

AC583

10 TO 500 MHz TO-8 CASCADABLE AMPLIFIER

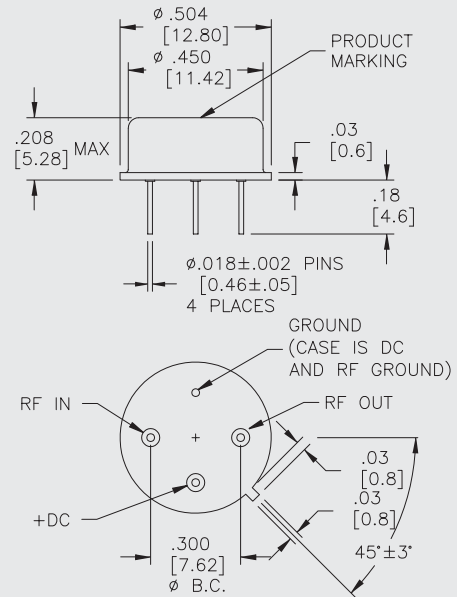
Typical Values

High Gain-Two Stages	> +30.0 dB
Low Noise Figure	1.8 dB
Voltage Controlled Gain	27 to 34 dB
High Reverse Isolation	41 dB
Low VSWR; 3.0 to 12.0 Volts	< 1.5:1
High Performance Thin Film	
Standard Size TO-8 Package	

AC583

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TO-8 Package for Amplifiers



SPECIFICATIONS*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	5-600 MHz	10-500 MHz	10-500 MHz
Small Signal Gain (Min.)	> 30.0 dB	29.0 dB	28.5 dB
Gain Flatness (Max.)	< ±0.3 dB	±0.5 dB	±0.7 dB
Noise Figure (Max.)	1.8 dB	2.5 dB	3.0 dB
SWR (Max.) Input/Output	< 1.3:1	1.7:1	1.8:1
Power Output (Min.) @ 1dB comp.	0.0 dBm	- 1.0 dBm	- 2.0 dBm
Reverse Isolation	41.0 dB	—	—
DC Current (Max.)	14 mA	17 mA	20 mA

* Measured in a 50-ohm system at +5 Vdc unless otherwise specified.

INTERMODULATION PERFORMANCE

Typical @ 25 °C

Second Order Harmonic Intercept Point	+28 dBm
Second Order Two Tone Intercept Point	+22 dBm
Third Order Two Tone Intercept Point	+11.5 dBm

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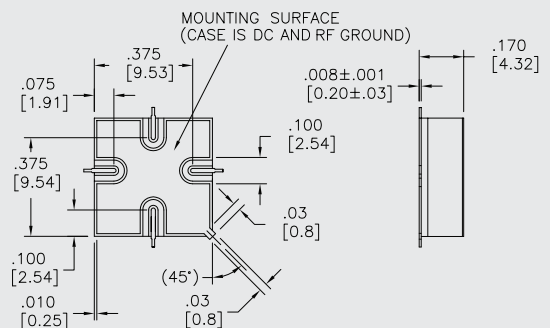
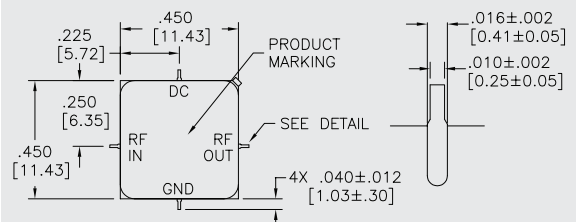
ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-62 to +125 °C
Maximum Case Temperature	+125 °C
Maximum DC Voltage	+13 Volts
Maximum Continuous RF Input Power	+6 dBm
Maximum Short Term Input Power (1 Minute Max.)	50 Milliwatts
Maximum Peak Power (3 μsec Max.)	0.5 Watt
Burn-in Temperature	+125 °C
Thermal Resistance¹ (θjc)	+40 °C/Watt
Junction Temperature Rise Above Case (Tjc)	+3.4 °C

¹Thermal resistance is based on total power dissipation.

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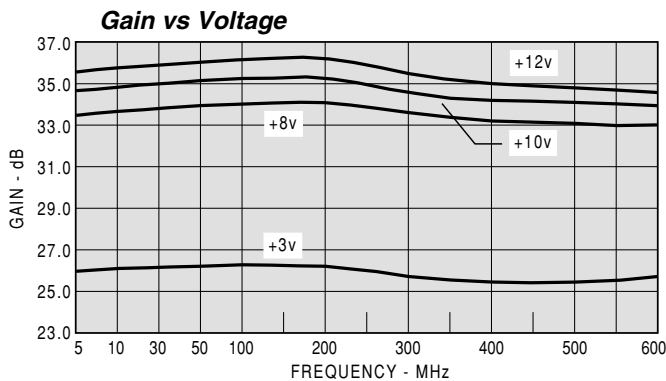
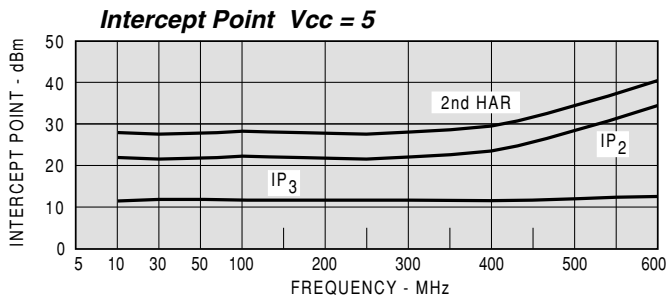
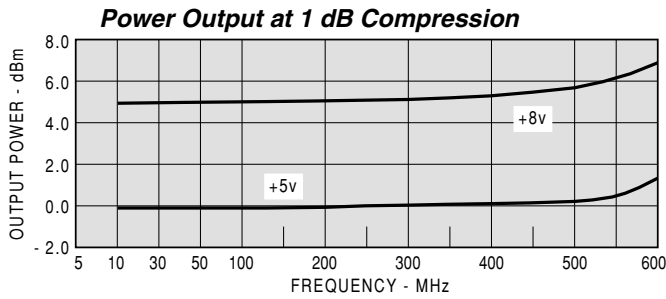
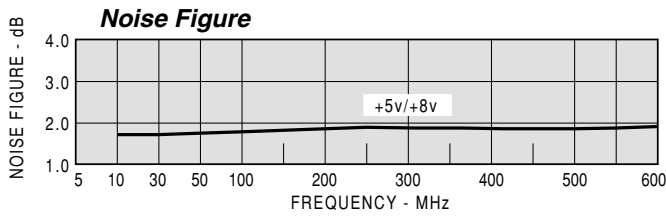
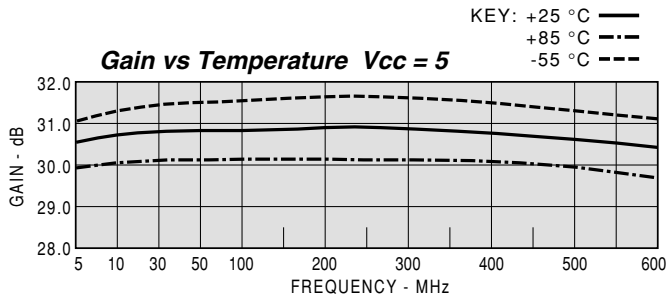
SMT0-8 Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

TYPICAL PERFORMANCE

TYPICAL AUTOMATIC TEST DATA



Model: AC583			Vcc=+5V		GROUP DELAY		Icc=14.25	
FREQ	SWR	SWR	GAIN		NSEC		REV/ISO	
MHZ	IN	OUT	DB				DB	
10	1.23	1.17	30.2				-41.5	
20	1.16	1.14	30.3				-42.3	
50	1.14	1.14	30.3		1.347		-41.7	
100	1.14	1.14	30.3		0.988		-41.4	
200	1.23	1.15	30.4		0.962		-41.6	
300	1.31	1.17	30.4		0.970		-41.9	
400	1.28	1.19	30.4		0.980		-42.1	
500	1.23	1.24	30.2		0.975		-41.9	
600	1.10	1.34	29.9		1.021		-43.0	

LINEAR S-PARAMETERS

Model: AC583		Vcc=+5V				Icc=14.25			
FREQ.	S11	S21		S12		S22			
MHZ	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	
10	0.10	-125.8	32.51	9.4	0.008	15.0	0.08	-38.5	
20	0.08	-157.6	32.56	-0.1	0.008	3.0	0.07	-25.6	
50	0.07	159.7	32.64	-14.6	0.008	1.0	0.06	-22.7	
100	0.07	113.7	32.91	-32.3	0.008	-2.0	0.07	-34.1	
200	0.10	61.2	33.12	-67.0	0.008	-8.0	0.07	-61.7	
300	0.13	37.0	32.98	-102.0	0.008	-19.0	0.08	-91.2	
400	0.13	-0.7	32.96	-137.1	0.008	-22.0	0.09	-116.6	
500	0.10	-31.1	32.48	-172.2	0.008	-26.0	0.11	-139.9	
600	0.05	-78.2	31.41	151.0	0.007	-35.0	0.15	-159.6	
700	0.05	155.0	31.13	114.7	0.007	-42.0	0.21	-179.2	

Model: AC583			Vcc=+3V		GROUP DELAY		Icc=8.15	
FREQ	SWR	SWR	GAIN		NSEC		REV/ISO	
MHZ	IN	OUT	DB				DB	
5	1.45	1.32	26.0				-39.0	
10	1.28	1.20	26.1				-38.9	
20	1.21	1.15	26.2		2.705		-38.4	
50	1.21	1.13	26.2		1.228		-38.6	
100	1.26	1.12	26.3		1.073		-39.0	
200	1.41	1.12	26.1		1.014		-39.0	
300	1.55	1.21	25.7		0.948		-38.8	
400	1.70	1.31	25.4		0.822		-38.9	
500	1.64	1.40	25.4		0.929		-38.4	
600	1.55	1.56	25.7		0.957		-39.2	

Model: AC583			Vcc=+8V		GROUP DELAY		Icc=23.60	
FREQ	SWR	SWR	GAIN		NSEC		REV/ISO	
MHZ	IN	OUT	DB				DB	
5	1.77	1.20	33.4				-44.2	
10	1.64	1.20	33.6				-43.8	
20	1.61	1.20	33.7		3.015		-42.8	
50	1.64	1.19	33.9		1.236		-43.4	
100	1.72	1.17	34.0		1.041		-42.8	
200	1.87	1.10	34.1		1.035		-42.2	
300	1.84	1.09	33.6		0.965		-42.2	
400	1.69	1.20	33.2		0.899		-43.6	
500	1.56	1.29	33.2		0.964		-42.6	
600	1.42	1.41	33.0		1.012		-42.6	

Model: AC583			Vcc=+12V		GROUP DELAY		Icc=35.58	
FREQ	SWR	SWR	GAIN		NSEC		REV/ISO	
MHZ	IN	OUT	DB				DB	
5	2.14	1.20	35.6				-46.3	
10	1.99	1.24	35.8				-46.0	
20	1.94	1.25	35.9		3.226		-45.1	
50	2.04	1.24	36.1		1.266		-43.4	
100	2.15	1.22	36.2		1.075		-45.0	
200	2.44	1.16	36.4		1.090		-43.3	
300	2.31	1.10	35.5		0.996		-44.6	
400	2.04	1.21	35.0		0.889		-44.3	
500	1.86	1.31	34.8		0.967		-43.9	
600	1.69	1.39	34.5		1.014		-43.9	