

AC536

5 TO 500 MHz TO-8 CASCADABLE AMPLIFIER

Typical Values

Low Noise Figure	AC536
High Gain	3.0 dB
High Reverse Isolation	28.0 dB
High Performance Thin Film	37 dB
Standard Size TO-8 Package	

SPECIFICATIONS*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	
Frequency (Min.)		5-600 MHz	5-500 MHz	5-500 MHz
Small Signal Gain (Min.)	28.0 dB	27.5 dB	27.0 dB	
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±0.8 dB	
Noise Figure (Max.)	$V_{cc} = 8$ $V_{cc} = 5$	3.3 dB 3.0 dB	3.8 dB 3.5 dB	4.3 dB 4.0 dB
SWR (Max.)	Input/Output	<1.5:1	1.7:1	1.8:1
Power Output (Min.) @ 1dB comp.	$V_{cc} = 8$ $V_{cc} = 5$	+15.5 dBm +11.0 dBm	+15.0 dBm +10.5 dBm	+14.5 dBm +10.0 dBm
Reverse Isolation		37.0 dB	—	—
DC Current (Max.)	$V_{cc} = 8$ $V_{cc} = 5$	62.0 mA 39.0 mA	67.0 mA 44.0 mA	72.0 mA 49.0 mA

* Measured in a 50-ohm system at +8 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

Typical @ 25 °C; 100 MHz	+5 Volts	+8 Volts
Second Order Harmonic Intercept Point	+47 dBm	+51 dBm
Second Order Two Tone Intercept Point	+41 dBm	+46 dBm
Third Order Two Tone Intercept Point	+22 dBm	+28 dBm

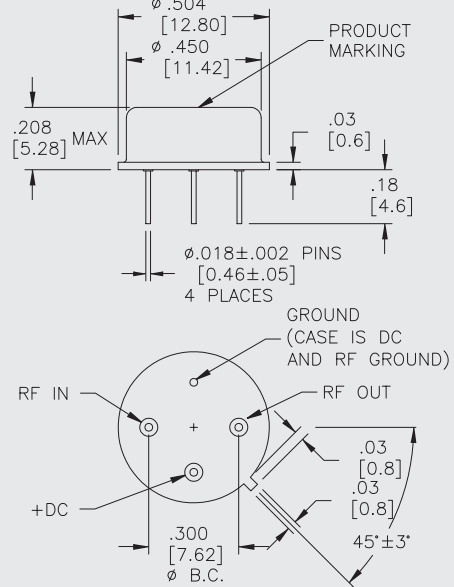
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+12 Volts
Maximum Continuous RF Input Power	+8 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+105 °C
Thermal Resistance¹ (θjc)	+69 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+32.9 °C

¹ Thermal resistance is based on total power dissipation.

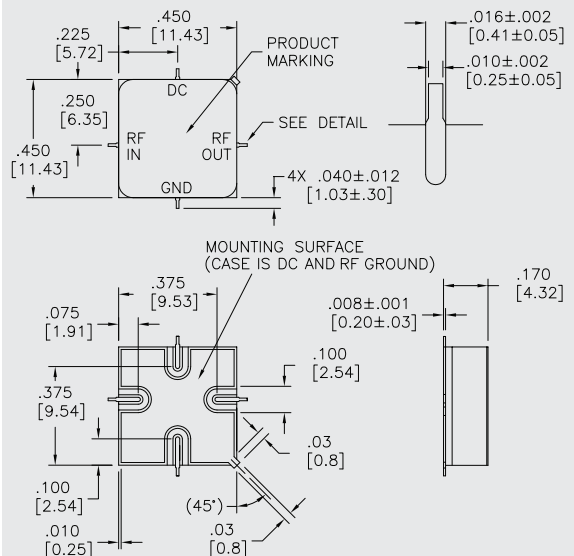
AC536

TO-8 Package for Amplifiers



AS536

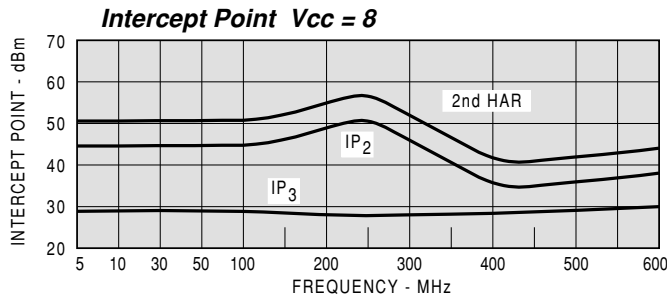
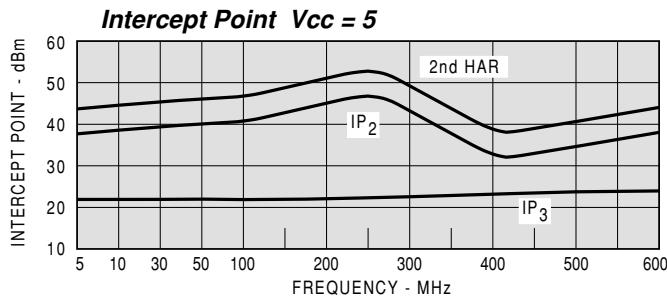
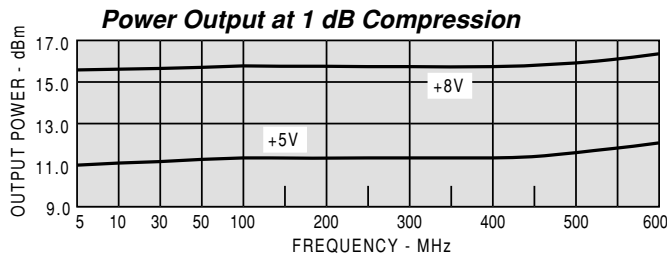
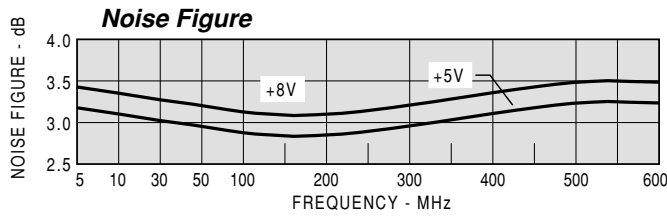
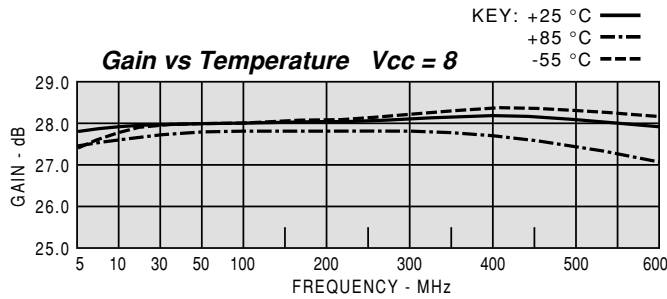
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC536		Vcc=+8V					Icc= 58.49	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO		
MHZ	IN	OUT	DB	DEG	NSEC	DB		
5	1.54	1.11	28.13	27		-39.0		
10	1.53	1.04	28.24	11		-38.9		
50	1.53	1.04	28.38	-15	1.8	-38.6		
100	1.50	1.08	28.40	-35	1.1	-38.2		
150	1.46	1.13	28.44	-55	1.1	-38.5		
200	1.42	1.18	28.45	-74	1.1	-38.3		
250	1.37	1.22	28.42	-94	1.1	-37.8		
300	1.32	1.27	28.35	-113	1.1	-36.7		
350	1.29	1.31	28.25	-133	1.1	-36.7		
400	1.28	1.34	28.14	-153	1.1	-36.2		
450	1.30	1.38	28.06	-172	1.1	-35.4		
500	1.38	1.42	27.99	167	1.1	-35.6		
550	1.51	1.49	27.90	146	1.2	-34.4		
600	1.72	1.60	27.79	125	1.2	-34.1		

Model: AC536		LINEAR S-PARAMETERS								Icc= 58.49	
FREQ.		S11		S21		S12		S22		MAG	ANG
MHZ		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		
5		0.21	-14.2	25.50	26.9	0.011	32.5	0.05	-102.6		
10		0.21	-9.6	25.84	10.8	0.011	15.8	0.02	-93.4		
50		0.21	-15.7	26.23	-15.4	0.012	6.1	0.02	54.3		
100		0.20	-29.7	26.29	-35.4	0.012	0.5	0.04	55.0		
150		0.19	-43.8	26.41	-54.9	0.012	-2.0	0.06	47.6		
200		0.17	-59.3	26.46	-74.2	0.012	-7.3	0.08	36.6		
250		0.15	-76.4	26.36	-93.8	0.013	-8.7	0.10	23.2		
300		0.14	-94.8	26.15	-113.4	0.015	-12.4	0.12	8.4		
350		0.13	-114.4	25.85	-132.9	0.015	-18.3	0.13	-10.3		
400		0.12	-137.1	25.52	-152.6	0.016	-21.5	0.15	-30.4		
450		0.13	-160.9	25.29	-172.1	0.017	-27.7	0.16	-53.3		
500		0.16	175.8	25.09	167.5	0.017	-36.5	0.17	-79.3		
550		0.20	155.7	24.83	146.5	0.019	-41.3	0.20	-108.3		
600		0.26	137.5	24.52	124.8	0.020	-52.2	0.23	-138.3		
650		0.34	120.1	24.02	101.5	0.020	-63.7	0.28	-168.5		
700		0.44	103.1	22.98	77.2	0.021	-75.1	0.35	162.0		

Model: AC536		Vcc=+5V					Icc= 35.08	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO		
MHZ	IN	OUT	DB	DEG	NSEC	DB		
5	1.67	1.13	27.03	25		-38.5		
10	1.67	1.06	27.13	10		-38.2		
50	1.65	1.04	27.25	-17	1.8	-38.1		
100	1.62	1.08	27.24	-38	1.2	-37.4		
150	1.59	1.13	27.23	-58	1.1	-37.2		
200	1.54	1.17	27.20	-78	1.1	-37.8		
250	1.49	1.22	27.11	-98	1.1	-36.5		
300	1.46	1.26	27.01	-118	1.1	-36.2		
350	1.44	1.30	26.87	-139	1.1	-35.7		
400	1.45	1.35	26.72	-159	1.1	-34.8		
450	1.50	1.40	26.61	-179	1.1	-34.4		
500	1.61	1.48	26.51	160	1.2	-33.9		
550	1.82	1.61	26.39	138	1.2	-32.8		
600	2.16	1.82	26.21	114	1.3	-32.4		

Model: AC536		LINEAR S-PARAMETERS								Icc= 35.08	
FREQ.		S11		S21		S12		S22		MAG	ANG
MHZ		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG		
5		0.25	-11.8	22.46	25.4	0.012	30.7	0.06	-95.0		
10		0.25	-8.5	22.74	10.0	0.012	15.6	0.03	-90.8		
50		0.25	-16.8	23.05	-16.6	0.012	5.5	0.02	50.5		
100		0.24	-31.8	23.01	-37.5	0.013	0.1	0.04	52.6		
150		0.23	-46.9	22.98	-57.9	0.014	-0.5	0.06	42.5		
200		0.21	-63.6	22.91	-78.0	0.013	-5.0	0.08	30.6		
250		0.20	-81.1	22.68	-98.2	0.015	-6.4	0.10	14.9		
300		0.19	-100.0	22.41	-118.5	0.015	-9.7	0.11	-2.1		
350		0.18	-119.2	22.06	-138.6	0.016	-14.6	0.13	-22.6		
400		0.18	-140.4	21.69	-158.9	0.018	-21.7	0.15	-45.2		
450		0.20	-161.9	21.42	-179.3	0.019	-28.0	0.17	-70.6		
500		0.23	176.9	21.15	159.5	0.020	-36.7	0.19	-97.9		
550		0.29	156.8	20.87	137.5	0.023	-44.0	0.23	-126.5		
600		0.37	137.7	20.45	114.5	0.024	-56.1	0.29	-155.6		
650		0.46	118.5	19.73	89.8	0.025	-68.5	0.36	175.6		
700		0.56	99.1	18.37	64.0	0.026	-82.5	0.44	147.4		