

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

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

1.5 Thermal Characteristics.

Maximum junction temperature should not be allowed to exceed $+175^\circ\text{C}$. Typical thermal impedances with parts soldered in place; no air flow:

AD9696 Metal Can	$\theta_{JA} = 170^\circ\text{C/W}$	$\theta_{JC} = 50^\circ\text{C/W}$
AD9696 Ceramic DIP	$\theta_{JA} = 110^\circ\text{C/W}$	$\theta_{JC} = 20^\circ\text{C/W}$
AD9696 Gull Wing	$\theta_{JA} = 120^\circ\text{C/W}$	$\theta_{JC} = 20^\circ\text{C/W}$
AD9698 Ceramic DIP	$\theta_{JA} = 90^\circ\text{C/W}$	$\theta_{JC} = 25^\circ\text{C/W}$
AD9698 Gull Wing	$\theta_{JA} = 120^\circ\text{C/W}$	$\theta_{JC} = 20^\circ\text{C/W}$

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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 ≤ 100 Ω	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 Input to Output LOW	t _{PD}	All	7.0							ns max
			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

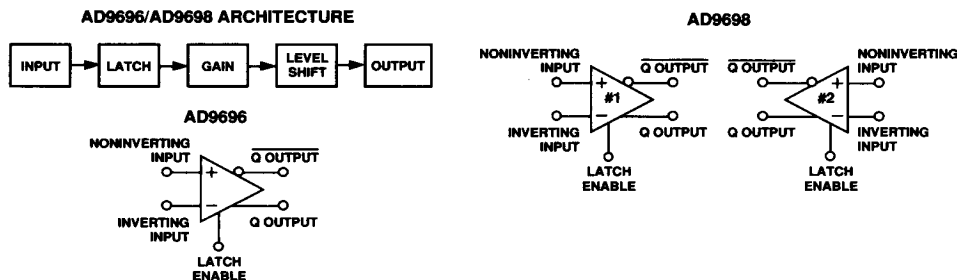
NOTES

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.

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).

