

# 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 AC582: 3.3 dB	3.7 dB 4.2 dB	4.3 dB 4.7 dB	
SWR (Max.)	Input: < 1.7:1 Output: < 1.5:1	1.9:1 1.9:1	2.0:1 2.0:1	
Power Output (Min.) @ 1dB comp.	AC581: +15.0 dBm AC582: +20.0 dBm	+14.0 <sup>^</sup> dBm +19.0 <sup>^</sup> dBm	+13.5 <sup>^</sup> dBm +18.5 <sup>^</sup> dBm	
DC Current (Max.)	AC581: 31.0 mA AC582: 53.0 mA	35.0 mA 56.0 mA	37.0 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

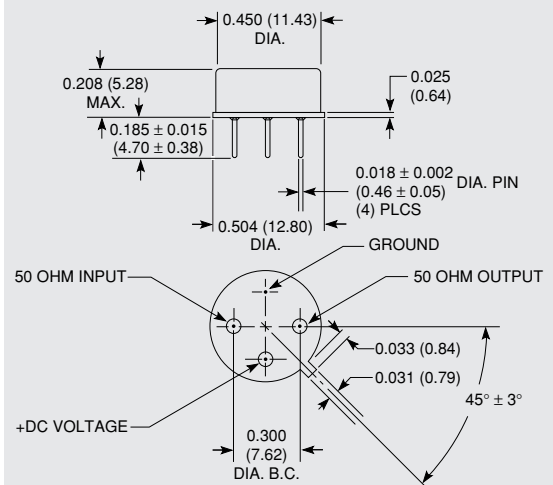
## ABSOLUTE MAXIMUM RATINGS

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 <sup>1</sup> (θjc; AC581)	+39° C/Watt
Thermal Resistance <sup>1</sup> (θjc; AC582)	+44° C/Watt
Junction Temperature Rise Above Case (Tjc; AC581)	+17.7° C
Junction Temperature Rise Above Case (Tjc; AC582)	+33.1° C

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

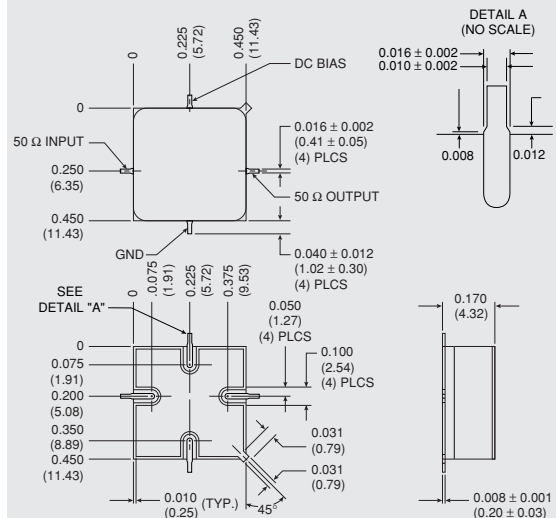
## AC581/AC582

### TO-8 Package for Amplifiers



## AS581/AS582

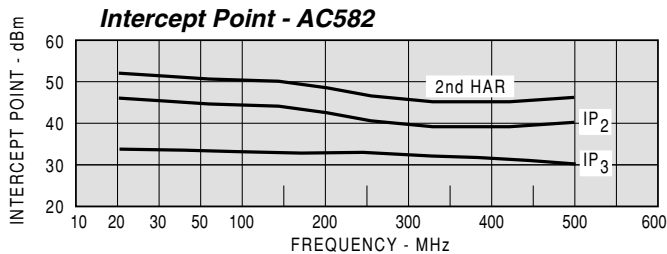
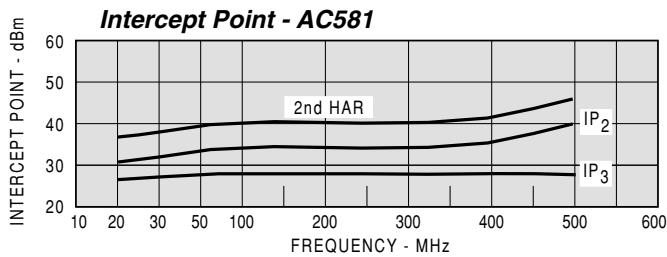
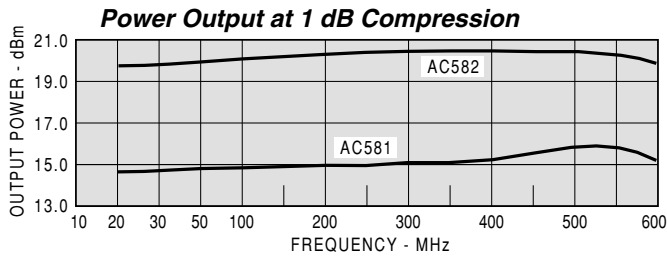
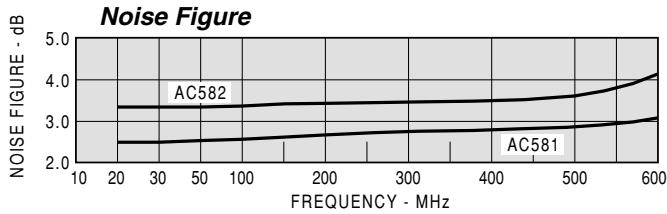
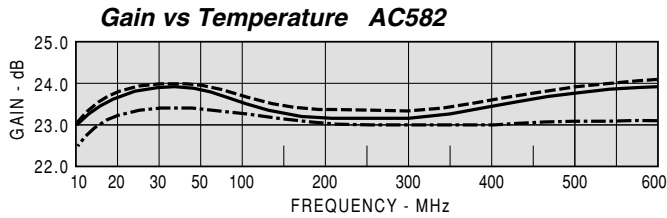
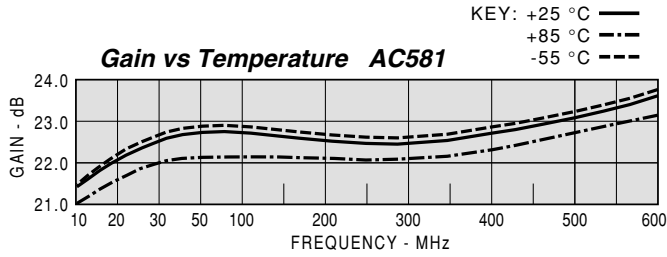
### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES (MILLIMETERS)

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: AC582 Vcc=+15V Icc=48.59

FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
MHZ	IN	OUT	DB	DEG	NSEC	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

LINEAR S-PARAMETERS

FREQ	S11	S21	S12	S22
MHZ	MAG	ANG	MAG	ANG
10	0.22	-40.8	11.91	-164.6
20	0.16	-44.4	12.90	-173.0
50	0.09	-49.7	14.06	173.0
100	0.06	-31.4	14.25	155.1
200	0.08	-21.0	13.63	126.2
300	0.11	-28.5	13.30	100.7
400	0.16	-31.8	13.66	73.9
500	0.27	-45.3	14.14	42.0
600	0.42	-71.5	13.33	4.20
700	0.51	-100.9	10.54	-32.9

Model: AC582 Vcc=+12V Icc=38.72

FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO
MHZ	IN	OUT	DB	DEG	NSEC	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	SWR	GAIN	PHASE	DELAY	REV/ISO
MHZ	IN	OUT	DB	DEG	NSEC	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	SWR	GAIN	PHASE	DELAY	REV/ISO
MHZ	IN	OUT	DB	DEG	NSEC	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