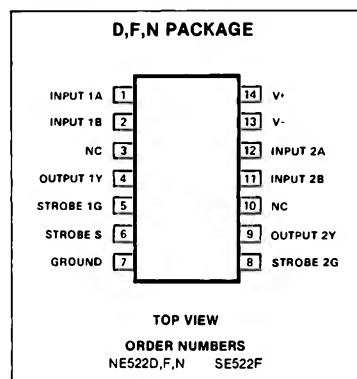


HIGH SPEED DUAL DIFFERENTIAL COMPARATOR/SENSE AMP**SE/NE522****FEATURES**

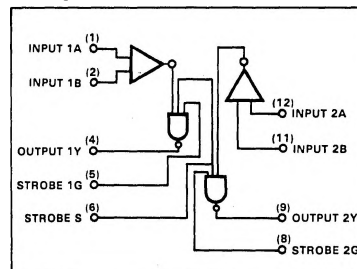
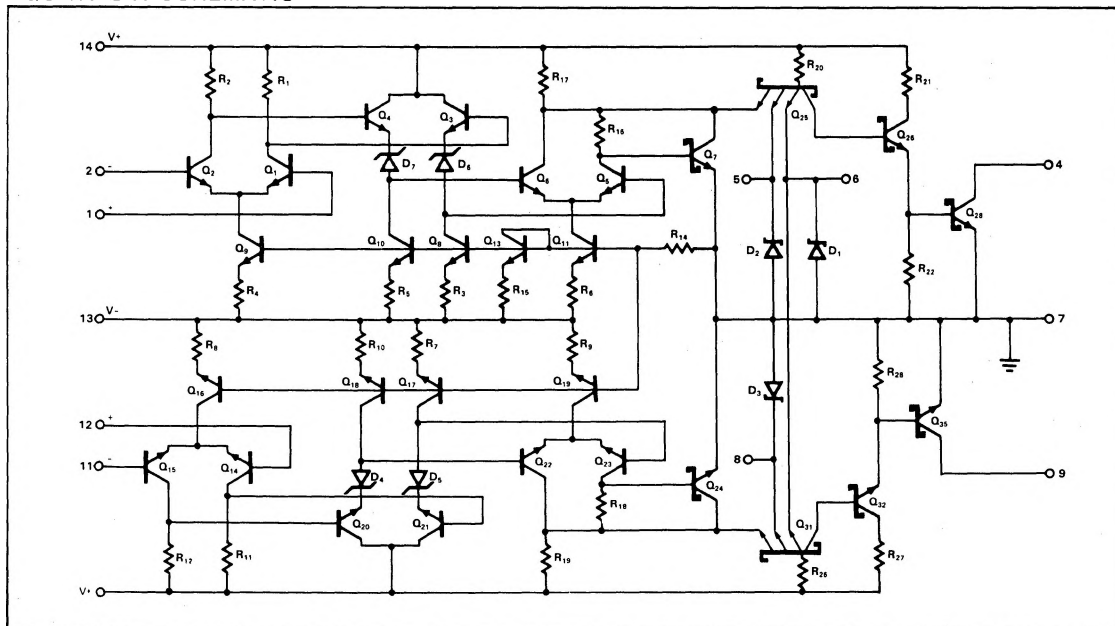
- 15ns maximum guaranteed propagation delay
- 20 μ A maximum input bias current
- TTL compatible strobes and outputs
- Open collector output for wire-OR'd applications
- Large common mode input voltage range
- Operates from standard supply voltages

APPLICATIONS

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

PIN CONFIGURATION**ABSOLUTE MAXIMUM RATINGS**

PARAMETER		RATING	UNIT
V+	Supply voltage		V
V+	Positive	+7	
V-	Negative	-7	
V _{IDR}	Differential input voltage	± 6	V
V _{IN}	Input voltage		V
	Common mode	± 5	
	Strobe/gate	± 5.25	
P _D	Power dissipation	600	mW
T _A	Operating temperature range NE SE	0 to 70 -55 to +125	$^{\circ}$ C
T _{stg}	Storage temperature range	-65 to +150	$^{\circ}$ C
	Lead temperature (solder, 60 sec)	+300	$^{\circ}$ C

BLOCK DIAGRAM**EQUIVALENT SCHEMATIC**

DC ELECTRICAL CHARACTERISTICS $\pm 5V \pm 10\%$, $T_A = -55$ to 125°C unless otherwise specified

PARAMETER		TEST CONDITIONS	SE LIMITS			UNIT
			Min	Typ	Max	
V _{OS}	Input offset voltage At 25°C Over temperature range	V+ = +4.5V, V- = -4.5V		6	7.5 15.	mV
I _{BIAS}	Input bias current At 25°C Over temperature range	V+ = +5.5V, V- = -5.5V		7.5	20. 40.	μA
I _{OS}	Input offset current At 25°C Over temperature range	V+ = +5.5V, V- = -5.5V		1.0	5. 12.	μA
V _{CM}	Common mode voltage range	V+ = +4.5V, V- = -4.5V	±3			V
V _{IL}	Low level input Voltage at 25°C over temperature				0.8 0.7	V
V _{IH}	High level temperature		2.0			V
I _{IH}	Input current High	V+ = +5.5V, V- = -5.5V V _{IH} = 2.7V 1G or 2G strobe Common strobe S			50 100	μA μA
I _{IL}	Low	V _{IL} = 0.5V 1G 2G strobe Common strobe S			-2 -4	mA mA
V _{OL}	Output voltage Low	V+ = +4.5V, V- = -4.5V I _{OL} = 20mA, T _A = 25°C I _{OL} = 10mA			.5 .5	V
I _{OH}	Output current High	V _{CC+} = +4.5, V _{CC-} = -4.5V, V _{OH} = 5.5V			250	μA
V+ V-	Supply voltage Positive Negative		4.5 -4.5	5.0 -5.0	5.5 -5.5	V
I _{CC+} I _{CC-}	Supply current Positive Negative	V+ = 5.5V, V- = -5.5V		27 -15	35 - 28	mA

HIGH SPEED DUAL DIFFERENTIAL COMPARATOR/SENSE AMP**SE/NE522****DC ELECTRICAL CHARACTERISTICS** (Cont'd) $\pm 5V \pm 5\%$, $T_A = 0$ to 70°C unless otherwise specified

PARAMETER	TEST CONDITIONS	NE LIMITS			UNIT
		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			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	$V_{IL} = 0.5V$ 1G 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	$V_{CC+} = +4.75V$, $V_{CC-} = -4.75V$, $V_{OH} = 5.25V$			250	μA
V_+ Supply voltage Positive V_- Negative		4.75 -4.75	5.0 -5.0	5.25 -5.25	V
I_{CC+} Supply current Positive I_{CC-} Negative	$V_+ = 5.25V$, $V_- = -5.25V$, $T_A = 25^\circ\text{C}$		27 -15	50 -28	mA

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

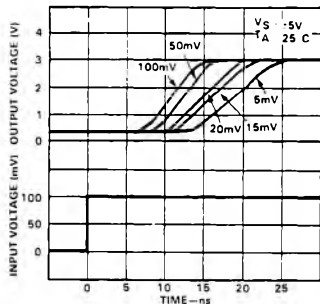
PARAMETER	FROM INPUT	TO OUTPUT	LIMITS			UNIT
			Min	Typ	Max	
Input resistance				4		k Ω
Input capacitance				3		pF
Large Signal Switching Speed						
Propagation delay						ns
$t_{PLH(D)}$ Low to high ¹	Amp	Output		10	15	
$t_{PHL(D)}$ High to low ¹	Amp	Output		8	12	
$t_{PLH(S)}$ Low to high ²	Strobe	Output		6	13	
$t_{PHL(S)}$ High to low ²	Strobe	Output		5	9	
Maximum operating frequency			25	35		MHz

NOTES

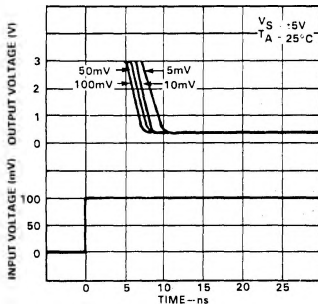
- Response time measured from 0V point of $\pm 100\text{mV}$ p-p 10MHz square wave to the 1.5V point of the output
- Response time measured from 1.5V point of input to 1.5V point of the output

TYPICAL PERFORMANCE CHARACTERISTICS

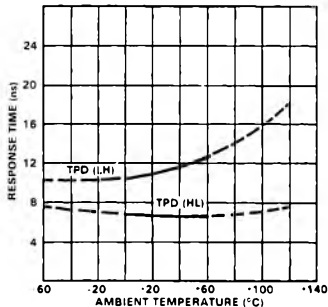
RESPONSE TIME FOR VARIOUS INPUT OVERDRIVES



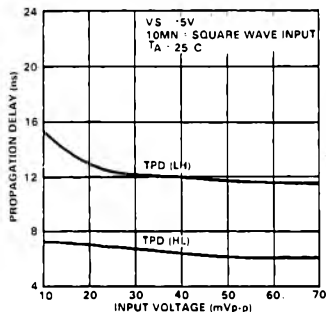
RESPONSE TIME FOR VARIOUS INPUT OVERDRIVES



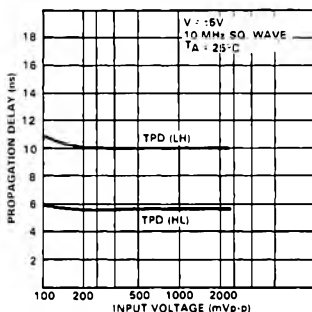
RESPONSE TIME vs TEMPERATURE



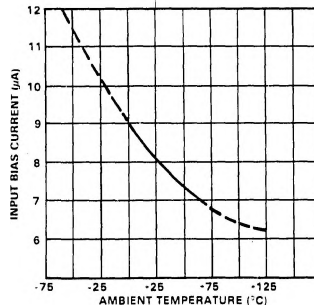
PROPAGATION DELAY FOR VARIOUS INPUT VOLTAGES



PROPAGATION DELAY FOR VARIOUS INPUT VOLTAGES



INPUT BIAS CURRENT vs AMBIENT TEMPERATURE



INPUT OFFSET CURRENT vs AMBIENT TEMPERATURE

