

AC581 AC582

20 TO 500 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC581	AC582
High Reverse Isolation	30 dB	30 dB
Low Noise Figure	2.8 dB	3.3 dB
High Gain	23.0 dB	23.0 dB
High Output Power	+15.0 dBm	+20.0 dBm
High Third Order I.P.	+27.0 dBm	+33.0 dBm

High Performance Thin Film Standard Size TO-8 Package
Available in Surface Mount

SPECIFICATIONS*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	
Frequency (Min.)		10-600 MHz	20-500 MHz	20-500 MHz
Small Signal Gain (Min.)	23.0 dB	22.0 dB	21.5 dB	
Gain Flatness (Max.)	±0.5 dB	±0.7 dB	±1.0 dB	
Noise Figure (Max.)	AC581	2.8 dB	3.7 dB	4.3 dB
	AC582	3.3 dB	4.2 dB	4.7 dB
SWR (Max.)	Input	< 1.7:1	1.9:1	2.0:1
	Output	< 1.5:1	1.9:1	2.0:1
Power Output (Min.) @ 1dB comp.	AC581	+15.0 dBm	+14.0 [^] dBm	+13.5 [^] dBm
	AC582	+20.0 dBm	+19.0 [^] dBm	+18.5 [^] dBm
Reverse Isolation	31 dB	—	—	
DC Current (Max.)	AC581	31.0 mA	35.0 mA	37.0 mA
	AC582	53.0 mA	56.0 mA	58.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 1.0 dBm less below 30 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC581	AC582
Second Order Harmonic Intercept Point	+40 dBm	+46 dBm
Second Order Two Tone Intercept Point	+35 dBm	+40 dBm
Third Order Two Tone Intercept Point	+27 dBm	+33 dBm

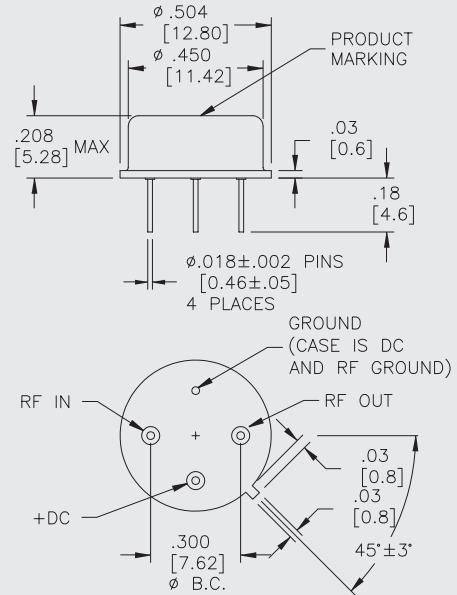
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+19 Volts
Maximum Continuous RF Input Power	+10 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 µsec Max.)	0.5 Watt
Burn-in Temperature (AC581/AC582)	+125 °C/+105 °C
Thermal Resistance ¹ (θ _{jc} ; AC581)	+39 °C/Watt
Thermal Resistance ¹ (θ _{jc} ; AC582)	+44 °C/Watt
Junction Temperature Rise Above Case (T _{jc} ; AC581)	+17.7 °C
Junction Temperature Rise Above Case (T _{jc} ; AC582)	+33.1 °C

¹Thermal resistance is based on total power dissipation.

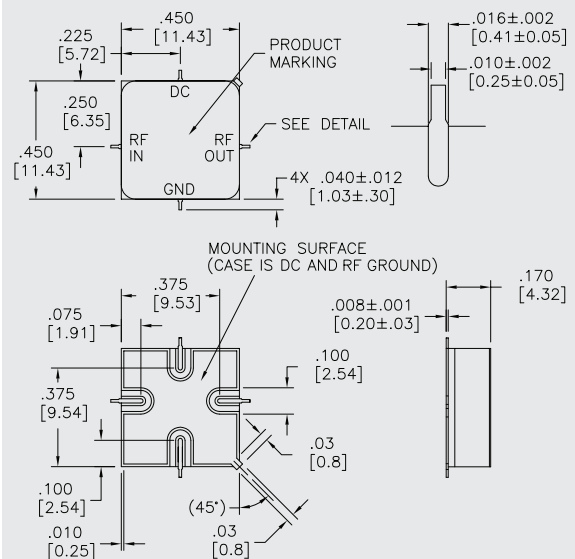
AC581/AC582

TO-8 Package for Amplifiers



AS581/AS582

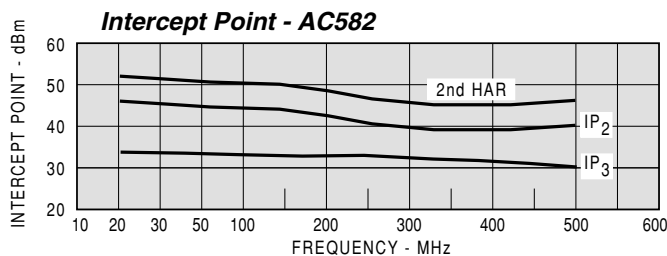
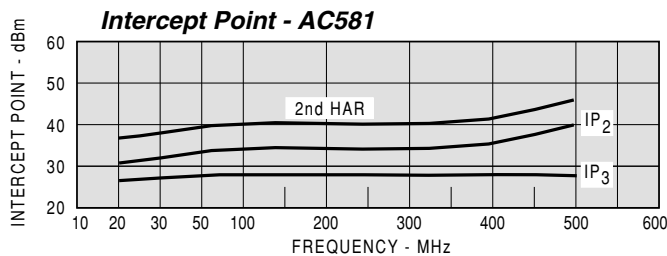
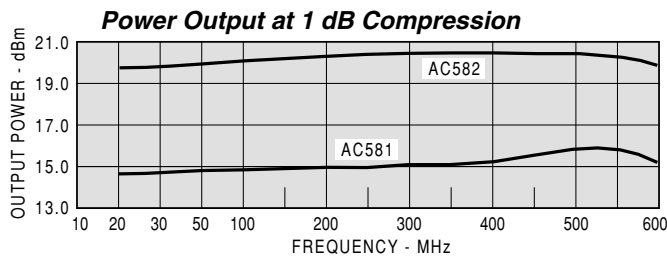
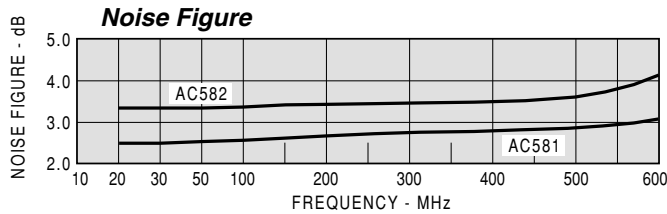
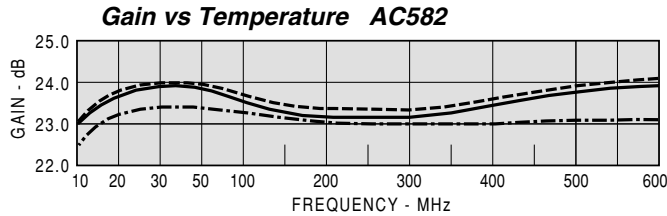
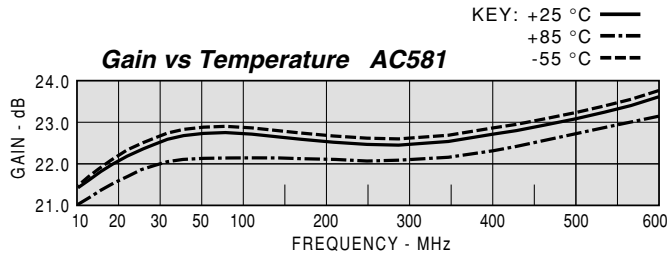
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC582			Vcc=+15V			Icc=48.59	
FREQ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB	
10	1.56	1.74	21.52	-165	2.30	-31.6	
20	1.38	1.53	22.21	-173	2.30	-30.9	
50	1.19	1.36	22.96	173	1.30	-30.2	
100	1.13	1.34	23.08	155	0.99	-30.1	
200	1.18	1.45	22.69	126	0.80	-30.1	
300	1.25	1.57	22.48	101	0.71	-30.3	
400	1.38	1.58	22.71	74	0.74	-29.9	
500	1.74	1.53	23.01	42	0.89	-29.6	
600	2.43	1.96	22.50	4	1.00	-30.7	

Model: AC582			Vcc=+15V				Icc=48.59	
FREQ.	S11		S21		S12		S22	
MHz	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
10	0.22	-40.8	11.91	-164.6	0.026	9.5	0.27	141.8
20	0.16	-44.4	12.90	-173.0	0.028	5.6	0.21	132.8
50	0.09	-49.7	14.06	173.0	0.031	-1.7	0.15	112.2
100	0.06	-31.4	14.25	155.1	0.031	-11.1	0.14	91.2
200	0.08	-21.0	13.63	126.2	0.031	-27.3	0.18	60.9
300	0.11	-28.5	13.30	100.7	0.030	-42.8	0.22	30.8
400	0.16	-31.8	13.66	73.9	0.032	-61.0	0.23	-10.0
500	0.27	-45.3	14.14	42.0	0.033	-84.8	0.21	-78.7
600	0.42	-71.5	13.33	4.20	0.029	-114.2	0.32	-165.5
700	0.51	-100.9	10.54	-32.9	0.022	-145.3	0.53	138.2

Model: AC582			Vcc=+12V			Icc=38.72	
FREQ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB	
10	1.56	1.71	21.33	-164	2.3	-31.5	
20	1.39	1.51	22.03	-173	2.3	-30.9	
50	1.20	1.34	22.79	173	1.3	-30.1	
100	1.14	1.31	22.92	155	0.99	-30.0	
200	1.20	1.42	22.56	126	0.81	-30.1	
300	1.27	1.53	22.39	101	0.71	-30.3	
400	1.42	1.54	22.66	74	0.75	-29.7	
500	1.82	1.51	22.97	41	0.9	-29.5	
600	2.59	2.04	22.44	3	1.1	-30.7	

Model: AC581			Vcc=+15V			Icc=30.80	
FREQ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB	
10	1.70	1.81	21.86	-165	2.30	-31.4	
20	1.49	1.57	22.51	-173	2.30	-30.9	
50	1.28	1.34	23.21	173	1.30	-30.1	
100	1.24	1.25	23.31	156	0.96	-30.1	
200	1.32	1.26	23.02	127	0.79	-30.3	
300	1.37	1.29	22.86	102	0.70	-30.5	
400	1.43	1.32	23.05	76	0.71	-30.2	
500	1.56	1.39	23.45	48	0.79	-29.9	
600	1.81	1.69	23.64	15	0.92	-30.4	

Model: AC581			Vcc=+12V			Icc=24.69	
FREQ	SWR IN	SWR OUT	GAIN DB	PHASE DEG	DELAY NSEC	REV/ISO DB	
10	1.75	1.79	21.55	-164	2.40	-31.3	
20	1.53	1.54	22.21	-173	2.40	-30.7	
50	1.32	1.31	22.93	173	1.30	-29.9	
100	1.27	1.22	23.04	155	0.97	-29.9	
200	1.35	1.22	22.74	127	0.79	-30.1	
300	1.39	1.26	22.60	101	0.71	-30.5	
400	1.45	1.29	22.81	75	0.72	-30.2	
500	1.59	1.40	23.22	46	0.81	-30.0	
600	1.88	1.77	23.39	12	0.94	-30.6	