0.05	16.9	5.90	167.3	0.088	-8.9	0.10	-174.1			
100	0.09	37.4	5.84	150.9	0.086	-19.7	0.14	-156.5			
150	0.13	34.6	5.75	136.2	0.086	-25.2	0.17	-157.1			
200	0.14	26.6	5.74	121.8	0.086	-35.6	0.19	-161.4			
250	0.15	18.1	5.77	107.3	0.085	-45.9	0.19	-168.6			
300	0.13	8.1	5.88	92.2	0.087	-56.4	0.17	-177.3			
350	0.10	-3.8	6.00	76.4	0.090	-66.3	0.13	172.1			
400	0.03	-24.2	6.15	59.1	0.090	-78.0	0.06	143.3			
450	0.06	151.7	6.30	39.9	0.093	-92.2	0.07	5.6			
500	0.19	134.4	6.26	18.6	0.092	-106.7	0.23	-26.9			
550	0.33	114.0	5.92	-5.2	0.085	-124.5	0.43	-48.6			