ANALOG DEVICES

Ultrahigh Speed Track-and-Hold

AD9100*

1.1 Scope.

This specification covers the requirements for a high speed track-and-hold amplifier.

1.2 Part Number.

The complete part number is as follows:

Device	Part Number
−1	AD9100S(X)/883B

1.2.3 Case Outline.

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

(X)	Package	Description
D	D-20	20-Pin Ceramic DIP
E	E-28	28-Pin Ceramic Leadless Chip Carrier

1.3 Absolute Maximum Ratings. (T_A = +25°C unless otherwise noted)

Supply Voltages ($\pm V_S$)	±6 V
Analog Input Voltage	$\pm V_S$
Continuous Output Current	70 mA
Junction Temperature	+175°C
Operating Temperature Range (Case)	−55°C to +125°C
Storage Temperature Range (Case)	−65°C to +150°C
Lead Soldering Temperature (10 sec)	+300°C

1.5 Thermal Characteristics.

Thermal Resistance DIP θ_{JA} = 50°C/W; this is valid with device mounted flush to a grounded 2-ounce copper clad board with 16 square inches of surface area and no air flow.

LCC θ_{JA} = 48°C/W

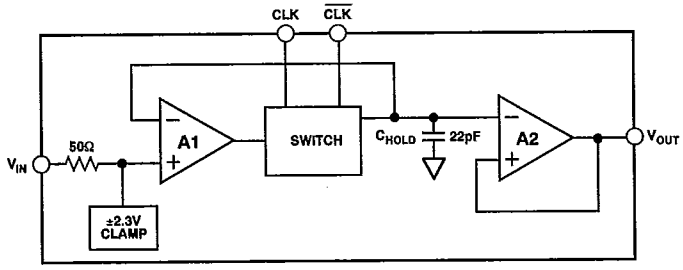
*Patent applied for

Table 1.

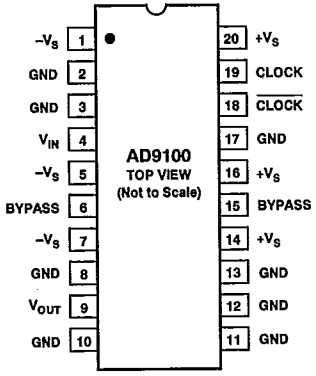
Test	Symbol	Design Limit [1]	Sub Group 1	Sub Group 2	Sub Group 3	Sub Group 4	Sub Group 5	Sub Group 6	Sub Group 7, 8	Test Condition [2]	Units
Gain	A		0.989	0.989	0.989					ΔV_{IN} = 2 V	V/V min
Offset Voltage	V_{OS}		±5	±5	±5					V_{IN} = 0 V	mV
Output Drive	I_{OUT}		±40	±40	±40						mA min
Power Supply Rejection Ratio	PSRR								−48	ΔV_S = 0.5 V p-p	dB min
Pedestal Sensitivity to Supply									±3	ΔV_S = 0.5 V p-p	mV/V max
Output Voltage Range	V_{OUT}		±2	±2	±2						V min/max
Analog Input Bias Current	I_B			±16	±16						μA
Input Resistance	R_I			350	200						kΩ min
CLOCK/$\overline{\text{CLOCK}}$ Input Bias Current	I_B		5	5	5					CL/$\overline{\text{CL}}$ = −1.0 V	mA max
CLOCK and $\overline{\text{CLOCK}}$ Input Low Voltage	V_{IL}		−1.5 −1.8	−1.5 −1.8	−1.5 −1.8						V max V min
CLOCK and $\overline{\text{CLOCK}}$ Input High Voltage	V_{IH}		−1.0 −0.8	−1.0 −0.8	−1.0 −0.8						V min V max
Bandwidth (−3 dB)	BW	150								V_{OUT} ≤ 0.4 V p-p	MHz min
Slew Rate	t_{SR}	500								4-Volt Step	V/μs min
Worst Harmonic (Hold Mode)	HD	−70/−68								V_{OUT} = 2 V p-p 12.1 MHz, 30 MSPS +125°C/−55°C	dBFS max
Droop Rate							±30	±40		V_{IN} = 0 V	mV/μs max
Pedestal Offset	V_{POS}						±10	±10		V_{IN} = 0 V	mV
Settling Time	t_{SETT}	10								To 1 mV	ns max
Acquisition Time	t_{ACQ}	23								2 V Step; to 0.01%	ns max
$+V_S$ Supply Current	$+I_S$			118	118						mA max
$-V_S$ Supply Current	$-I_S$			132	132						mA max
Power Dissipation	PD			1.25	1.25						Watts max

NOTES
[1]Indicates specification which is guaranteed but not tested. Value shown is over full temperature range.
[2]Unless otherwise specified, $\pm V_S$ = ±5 V; R_{IN} = 50 Ω; R_{LOAD} = 100 Ω.

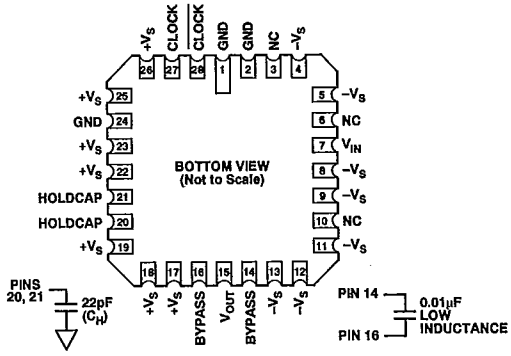
3.2.1 Functional Block Diagram and Terminal Assignments.



AD9100 Block Diagram



AD9100 DIP Pinouts



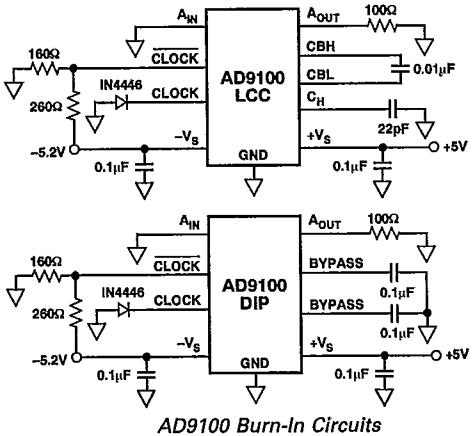
AD9100 LCC Pinouts

3.2.4 Microcircuit Technology Group.

This microcircuit is covered by technology group (D-60) for SE version; group (I) for SD version.

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).



AD9100 Burn-In Circuits