

AC381 AC382

10 TO 250 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC381	AC382
High Reverse Isolation	30 dB	30 dB
Low Noise Gain	2.7 dB	3.3 dB
High Gain	24.0 dB	24.0 dB
High Output Power	+16.0 dBm	+21.0 dBm
High Third Order I.P.	+29.0 dBm	+34 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.)	5-350 MHz	10-250 MHz	10-250 MHz	
Small Signal Gain (Min.)	24.0 dB	23.0 dB	22.7 dB	
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±0.7 dB	
Noise Figure (Max.)	AC381	2.7 dB	3.3 dB	3.8 dB
	AC382	3.3 dB	4.0 dB	4.5 dB
SWR (Max.)	Input	<1.5:1	2.0:1	2.0:1
	Output	<1.4:1	1.7:1	1.8:1
Power Output (Min.) @ 1dB comp.	AC381	+16.0 dBm	+15.0 [^] dBm	+14.5 [^] dBm
	AC382	+21.0 dBm	+20.0 [^] dBm	+19.0 [^] dBm
Reverse Isolation	29.0 dB	—	—	
DC Current (Max.)	AC381	27.0 mA	30.0 mA	32.0 mA
	AC382	47.0 mA	50.0 mA	53.0 mA

* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.
^ 0.5 dBm less below 20 MHz.

INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC381	AC382
Second Order Harmonic Intercept Point	+44 dBm	+49 dBm
Second Order Two Tone Intercept Point	+38 dBm	+43 dBm
Third Order Two Tone Intercept Point	+29 dBm	+34 dBm

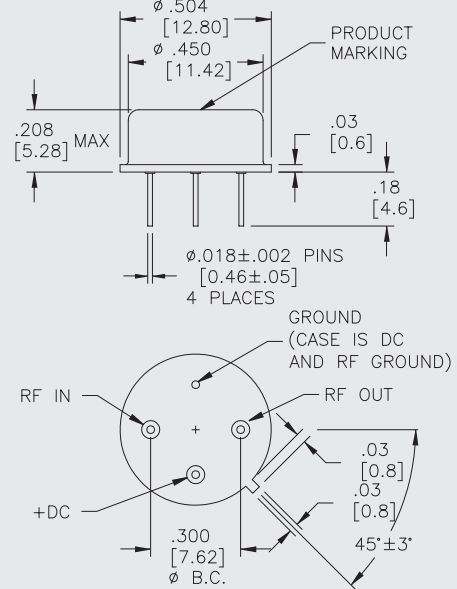
ABSOLUTE MAXIMUM RATINGS

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 AC381/AC382	+125 °C/+105 °C
Thermal Resistance ¹ (θjc); AC381	+41 °C/Watt
Thermal Resistance ¹ (θjc); AC382	+44 °C/Watt
Junction Temperature Rise Above Case (Tjc); AC381 ...	+19 °C
Junction Temperature Rise Above Case (Tjc); AC382 ...	+33 °C

¹ Thermal resistance is based on total power dissipation.

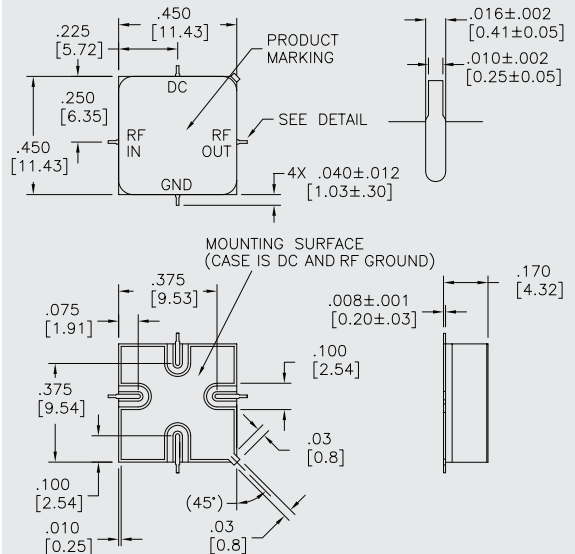
AC381/AC382

TO-8 Package for Amplifiers



AS381/AS382

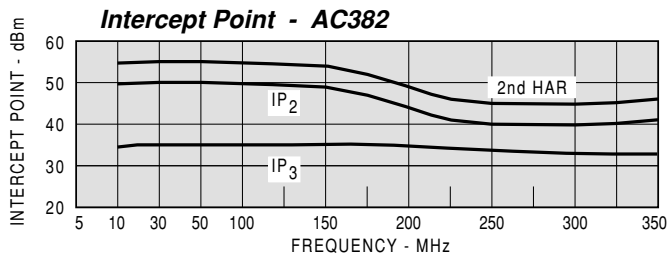
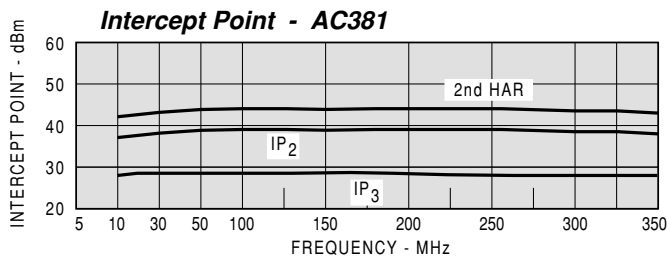
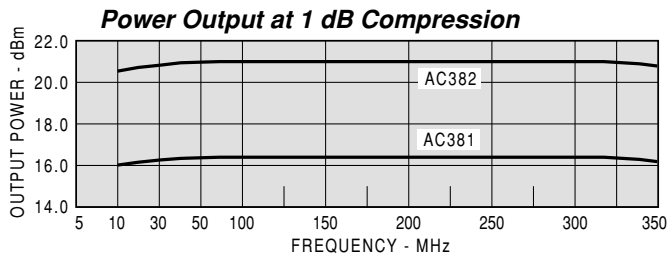
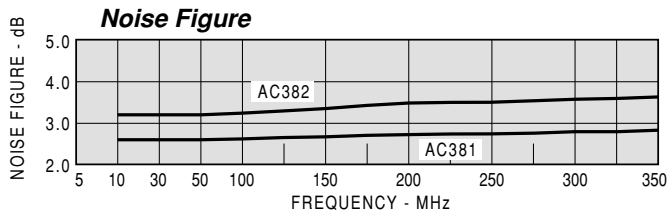
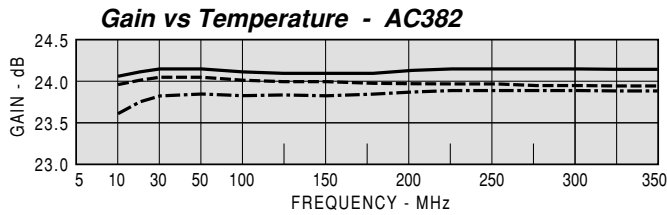
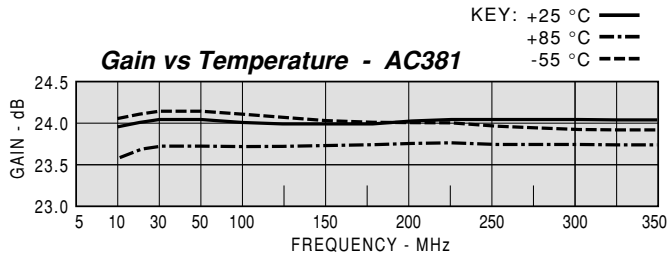
SMTO-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC381				Vcc=+15V		Icc=28.01	
FREQ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB		
5	1.89	1.81	23.6				
10	1.60	1.43	23.7				
20	1.47	1.33	24.0	2.080			
30	1.44	1.31	24.0	1.335			
50	1.41	1.30	24.1	0.974			
100	1.45	1.29	24.1	0.827			
150	1.49	1.29	24.0	0.744			
200	1.57	1.30	24.1	0.754			
250	1.64	1.32	24.1	0.748			
300	1.75	1.36	24.2	0.783			
350	1.90	1.42	24.4	0.793			

Model: AC381				Vcc=+15V				Icc=28.01	
FREQ	MAG S11	ANG S11	MAG S21	ANG S21	MAG S12	ANG S12	MAG S22	ANG S22	
5	0.31	-38.6	15.11	-160.8	0.031	17.0	0.29	99.3	
10	0.23	-27.9	15.38	-171.6	0.033	8.0	0.18	74.2	
20	0.19	-18.4	15.82	-179.0	0.035	2.0	0.14	46.8	
30	0.18	-13.0	15.92	176.1	0.035	-1.0	0.13	31.5	
50	0.17	-5.9	15.97	169.0	0.036	-7.0	0.13	15.6	
100	0.18	1.5	16.01	154.3	0.035	-17.0	0.13	-1.5	
150	0.20	2.7	15.89	140.0	0.035	-27.0	0.13	-11.6	
200	0.22	2.1	15.97	127.3	0.034	-37.0	0.13	-23.2	
250	0.24	-0.6	16.09	113.7	0.034	-46.0	0.14	-38.4	
300	0.27	-5.8	16.27	99.7	0.033	-56.0	0.15	-57.9	
350	0.31	-12.9	16.52	85.4	0.032	-67.0	0.17	-80.7	
400	0.35	-23.1	16.74	69.9	0.031	-80.0	0.21	-106.1	

Model: AC381				Vcc=+12V		Icc=22.40	
FREQ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB		
5	1.96	1.85	23.3				
10	1.65	1.46	23.5				
20	1.53	1.36	23.7	2.123			
30	1.49	1.34	23.8	1.341			
50	1.46	1.33	23.8	1.003			
100	1.50	1.32	23.8	0.836			
150	1.54	1.32	23.8	0.759			
200	1.60	1.33	23.8	0.769			
250	1.67	1.35	23.9	0.761			
300	1.78	1.39	23.9	0.796			
350	1.93	1.47	24.1	0.807			

Model: AC382				Vcc=+15V		Icc=46.94	
FREQ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB		
5	2.27	2.72	23.0				
10	1.64	1.68	23.5				
20	1.41	1.34	23.9	2.819			
30	1.34	1.23	24.0	1.611			
50	1.30	1.14	24.0	1.083			
100	1.35	1.08	24.0	0.842			
150	1.43	1.07	24.0	0.736			
200	1.50	1.08	24.0	0.730			
250	1.56	1.10	24.1	0.720			
300	1.63	1.14	24.2	0.743			
350	1.70	1.20	24.3	0.757			

Model: AC382				Vcc=+12V		Icc=37.57	
FREQ	SWR IN	SWR OUT	GAIN DB	GROUP DELAY NSEC	REV/ISO DB		
5	2.27	2.69	22.9				
10	1.65	1.67	23.4				
20	1.42	1.33	23.8	2.814			
30	1.36	1.23	23.9	1.597			
50	1.33	1.14	23.9	1.089			
100	1.38	1.08	23.9	0.838			
150	1.45	1.07	23.8	0.736			
200	1.53	1.07	23.9	0.726			
250	1.60	1.09	23.9	0.723			
300	1.67	1.13	24.0	0.740			
350	1.75	1.20	24.2	0.756			