

# AC271 AC273

## 10 TO 250 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC271	AC273
Low Noise Figure .....	1.5 dB	2.4 dB
Medium Output Level .....	+14.0 dBm	+20.5 dBm
High Third Order I.P. ....	+30.0 dBm	+36.0 dBm
High Efficiency		
Standard Size TO-8 Package		

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to 85 °C
Frequency (Min.)	5-300 MHz	10-250 MHz <sup>~</sup>	10-250 MHz <sup>~</sup>
Small Signal Gain (Min.)	8.0 dB	7.5† dB	7.0† dB
Gain Flatness (Max.)	±0.3 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	AC271 2.4 dB	AC271 1.5 dB	AC273 3.0 dB
SWR (Max.)	Input/ Output		
	AC271 AC273	<1.5:1 <1.5:1	1.8:1 2.0:1
Power Output (Min.) @ 1dB comp.	AC271 AC273	+14.0 dBm +20.5 dBm	+13.0 <sup>^</sup> dBm +20.0 dBm
			+12.5 <sup>^</sup> dBm +19.5 dBm
Reverse Isolation	11.0 dB	—	—
DC Current (Max.)	AC271 AC273	14.5 mA 37.0 mA	15.5 mA 40.0 mA
			18.5 mA 42.0 mA

\* Measured in a 50-ohm system at +15 Vdc unless otherwise specified. <sup>^</sup>1.0 dBm less below 30 MHz  
†AC271 is 1.0 dB less below 30 MHz. <sup>~</sup>AC273 guaranteed only between 30-250 MHz

### INTERMODULATION PERFORMANCE

Typical @ 25 °C; 100 MHz	AC271	AC273
Second Order Harmonic Intercept Point .....	+55 dBm	+56 dBm
Second Order Two Tone Intercept Point .....	+49 dBm	+50 dBm
Third Order Two Tone Intercept Point .....	+30 dBm	+36 dBm

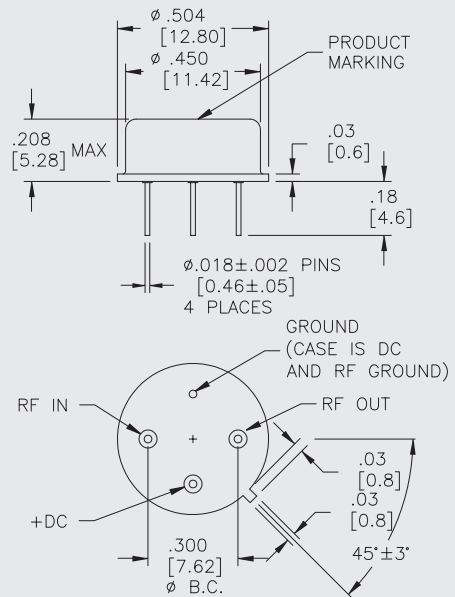
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-62 to +125 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+17 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 (AC271/AC273) .....	+125 °C/+105 °C
Thermal Resistance <sup>1</sup> (θjc; AC271) .....	+31 °C/Watt
Thermal Resistance <sup>1</sup> (θjc; AC273) .....	+51 °C/Watt
Junction Temperature Rise Above Case (Tjc; AC271) ...	+7.1 °C
Junction Temperature Rise Above Case (Tjc; AC273) ...	+30.5 °C

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

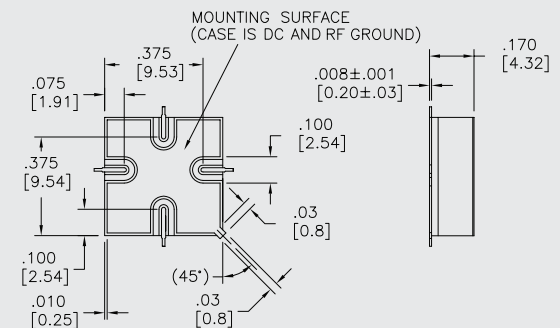
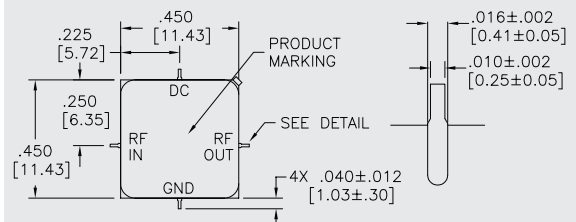
### AC271/AC273

#### TO-8 Package for Amplifiers



### AS271/AS273

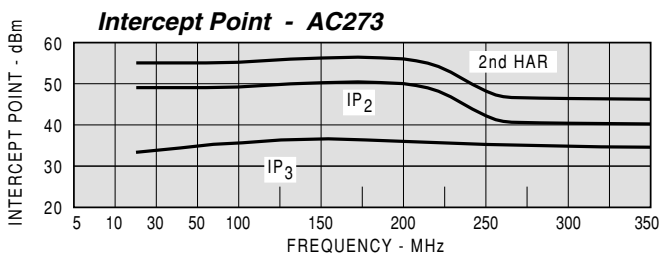
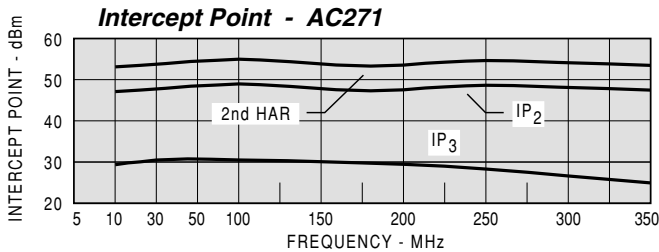
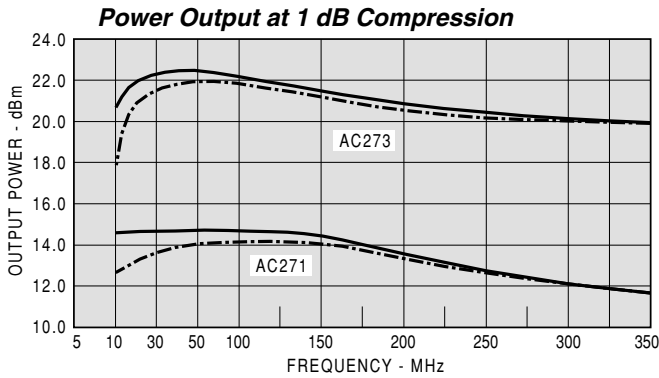
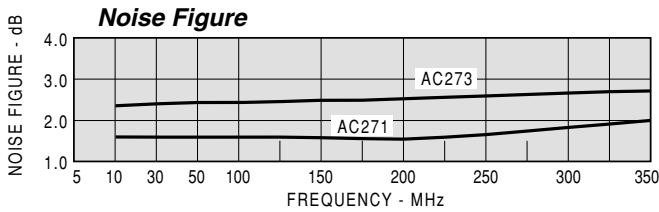
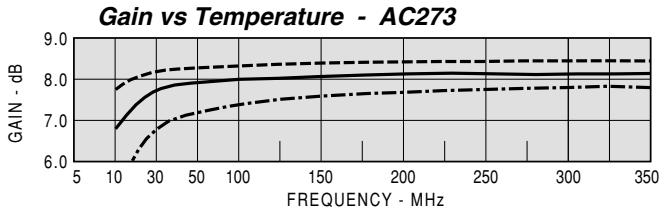
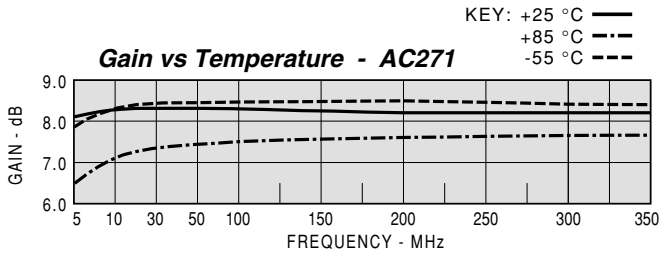
#### SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

## TYPICAL PERFORMANCE

## TYPICAL AUTOMATIC TEST DATA



Model: AC271 Vcc=+15V Icc=13.95

FREQ MHz	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
5	1.24	1.26	7.7		-11.3
10	1.17	1.17	8.0		-11.1
20	1.13	1.13	8.2		-11.0
50	1.14	1.13	8.2	0.736	-11.1
100	1.22	1.19	8.1	0.553	-11.2
150	1.33	1.26	8.1	0.502	-11.3
200	1.45	1.37	8.1	0.522	-11.5
250	1.62	1.49	8.1	0.524	-11.7
300	1.84	1.66	8.1	0.548	-12.0

Model: AC271 Vcc=+15V Icc=13.95

LINEAR S-PARAMETERS

FREQ MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.11	156.4	2.43	13.6	0.271	13.0	0.12	162.0
10	0.08	159.2	2.52	6.0	0.278	6.0	0.08	158.5
20	0.06	174.2	2.56	0.4	0.282	0.0	0.06	171.9
50	0.07	-156.6	2.56	-7.6	0.280	-8.0	0.06	-164.2
100	0.10	-144.4	2.55	-17.6	0.276	-17.0	0.09	-142.3
150	0.14	-144.5	2.54	-26.7	0.271	-26.0	0.11	-140.4
200	0.19	-148.5	2.54	-36.2	0.266	-35.0	0.16	-140.4
250	0.24	-155.7	2.53	-45.6	0.260	-44.0	0.20	-142.9
300	0.30	-164.0	2.53	-55.3	0.250	-54.0	0.25	-149.4
350	0.35	-174.1	2.50	-65.5	0.238	-64.0	0.31	-155.7

Model: AC271 Vcc=+12V Icc=10.87

FREQ MHz	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
5	1.21	1.24	7.6		-11.4
10	1.14	1.15	8.0		-11.2
20	1.10	1.11	8.1		-11.0
50	1.13	1.12	8.1	0.752	-11.1
100	1.21	1.19	8.0	0.562	-11.2
150	1.32	1.27	8.0	0.517	-11.4
200	1.45	1.41	8.0	0.544	-11.6
250	1.63	1.54	8.0	0.537	-11.8
300	1.84	1.73	7.9	0.552	-12.2

Model: AC273 Vcc=+15V Icc=37.15

FREQ MHz	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
5	4.73	4.88	4.4		-14.1
10	2.45	2.56	6.8		-12.1
20	1.66	1.71	7.7		-11.3
50	1.29	1.30	8.0		-11.0
100	1.23	1.18	8.0	0.712	-11.0
150	1.32	1.17	8.1	0.572	-11.1
200	1.46	1.22	8.2	0.539	-11.2
250	1.62	1.31	8.1	0.574	-11.4
300	1.86	1.44	8.1	0.560	-11.7

Model: AC273 Vcc=+15V Icc=37.15

LINEAR S-PARAMETERS

FREQ MHz	S11		S21		S12		S22	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
5	0.65	149.6	1.66	52.9	0.198	54.0	0.66	157.6
10	0.42	134.0	2.18	29.6	0.249	30.0	0.44	137.4
20	0.25	131.3	2.41	13.7	0.272	14.0	0.26	129.7
50	0.13	-146.5	2.50	-1.8	0.282	-2.0	0.13	-136.5
100	0.10	-179.0	2.53	-14.6	0.283	-15.0	0.08	-159.3
150	0.14	-164.5	2.54	-24.9	0.280	-25.0	0.08	-177.1
200	0.19	-164.3	2.56	-34.5	0.275	-36.0	0.10	-160.2
250	0.24	-166.5	2.55	-44.9	0.269	-46.0	0.13	-153.3
300	0.30	-173.1	2.55	-55.1	0.261	-56.0	0.18	-153.1
350	0.36	-177.6	2.55	-65.7	0.250	-67.0	0.23	-157.7

Model: AC273 Vcc=+12V Icc=28.68

FREQ MHz	SWR IN	SWR OUT	GAIN DB	DELAY NSEC	REV/ISO DB
5	2.78	2.89	6.2		-12.5
10	1.79	1.85	7.4		-11.5
20	1.43	1.45	7.8		-11.1
50	1.24	1.23	8.0		-10.9
100	1.24	1.18	8.1	0.658	-11.0
150	1.36	1.20	8.1	0.563	-11.1
200	1.50	1.26	8.1	0.542	-11.3
250	1.68	1.37	8.1	0.584	-11.5
300	1.93	1.52	8.1	0.562	-11.8