1.1 Scope.

This specification covers the requirements for ultrafast TTL comparators. Consult the commercial data sheet for theory and applications information.

1.2 Part Number.

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

Device	Part Number
−1	AD9696T(X)/883B
−2	AD9696T(X)/883B
−3	AD9696T(X)/883B
−4	AD9698T(X)/883B
−5	AD9698T(X)/883B

1.2.3 Case Outline.

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

(X)	Package	Description
H	H-10	TO-100 Can (−1 Only)
Q	Q-8/Q-16	Cerdip (Q-8 = −2; Q-16 = −4)
Z	Z-8/Z-16	Gull Wing (Z-8 = −3; Z-16 = −5)

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

Supply Voltage ($\pm V_S$)	±7 V
Input Voltage Range	±5 V
Differential Input Voltage	5.4 V
Latch Enable Voltage	−0.5 to $+V_S$
Output Current (Continuous)	20 mA
Power Dissipation	600 mW
Operating Temperature Range (Case)	−55°C to +125°C
Junction Temperature	+175°C
Storage Temperature Range (Case)	−65°C to +150°C
Lead Soldering Temperature (10 sec)	+300°C

1.5 Thermal Characteristics.

Maximum junction temperature should not be allowed to exceed +175°C. Typical thermal impedances with parts soldered in place; no air flow:

AD9696 Metal Can	θ_{JA} = 170°C/W	θ_{JC} = 50°C/W
AD9696 Ceramic DIP	θ_{JA} = 110°C/W	θ_{JC} = 20°C/W
AD9696 Gull Wing	θ_{JA} = 120°C/W	θ_{JC} = 20°C/W
AD9698 Ceramic DIP	θ_{JA} = 90°C/W	θ_{JC} = 25°C/W
AD9698 Gull Wing	θ_{JA} = 120°C/W	θ_{JA} = 20°C/W

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AD9696/AD9698—SPECIFICATIONS

Table 1.

Test	Symbol	Device	Design Limits[1]	Sub Group 1	Sub Group 2, 3	Sub Group 4	Sub Group 5, 6	Sub Group 9, 10, 11	Test Conditions[2]	Units
Input Offset Voltage	V_{OS}	All		2.0	3.0				$R_S \leq 100\ \Omega$	mV max
Input Bias Current	I_{IB}	All		55	110					μA max
Input Offset Current	I_{OS}	All		1.0	1.3					μA max
Input Voltage Range	V_{IN}	All		−2.0	−2.0				±5.0 V	V min
				+3.5	+3.5				±5.0 V	V max
				+1.6	+1.6				+5.0 V	V min
				+3.5	+3.5				+5.0 V	V max
Common-Mode Rejection Ratio	CMMR	All		80	80				±5.0 V	dB min
				57	57				+5.0 V	
Logic "1" Voltage Threshold	V_{TH}	All		2.0	2.0					V min
Logic "0" Voltage Threshold	V_{TL}	All		0.8	0.8					V max
Logic "1" Current	I_{LH}	All		10	10					μA max
Logic "0" Current	I_{LL}	All		1	1					μA max
Logic "1" Voltage	V_{LH}	All		2.7	2.7				Source 4 mA	V min
Logic "0" Voltage	V_{LL}	All		0.5	0.5				Sink 10 mA	V max
Propagation Delay Input to Output HIGH	t_{PD}	All	7.0							ns max
Input to Output LOW			7.0							
$+V_S$ Supply Current	$+I_S$	−1, −2, −3		32	32				For Both +5 V and ±5 V Operation	mA max
		−4, −5		64	64					
$-V_S$ Supply Current	$-I_S$	−1, −2, −3		4.0	4.0				For ±5 V Operation Only	mA max
		−4, −5		8.0	8.0					
Power Supply Rejection Rejection Ratio[3]	PSRR	All				70	65			dB

NOTES
[1] Value shown is value over full temperature range. Number in this column indicates specification is guaranteed but not tested.
[2] $+V_S = +5$ V; $-V_S = -5.2$ V; load circuit has 420 Ω from $+V_S$ to output, and 460 Ω from output to ground, unless otherwise indicated.
[3] Measured at ±5% of $+V_S$ and $-V_S$.

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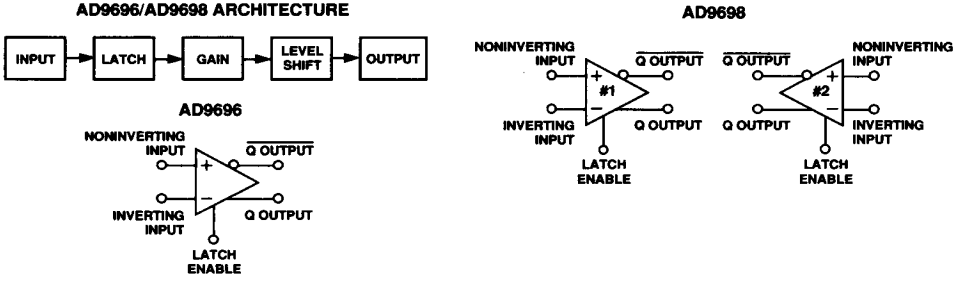
3.2.1 Functional Block Diagram and Terminal Assignments.

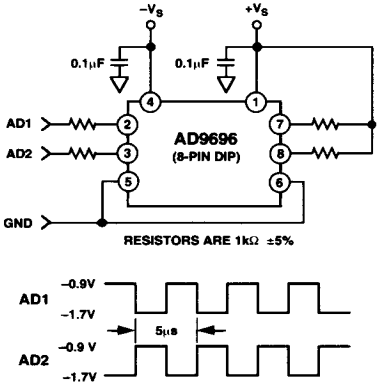


3.2.4 Microcircuit Technology Group.

This microcircuit is covered by technology group (D-57).

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).



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