

# AC345 AC347

## 5 TO 250 MHz TO-8 CASCADABLE AMPLIFIERS

Typical Values	AC345	AC347
Low Noise Figure .....	+2.0 dB	+2.3 dB
High Third Order I.P. ....	+25.0 dBm	+28.0 dBm
Medium Output Level .....	+12.0 dBm	+15.5 dBm
Low Current Consumption .....	30 mA	46 mA
High Performance Thin Film Standard Size TO-8 Package		

### SPECIFICATIONS\*

Parameter	Typical	Guaranteed		
		0 to 50 °C	-55 to +85 °C	
Frequency (Min.)	5-300 MHz	5-250 MHz	5-250 MHz	
Small Signal Gain (Min.)	13.0 dB	12.5 dB	12.0 dB	
Gain Flatness (Max.)	±0.25 dB	±0.5 dB	±0.7 dB	
Noise Figure (Max.)	AC345	2.0 dB	2.5 dB	3.0 dB
	AC347	2.3 dB	2.7 dB	3.2 dB
SWR (Max.)	Input	<1.4:1	1.6:1	1.7:1
	Output	<1.2:1	1.3:1	1.5:1
Power Output (Min.) @ 1dB comp	AC345	+12.0 dBm	+11.0 dBm	+10.5 dBm
	AC347	+15.5 dBm	+14.5 dBm	+14.0 dBm
Reverse Isolation	17.0 dB	—	—	
DC Current (Max.)	AC345	30 mA	34 mA	38 mA
	AC347	46 mA	50 mA	54 mA

\* Measured in a 50-ohm system at +15 Vdc unless otherwise specified.

### INTERMODULATION PERFORMANCE

Typical @ 25 °C	AC345	AC347
Second Order Harmonic Intercept Point .....	+39 dBm	+47 dBm
Second Order Two Tone Intercept Point .....	+33 dBm	+41 dBm
Third Order Two Tone Intercept Point .....	+25 dBm	+28 dBm

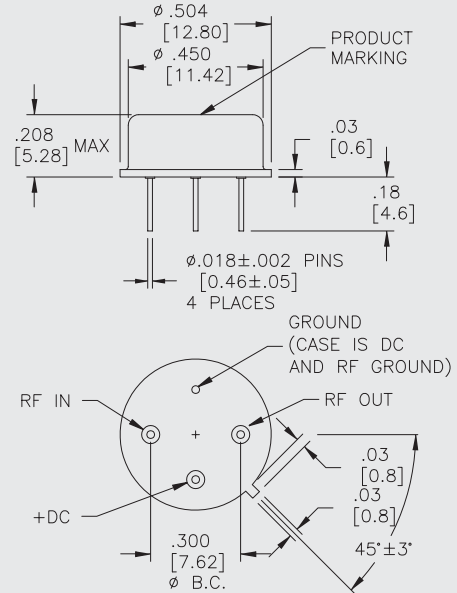
### ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-62 to +125 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+19 Volts
Maximum Continuous RF Input Power .....	+13 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	50 Milliwatts
Maximum Peak Power (3 µsec Max.) .....	0.5 Watt
Burn-in Temperature .....	+105 °C
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC345) .....	+20 °C/Watt
Thermal Resistance <sup>1</sup> (θ <sub>jc</sub> ; AC347) .....	+49 °C/Watt
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC345) .....	+15.0 °C
Junction Temperature Rise Above Case (T <sub>jc</sub> ; AC347) .....	+25.2 °C

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

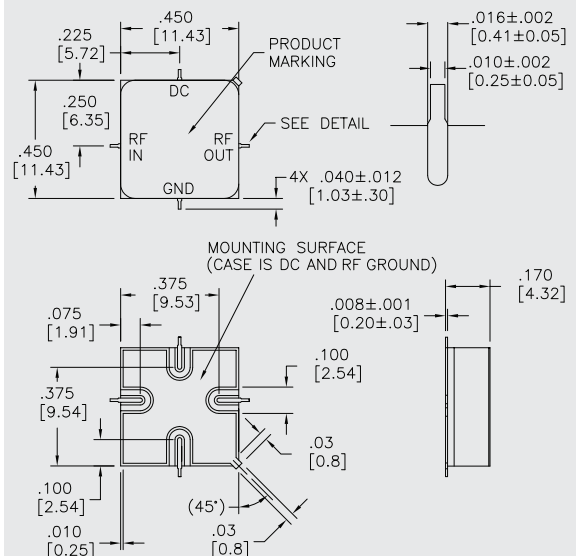
### AC345/AC347

#### TO-8 Package for Amplifiers



### AS345/AS347

#### SMT0-8 Package for Amplifiers

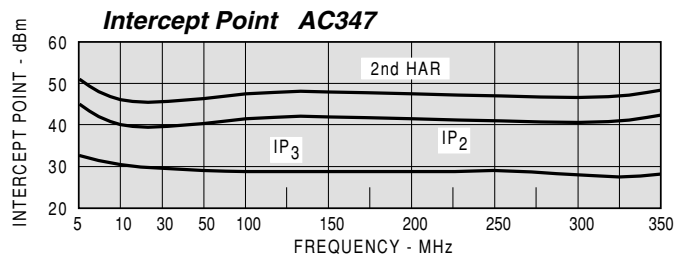
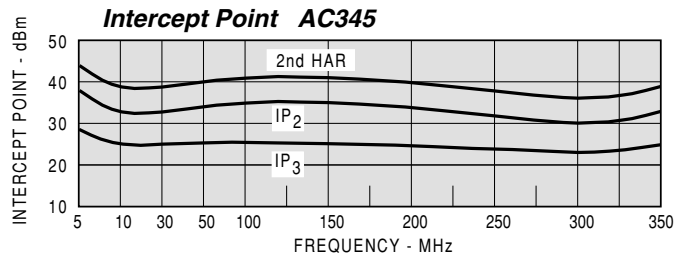
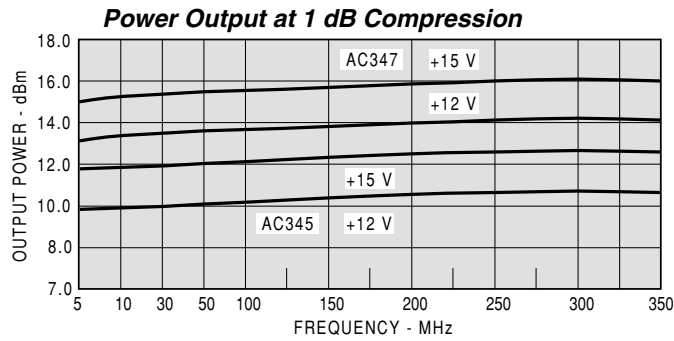
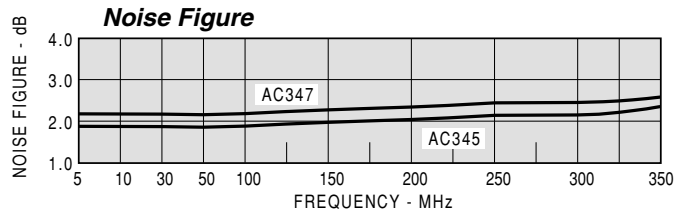
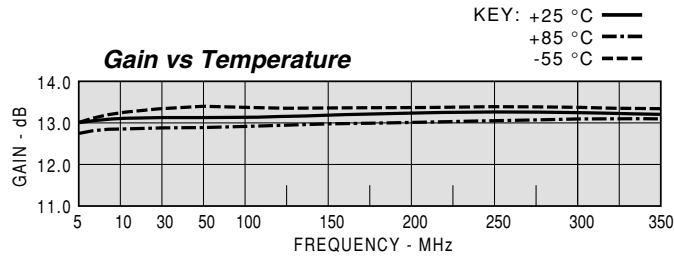


If DC is present on RF input/output, this model requires additional external blocking capacitors.

DIMENSIONS ARE IN INCHES [MILLIMETERS]

## TYPICAL PERFORMANCE

## TYPICAL AUTOMATIC TEST DATA



Model: AC345			Vcc=+15V			Icc=30.01	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO		
MHZ	IN	OUT	DB	NSEC	DB		
2	1.13	1.23	13.1		-17.2		
5	1.09	1.13	13.1		-17.4		
10	1.08	1.10	13.2	1.760	-17.4		
50	1.11	1.09	13.1	0.767	-17.5		
100	1.17	1.10	13.1	0.623	-17.5		
200	1.36	1.12	13.2	0.634	-17.5		
300	1.70	1.07	13.4	0.679	-17.4		
400	2.30	1.08	13.3	0.736	-17.5		

Model: AC345			Vcc=+15V				Icc=30.01	
FREQ	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2	0.06	-142.9	4.51	-170.9	0.138	176.0	0.10	132.9
5	0.04	-162.8	4.54	-177.0	0.135	177.0	0.06	139.0
10	0.04	-167.1	4.55	179.7	0.135	177.0	0.05	146.9
50	0.05	-146.0	4.52	168.8	0.134	169.0	0.04	137.9
100	0.08	-135.7	4.50	157.5	0.134	158.0	0.05	112.0
200	0.15	-139.1	4.56	134.7	0.134	137.0	0.06	75.0
300	0.26	-156.8	4.66	110.3	0.135	115.0	0.04	58.3
400	0.39	-179.5	4.63	83.7	0.134	92.0	0.04	152.7
500	0.53	154.0	4.39	55.5	0.129	70.0	0.13	144.9

Model: AC345			Vcc=+12V			Icc=24.15	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO		
MHZ	IN	OUT	DB	NSEC	DB		
2	1.11	1.21	12.9		-17.3		
5	1.06	1.11	13.0		-17.5		
10	1.06	1.08	13.0	1.887	-17.5		
50	1.10	1.07	13.0	0.780	-17.6		
100	1.18	1.08	12.9	0.647	-17.6		
200	1.42	1.10	13.0	0.654	-17.5		
300	1.82	1.05	13.1	0.700	-17.5		
400	2.50	1.09	13.0	0.755	-17.5		

Model: AC347			Vcc=+15V			Icc=45.78	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO		
MHZ	IN	OUT	DB	NSEC	DB		
2	1.14	1.25	13.3		-17.0		
5	1.11	1.15	13.3		-17.1		
10	1.10	1.13	13.4	1.748	-17.1		
50	1.12	1.11	13.3	0.735	-17.2		
100	1.18	1.12	13.3	0.609	-17.3		
200	1.36	1.16	13.3	0.615	-17.4		
300	1.67	1.27	13.3	0.640	-17.4		
400	2.17	1.45	13.1	0.673	-18.1		

Model: AC347			Vcc=+15V				Icc=45.78	
FREQ	S11		S21		S12		S22	
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
2	0.07	-160.7	4.61	-171.4	0.141	177.0	0.11	140.5
5	0.05	-174.0	4.64	-177.2	0.140	178.0	0.07	150.3
10	0.05	-174.1	4.66	179.8	0.139	177.0	0.06	159.9
50	0.06	-152.4	4.63	169.1	0.138	170.0	0.05	169.1
100	0.08	-139.1	4.60	158.1	0.137	160.0	0.06	165.5
200	0.15	-136.0	4.61	136.0	0.135	140.0	0.08	159.3
300	0.25	-149.0	4.62	112.8	0.131	121.0	0.12	152.2
400	0.37	-167.5	4.53	88.7	0.125	101.0	0.19	140.6
500	0.49	170.2	4.31	63.5	0.117	81.0	0.27	124.1

Model: AC347			Vcc=+12V			Icc=36.93	
FREQ	SWR	SWR	GAIN	DELAY	REV/ISO		
MHZ	IN	OUT	DB	NSEC	DB		
2	1.13	1.23	13.2		-17.0		
5	1.09	1.14	13.2		-17.1		
10	1.09	1.11	13.3	1.741	-17.1		
50	1.12	1.10	13.2	0.765	-17.2		
100	1.20	1.11	13.2	0.624	-17.3		
200	1.42	1.16	13.1	0.631	-17.4		
300	1.78	1.28	13.1	0.658	-17.7		
400	2.35	1.48	12.8	0.684	-18.2		