



Complete, Very High Speed Sample-and-Hold Amplifier

ANALOG DEVICES INC

AD783**1.1 Scope.**

This specification covers the detail requirements for a complete, high speed, monolithic sample-and-hold amplifier.

1.2 Part Number.

The complete part number per Table 1 of this specification is as follows:

Device	Part Number
-1	AD783SQ/883B

1.2.3 Case Outline.

See Appendix 1 of General Specification ADI-M-1000: package outline:

Package	Description
Q-8	8-Pin Cerdip

1.3 Absolute Maximum Ratings. ($T_A = +25^\circ\text{C}$ unless otherwise noted)

V_{CC} to Common	 -0.5 V to +6.5 V
V_{EE} to Common	 -6.5 V to +0.5 V
IN to Common	 -6.5 V to +6.5 V
$S/\bar{H}$ to Common	 -0.5 V to +6.5 V
Storage Temperature Range	 -65°C to $+150^\circ\text{C}$
Lead Temperature (Soldering 10 sec)	 $+300^\circ\text{C}$

1.5 Thermal Characteristics.

Thermal Resistance	$\theta_{JC} = 22^\circ\text{C/W}$
	$\theta_{JA} = 110^\circ\text{C/W}$

AD783—SPECIFICATIONS

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Table 1.

Test	Symbol	Device	Design Limit @ +25°C	Sub Group 1	Sub Group 2, 3	Sub Group 9	Sub Group 10, 11	Test Condition	Units
Acquisition Time	t_{ACQ}	-1	250			500	500	5 V Step to 0.01%	ns max
Acquisition Time	t_{AQ}	-1	200			450	450	5 V Step to 0.1%	ns max
Total Harmonic Distortion	THD	-1	85					$V_{IN} = 0$ dB, 100 kHz	-dB
Aperture Delay	t_{AD}	-1	30			30			±ps max
Hold Settling	t_{HS}	-1	150			200		to ±1 mV	ns max
Droop Rate	t_{DR}	-1	0.02	1	10			Full Scale Voltage	μV/μs max
Hold Mode Offset	V_{HOS}	-1	5	5	5			$V_{IN} = 0$ V	±mV max
Hold Mode Offset Drift	V_{HLC}	-1	10						μV/°C
Sample Mode Offset	V_{SOS}	-1	50	200	200			$V_{IN} = 0$ V	±mV max
Input Voltage Range	V_{IN}	-1	2.5	2.5	2.5				±Volts
Digital Input Voltage Low	V_{IL}	-1	0.8						V max
Digital Input Voltage High	V_{IH}	-1	2						V min
Digital Input Current	I_{IH}	-1	2	10	10			$V_{IH} = 5$ V	±μA max
Operating Supply Voltage Range	V_{CC}, V_{EE}	-1	5	5.25	5.25				±V max
	V_{CC}, V_{EE}	-1	5	4.75	4.75				±V min
+PSRR	PSRR V_{CC}	-1	50	45	40			$V_{CC} = +4.75$ V to $+5.25$ V	dB min
-PSRR	PSRR V_{EE}	-1	50	45	40			$V_{EE} = -4.75$ V to -5.25 V	dB min
Supply Current	I_{CC}, I_{EE}	-1	10	17	17			V_{CC} and V_{EE} Supplies	±mA max
Power Consumption		-1	100	175	175			±5.25 Volt Supplies	mW max

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3.2.1 Functional Block Diagram and Terminal Assignments.



This microcircuit is covered by technology group (96).

4.2.1 Life Test/Burn-In Circuit.

Steady state life test is per MIL-STD-883 Method 1005. Burn-in is per MIL-STD-883 Method 1015 test condition (B).

