

# AC2005 AC2006 0.3 TO 2000 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC2005	AC2006
Extended Bandwidth	0.1 to 2000 MHz	0.1 to 2000 MHz
Medium Output Power	+9.0 dBm	+11.0 dBm
Medium Third Order I.P.	+21.0 dBm	+22.0 dBm
High Performance Thin Film		
Standard Size TO-8		

## SPECIFICATIONS

Parameter	Typical	Guaranteed*	
		0 to 50° C	-55 to +85° C
Frequency (Min.)	0.1-2100 MHz	0.3-2000 MHz	0.3-2000 MHz
Small Signal Gain (Min.)	10.8 dB	10.0 dB	9.5 <sup>^</sup> dB
Gain Flatness (Max.)	±0.25 dB	±0.7 dB	±0.8 dB
Noise Figure (Max.)	AC2005 4.4 dB AC2006 5.0 dB	5.0 dB 5.5 dB	5.5 dB 6.0 dB
SWR (Max.)	Input < 1.8:1 Output < 1.5:1	2.0:1 2.0:1	2.2:1 2.0:1
Power Output (Min.) @ 1dB comp.	AC2005 +9.0 dBm AC2006 +11.0 dBm	+7.5 dBm +10.0 dBm	+7.0 dBm +9.5 dBm
DC Current (Max.)	AC2005 24.0 mA AC2006 34.0 mA	26.0 mA 37.0 mA	28.0 mA 39.0 mA

\* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.  
<sup>^</sup> AC2006: 9.0 dB

## INTERMODULATION PERFORMANCE

(Typical @ 25° C)	AC2005	AC2006
Second Order Harmonic Intercept Point	+38 dBm	+41 dBm
Second Order Two Tone Intercept Point	+32 dBm	+35 dBm
Third Order Two Tone Intercept Point	+21 dBm	+22 dBm

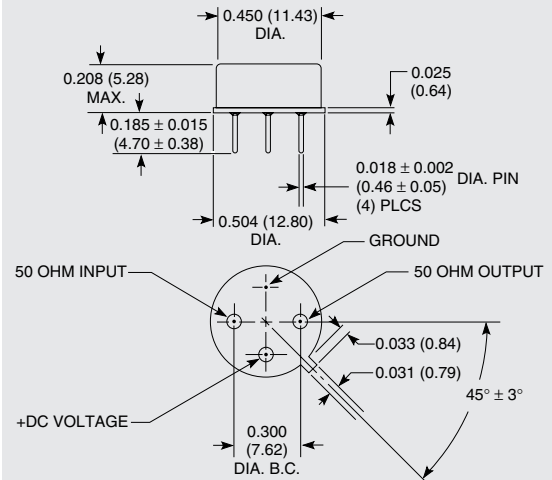
## ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to 125° C
Maximum Case Temperature	+125° C
Maximum DC Voltage	+18 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 (AC2005)	+125° C
Burn-in Temperature (AC2006)	+105° C
Thermal Resistance <sup>1</sup> (θjc; AC2005)	+59° C/Watt
Thermal Resistance <sup>1</sup> (θjc; AC2006)	+61° C/Watt
Junction Temperature Rise Above Case (Tjc; AC2005)	+23.0° C
Junction Temperature Rise Above Case (Tjc; AC2006)	+33.7° C

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

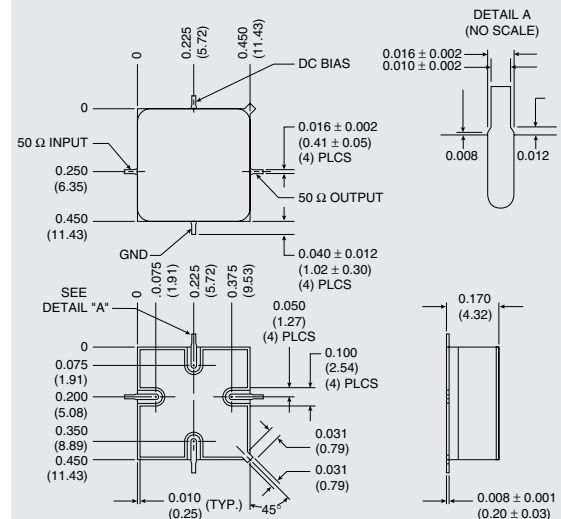
## AC2005/AC2006

### TO-8 Package for Amplifiers



## AS2005/AS2006

### SMT0-8 Package for Amplifiers



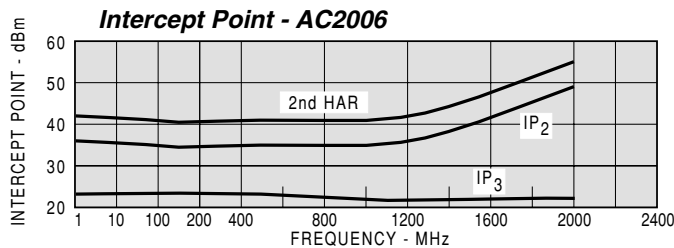
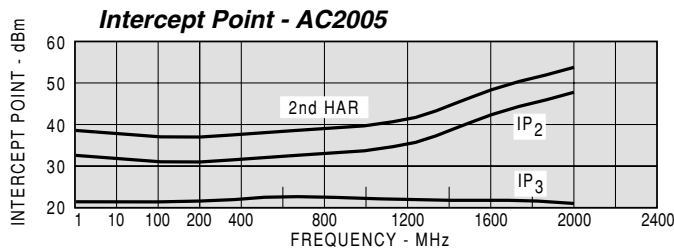
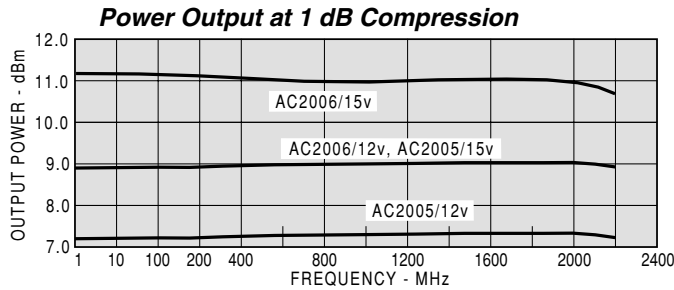
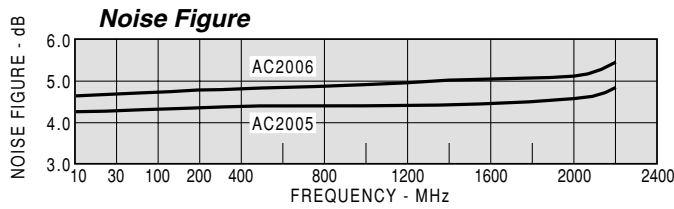
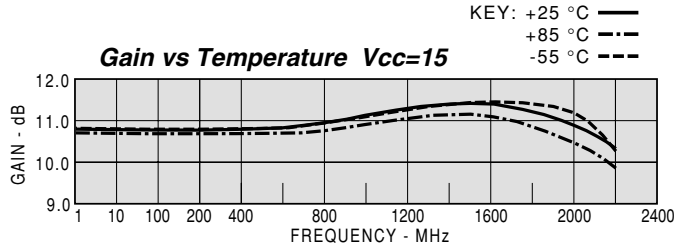
If DC is present on RF input/output, this model requires additional external blocking capacitors.

DIMENSIONS ARE IN INCHES (MILLIMETERS)

# AC2005/AC2006



## TYPICAL PERFORMANCE



## TYPICAL AUTOMATIC TEST DATA

Model: AC2005		Vcc= +15V		Icc= 23.09	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO
MHZ	IN	OUT	DB	NSEC	DB
0.3	1.24	1.22	11.0		-16.5
1	1.16	1.08	10.9		-16.7
10	1.15	1.04	10.8	0.937	-16.7
50	1.16	1.05	10.8	0.367	-16.8
200	1.19	1.11	10.7	0.337	-16.8
400	1.28	1.21	10.6	0.333	-17.1
600	1.39	1.31	10.7	0.327	-17.3
800	1.51	1.36	10.8	0.336	-17.4
1000	1.61	1.38	10.8	0.340	-17.6
1200	1.71	1.39	10.9	0.350	-17.6
1400	1.76	1.40	11.1	0.360	-17.5
1600	1.71	1.32	11.2	0.379	-17.1
1800	1.61	1.22	11.2	0.419	-16.4
2000	1.53	1.43	10.8	0.441	-15.8

Model: AC2005		LINEAR S-PARAMETERS								Vcc= +15V		Icc= 23.09	
FREQ	S11	S21		S12		S22		MAG	ANG	MAG	ANG		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG			
.3	0.11	-49.0	3.54	-171.5	0.149	-6.0	0.10	-94.5					
1	0.07	-18.6	3.52	-177.8	0.147	-2.0	0.04	-118.2					
10	0.07	-3.8	3.48	178.8	0.146	-1.0	0.02	174.4					
50	0.08	-16.9	3.46	173.8	0.145	-4.0	0.02	137.2					
200	0.09	-57.9	3.44	155.8	0.145	-14.0	0.05	82.4					
400	0.12	-94.7	3.39	131.2	0.140	-28.0	0.09	44.4					
600	0.16	-128.5	3.43	108.0	0.137	-41.0	0.13	17.6					
800	0.20	-154.7	3.45	83.5	0.135	-53.0	0.15	-10.9					
1000	0.23	-179.5	3.47	59.2	0.132	-66.0	0.16	-41.0					
1200	0.26	152.9	3.52	34.1	0.131	-78.0	0.16	-75.8					
1400	0.28	129.6	3.57	8.1	0.134	-91.0	0.17	-113.6					
1600	0.26	99.6	3.62	-19.0	0.140	-103.0	0.14	-152.8					
1800	0.23	59.5	3.62	-49.3	0.151	-118.0	0.10	132.8					
2000	0.21	3.8	3.48	-81.2	0.163	-136.0	0.18	47.1					
2200	0.24	-52.8	3.16	-114.8	0.167	-159.0	0.33	-2.0					

Model: AC2006		Vcc= +15V		Icc= 33.66	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO
MHZ	IN	OUT	DB	NSEC	DB
0.3	1.27	1.27	10.9		-16.8
1	1.15	1.12	10.8		-17.0
10	1.15	1.10	10.7	1.178	-17.1
50	1.15	1.10	10.7	0.377	-17.1
200	1.23	1.16	10.6	0.361	-17.2
400	1.38	1.27	10.5	0.358	-17.5
600	1.54	1.39	10.4	0.342	-17.8
800	1.70	1.44	10.4	0.353	-17.9
1000	1.83	1.45	10.3	0.349	-18.1
1200	1.88	1.41	10.5	0.358	-18.1
1400	1.79	1.37	10.7	0.372	-18.1
1600	1.57	1.21	10.9	0.405	-17.1
1800	1.40	1.11	11.0	0.466	-16.3
2000	1.68	1.60	10.6	0.503	-15.7

Model: AC2006		LINEAR S-PARAMETERS								Vcc= +15V		Icc= 33.66	
FREQ	S11	S21		S12		S22		MAG	ANG	MAG	ANG		
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG			
.3	0.12	-54.5	3.51	-169.5	0.145	-7.0	0.12	-104.9					
1	0.07	-23.7	3.47	-177.4	0.141	-3.0	0.06	-137.2					
10	0.07	-6.0	3.44	178.9	0.140	-1.0	0.05	178.2					
50	0.07	-24.4	3.43	173.4	0.139	-4.0	0.05	155.1					
200	0.10	-70.5	3.39	154.0	0.138	-16.0	0.07	101.0					
400	0.16	-107.4	3.33	128.3	0.134	-30.0	0.12	56.1					
600	0.21	-138.7	3.32	103.5	0.129	-44.0	0.16	27.2					
800	0.26	-162.3	3.30	78.2	0.127	-58.0	0.18	-1.1					
1000	0.29	173.3	3.29	53.1	0.125	-71.0	0.18	-29.3					
1200	0.31	146.9	3.34	27.3	0.125	-84.0	0.17	-61.9					
1400	0.28	122.9	3.41	0.4	0.129	-97.0	0.16	-97.4					
1600	0.22	86.7	3.50	-28.7	0.139	-112.0	0.09	-133.1					
1800	0.17	17.1	3.55	-62.0	0.154	-131.0	0.05	74.4					
2000	0.25	-70.6	3.39	-98.5	0.164	-154.0	0.23	11.9					
2200	0.42	-120.8	2.87	-136.5	0.159	178.0	0.42	-26.0					