

High-speed dual-differential comparator/sense amp

NE522

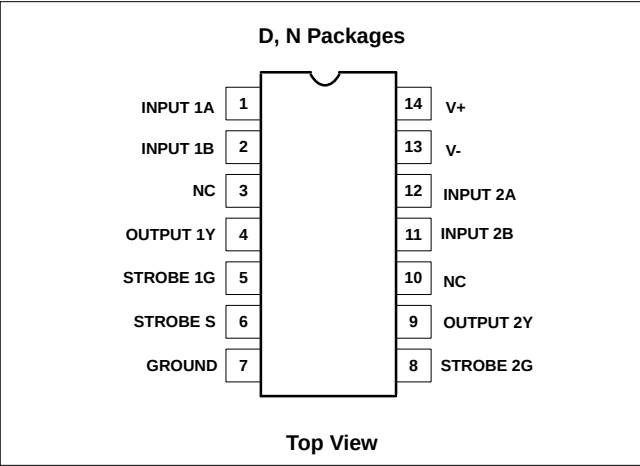
FEATURES

- 15ns maximum guaranteed propagation delay
- 20μA maximum input bias current
- TTL-compatible strobes and outputs
- Large common-mode input voltage range
- Operates from standard supply voltages

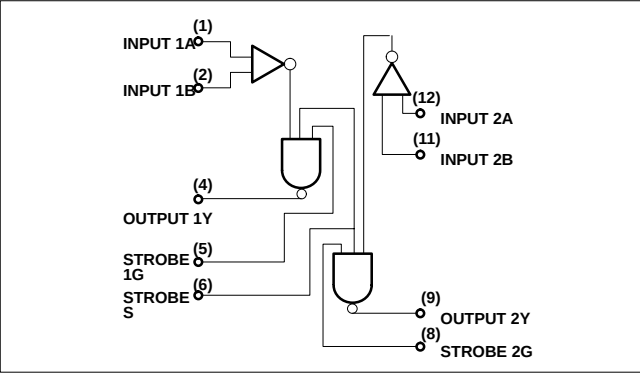
APPLICATIONS

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

PIN CONFIGURATION



BLOCK DIAGRAM



ORDERING INFORMATION

DESCRIPTION	TEMPERATURE RANGE	ORDER CODE	DWG #
14-Pin Plastic DIP	0 to +70°C	NE522N	0405B
14-Pin Plastic SO	0 to +70°C	NE522D	0175D

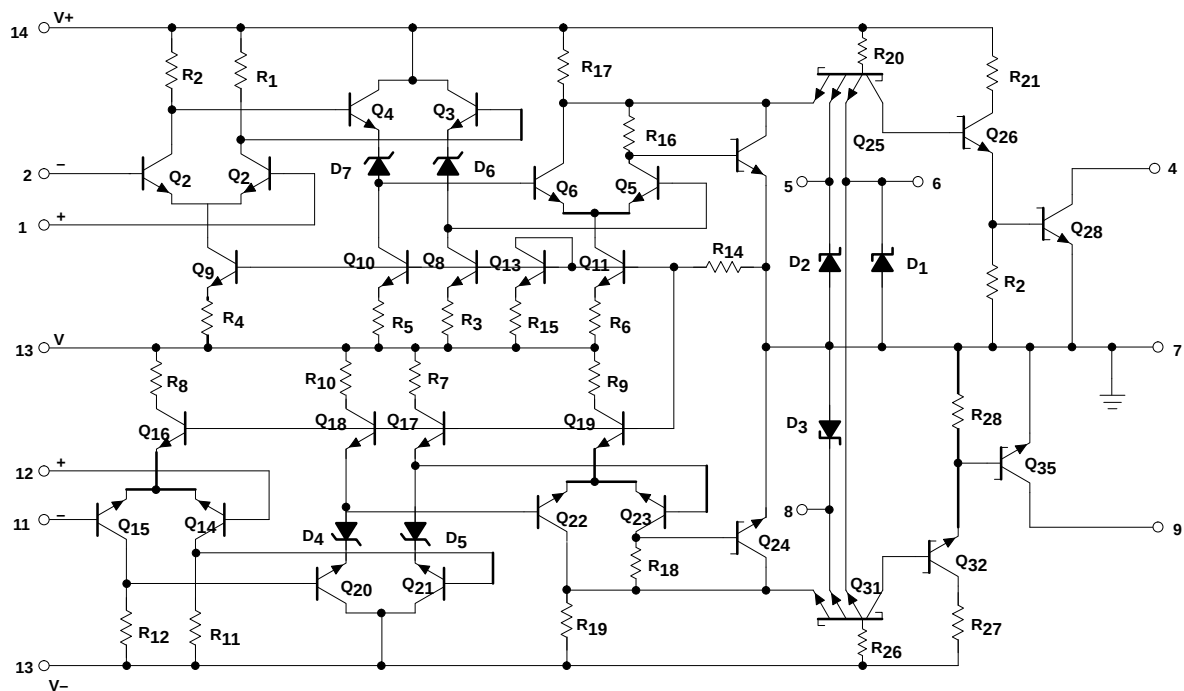
ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	RATING	UNITS
V+	Single supply voltage	+7	V
V-		-7	V
V _{IDR}	Differential input voltage	±6	V
V _{IN}	Input voltage	± 5	V
		+5.25	V
P _D	Power dissipation	600	mW
T _A	Operating temperature range NE522	0 to 70	°C
T _{STG}	Storage temperature range	-65 to +150	°C
T _{SOLD}	Lead soldering temperature (10sec max)	+300	°C

High-speed dual-differential comparator/sense amp

NE522

EQUIVALENT SCHEMATIC



High-speed dual-differential comparator/sense amp

NE522

DC ELECTRICAL CHARACTERISTICS $V_{\pm} = \pm 5V \pm 5\%$, $T_A = 0$ to $+70^{\circ}\text{C}$, unless otherwise stated.

SYMBOL	PARAMETER	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
V_{OS}	Input offset voltage At 25°C Over temperature range	$V_+ = +4.75V$, $V_- = -4.75V$		6	7.5 10	mV
I_{BIAS}	Input bias current At 25°C Over temperature range	$V_+ = +5.25V$, $V_- = -5.25V$		7.5	20 40	μA
I_{OS}	Input offset current At 25°C Over temperature range	$V_+ = +5.25V$, $V_- = -5.25V$		1.0	5 12	μA
V_{CM}	Common-mode voltage range	$V_+ = +4.75V$, $V_- = -4.75V$	-3		+3	V
V_{IL}	Low level input At 25°C Over temperature range				0.8 0.7	V
V_{IH}	High level input		2.0			V
I_{IH}	Input current High	$V_+ = +5.25V$, $V_- = -5.25V$ $V_{IH} = 2.7V$ 1G or 2G strobe Common strobe S			50 100	μA μA
I_{IL}	Low input current	$V_{IL} = 0.5V$ 1G or 2G strobe Common strobe S			-2.0 -4.0	mA mA
V_{OL}	Output voltage Low	$V_+ = +5.25V$, $V_- = -5.25V$, $V_{I(S)} = 2.0V$, $I_{LOAD} = 20\text{mA}$			0.5	V
I_{OH}	Output current High	$V_+ = +4.75V$, $V_- = -4.75V$, $V_{OH} = 5.25V$			250	μA
V_+	Supply voltage Positive		4.75	5.0	5.25	V
V_-	Supply voltage Negative		-4.75	-5.0	-5.25	V
I_{CC+}	Supply current Positive	$V_+ = +5.25V$, $V_- = -5.25V$, $T_A = 25^{\circ}\text{C}$		27	35	mA
I_{CC-}	Supply current Negative			-15	-28	mA

High-speed dual-differential comparator/sense amp

NE522

AC ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$, $R_L = 280\Omega$, $C_L = 15\text{pF}$, unless otherwise stated.

SYMBOL	PARAMETER	FROM INPUT	TO OUTPUT	LIMITS			UNITS
				MIN	TYP	MAX	
I_R	Input resistance				4		$k\Omega$
I_C	Input capacitance				3		pF
Large-signal switching speed							
$t_{PLH(D)}$	Propagation delay Low to high ¹	Amp	Output		10	15	ns
$t_{PHL(D)}$	High to low ¹	Amp	Output		8	12	
$t_{PLH(S)}$	Low to high ²	Strobe	Output		6	13	
$t_{PHL(S)}$	High to low ²	Strobe	Output		5	9	
I_{MAX}	Maximum operating frequency			25	35		MHz

NOTES:

- Response time measured from 0V point of +100mV_{P-P} 10MHz square wave to the 1.5V point of the output.
- Response time measured from 1.5V point of the input to 1.5V point of the output.

LOGIC FUNCTION TABLE

$V_{ID} (A^+, B^-)$	STRS	STRG	OUTPUT TRANSISTOR
$< -V_{OS}$	H	H	ON
$-V_{OS} < V_{ID} < V_{OS}$	H	H	Undefined
$> V_{OS}$	H	H	OFF
X	L	X	OFF
X	X	L	OFF

High-speed dual-differential comparator/sense amp

NE522

EQUIVALENT SCHEMATIC

