High-speed dual differential comparator/sense amp

522

FEATURES

- 12 ns max guaranteed propagation delay
- 20μA max. Input bias current
- TTL compatible strobes and outputs
- Large common-mode input voltage range
- Operates from standard supply
- Open collector outputs

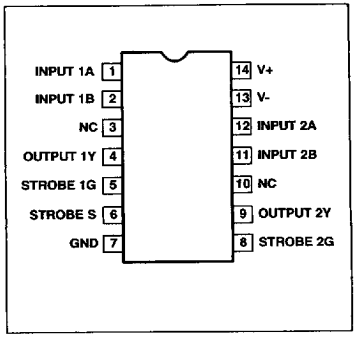
APPLICATIONS

- MOS memory sense amp
- A-to-D conversion
- High-speed line receiver

DESCRIPTION

The Dual Differential Comparator/Sense Amp is designed to convert line signals to TTL levels with a minimum addition propagation delay. Features include separate strobe output controls as well as a common output control.

PIN CONFIGURATION

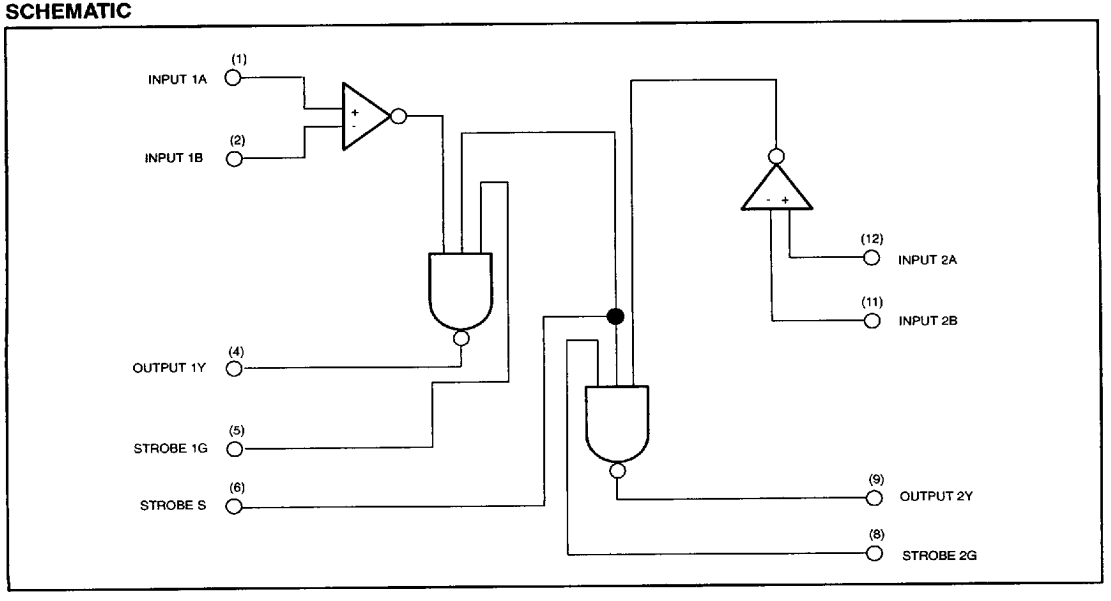


ORDERING INFORMATION

DESCRIPTION	ORDER CODE	PACKAGE DESIGNATOR*
14-Pin Ceramic DIP	522/BCA	GDIP1-T14
14-Pin Ceramic Flat Pack	522/BDA	GDFP1-F14

* MIL-STD 1835 or Appendix A of 1995 Military Data Handbook

EQUIVALENT SCHEMATIC



ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING[1]	UNIT
V+ V-	Supply voltage Positive Supply voltage Negative	+7 -7	V V
V_{IDR}	Differential input voltage	±6	V
V_I	Input voltage Common mode Input voltage Strobe/gate	±5 +5.25	V V
P_D	Power dissipation	600	mW
T_{STG}	Storage temperature range	-65 to +150	°C

DC ELECTRICAL CHARACTERISTICS

V+ = +5V, V- = -5V, unless otherwise specified.

SYMBOL	PARAMETER	TEST CONDITIONS	T_{amb} = +25°C			T_{amb} = -55°C, +125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
V_{IO}	Input offset voltage	V+ = +4.5V, V- = -4.5V		6	7.5			15	mV
I_{IB}	Input bias current	V+ = +5.5V, V- = -5.5V		7.5	20			40	µA
I_{IO}	Input offset current	V+ = +5.5V, V- = -5.5V		1.0	5			12	µA
V_{ICR}	Common mode voltage range	V+ = +4.5V, V- = -4.5V	±3			±3			V
Gate Characteristics									
V_{IL}	"0" input voltage	V+ = +4.5V, V- = -4.5V			0.8			0.7	V
V_{IH}	"1" input voltage	V+ = +4.5V, V- = -4.5V	2.0			2.0			V
I_{IH}	"1" input current	V+ = +5.5V,V- = -5.5V, V_{IH} = 2.7V 1G or 2G strobe Common strobe S			 50 100			 50 100	 µA µA
I_{IL}	"0" input current	V+ = +5.5V, V- = -5.5V, V_{IL} = 0.5V 1G or 2G strobe Common strobe S			 -2.0 -4.0			 -2.0 -4.0	 mA mA
V_{OL} V_{OL}	Output voltage "0" State "0" State	$V_{I(S)}$ = 2.0 V+ = +4.5V, V- = -4.5V, I_{OL} = 10mA V+ = +4.5V, V- = -4.5V, I_{OL} = 20mA			 0.5			0.5	 V V
I_{OH}	Output leakage current	V+ = +4.5V, V- = -4.5V, V_{OUT} = 5.5V			250			250	µA
Power Supply Requirements									
V+ V-	Supply voltage Positive Supply voltage Negative		4.5 -4.5	5.0 -5.0	5.5 -5.5	4.5 -4.5		5.5 -5.5	V V
I_{CC+} I_{CC-}	Supply voltage Positive Supply voltage Negative	V+ = +5.5V, V- = -5.5V I_{STROBE} = 0V		27 -15	35 -28			50 -28	mA mA

AC ELECTRICAL CHARACTERISTICS

T_A = 25°C, R_L = 280Ω, C_L = 15pF, V+ = +5V, V- = -5V.

SYMBOL	PARAMETER	FROM INPUT	FROM OUTPUT	LIMITS			UNIT
				MIN	TYP	MAX	
Large Signal Switching Speed Propagation Delay							
$t_{PLH(D)}$ $t_{PHL(D)}$	Low-to-High[2] High-to-Low[2]	Amp Amp	Output Output		10 8	15 12	ns ns
$t_{PLH(S)}$ $t_{PHL(S)}$	Low-to-High[3] High-to-Low[3]	Strobe Strobe	Output Output		6 5	13 9	ns ns

NOTES:

1. Operation beyond limits in this table may impair the useful life of the device.
2. Response time measured from 0V point of ±100mVp-p 10MHz square wave to the 1.5V point of the output.
3. Response time measured from 1.5V prompt of input to 1.5V point of the output.