

8T37 Bus Receiver

Hex Bus Receiver with Hysteresis — Schmitt Trigger
Product Specification

Logic Products

DESCRIPTION

The 8T37 is a hex bus receiver with hysteresis organized as two triple receivers with separate disable lines for each group. Typically the devices may be used in bus organized data transmission systems interconnected by terminated lines. The low input current requirement allows several drivers and receivers to communicate over a common bus in "party line" fashion. A power-up or power-down sequence of the receiver will not affect the bus. Built in hysteresis provides maximum noise immunity and makes the 8T37 also an ideal Schmitt trigger in those applications where the non-linear input characteristics of standard TTL are undesirable.

Low input current requirements make the next-inverter inputs compatible with MOS/CMOS in addition to DTL/TTL. All inputs have clamping diodes to simplify systems design. The receiver outputs as well as the disable inputs are TTL/DTL compatible.

TYPE	TYPICAL PROPAGATION DELAY	TYPICAL SUPPLY CURRENT (TOTAL)
N8T37	10ns	

ORDERING CODE

PACKAGES	COMMERCIAL RANGE $V_{CC} = 5V \pm 5\%$; $T_A = 0^\circ C$ to $+70^\circ C$
Plastic DIP	N8T37N

NOTE:

For information regarding devices processed to Military Specifications, see the Signetics Military Products Data Manual.

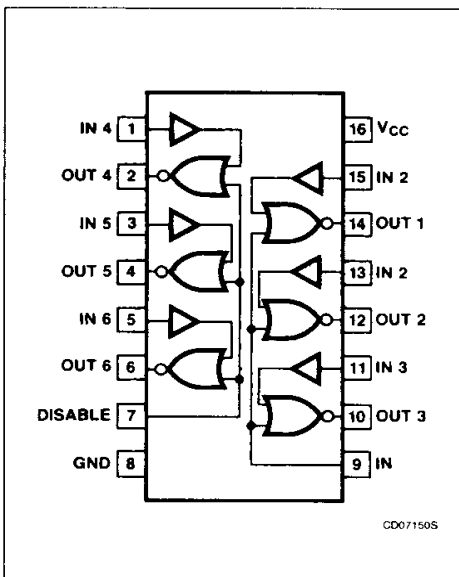
INPUT AND OUTPUT LOADING AND FAN-OUT TABLE

PINS	DESCRIPTION	8T
Disable	Input	2ul
IN (Receiver)	Input	1.3ul
OUT	Output	8ul

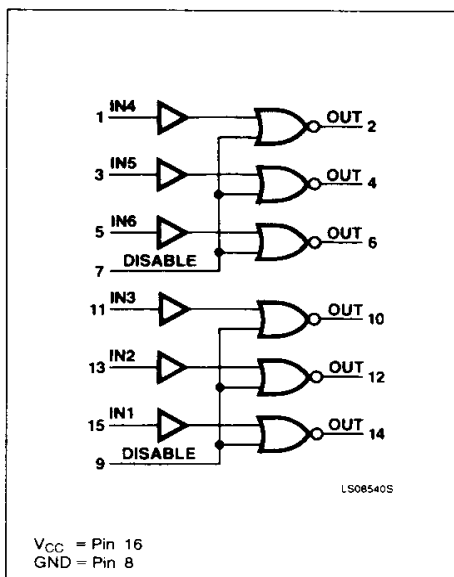
NOTE:

A unit load (ul) is $40\mu A$ I_{IH} and $-1.6mA$ I_{IL} .

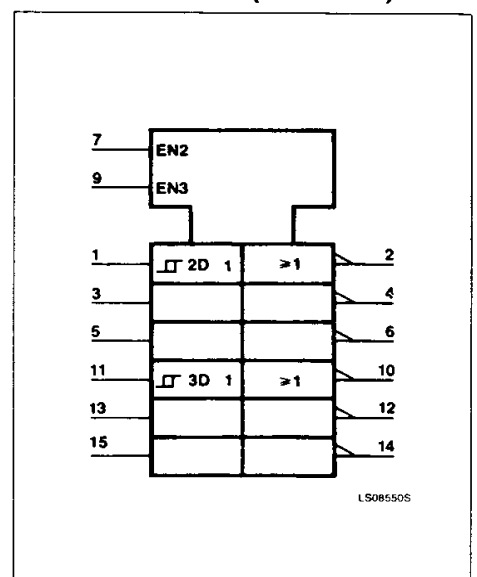
PIN CONFIGURATION



LOGIC SYMBOL



LOGIC SYMBOL (IEEE/IEC)



Bus Receiver

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ABSOLUTE MAXIMUM RATINGS (Over operating free-air temperature range unless otherwise noted.)

PARAMETER	8T	UNIT
V_{CC} Supply voltage	7.0	V
V_{IN} Input voltage	-0.5 to +5.5	V
I_{OL} Continuous		mA
V_{OUT} Voltage applied to output in HIGH output state	-0.5 to + V_{CC}	V
T_A Operating free-air temperature range	0 to 70	°C

RECOMMENDED OPERATING CONDITIONS

PARAMETER	8T			UNIT
	Min	Nom	Max	
V_{CC} Supply voltage	4.75	5.0	5.25	V
HIGH-level input voltage, Receiver Disable	1.8 2.0		2.5	V
LOW-level input voltage, Receiver Disable	1.1		1.5 0.8	V
I_{IK} Input clamp current			-12	
I_{OH} HIGH-level output current			-400	μ A
I_{OL} LOW-level output current			16	mA
T_A Operating free-air temperature	0		70	°C

DC ELECTRICAL CHARACTERISTICS (Over recommended operating free-air temperature range unless otherwise noted.)

PARAMETER	TEST CONDITIONS ¹		8T37		UNIT
			Min	Max	
V_{IH} Input HIGH voltage	Guaranteed input HIGH threshold voltage	Receiver Disable	1.8 2.0	2.5	V
V_{IL} Input LOW voltage	Guaranteed input LOW threshold voltage	Receiver Disable	1.1	1.5 0.8	V
V_{IK} Input clamp diode voltage	$V_{CC} = \text{MIN}$, $I_{IK} = -12\text{mA}$		-1.5 1.5V	V	
V_{OH} HIGH-level output voltage	$V_{CC} = \text{MIN}$, $I_{OH} = -400\mu\text{A}$		2.4		V
V_{OL} LOW-level output voltage	$V_{CC} = \text{MIN}$, $I_{OL} = 16\text{mA}$			0.4	V
I_{IH} HIGH-level input current	$V_{CC} = \text{MAX}$ $V_{IN} = 2.4\text{V}$	Receiver		50	
		Disable		80	μ A
	$V_{CC} = 0$	Others		50	μ A
I_{IL} LOW-level input current	$V_{CC} = \text{MAX}$ $V_{IN} = 0.4\text{V}$	Receiver		-50	μ A
		Disable		-3.2	mA
I_{OS} Short-circuit output current ²	$V_{CC} = \text{MAX}$		-18	-55	mA
I_{CC} Supply current (total)	$V_{CC} = 5.25\text{V}$			60	mA

NOTES:

- For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions for the applicable type.
- I_{OS} is tested with $V_{OUT} = +0.5\text{V}$ and $V_{CC} = V_{CC \text{ MAX}} + 0.5\text{V}$. Not more than one output should be shorted at a time and duration of the short circuit should not exceed one second.

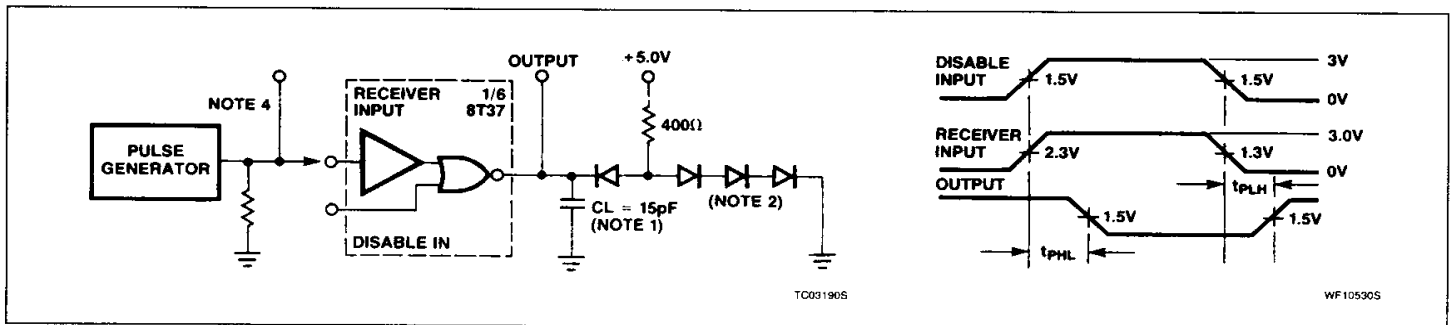
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AC ELECTRICAL CHARACTERISTICS $T_A = 25^\circ\text{C}$, $V_{CC} = 5.0\text{V}$

PARAMETER	TEST CONDITION	LIMITS			UNIT
		Min	Typ	Max	
Propagation delays					
Receiver	t_{PHL} t_{PLH}		10 20	30 30	ns ns
Disable	t_{PHL}		9	15	ns
	t_{PLH}		11	15	ns

AC TEST CIRCUIT AND WAVEFORMS



NOTES:

- Including probe and jib capacitance
- All diodes are 1N3064
Pulse generator characteristics
P.A. = 3.5V
- $Z_{OUT} = 50\Omega$ $P_{RR} = 1\text{MHz}$
 $t_r = t_f \leq 10\text{ns}$ (10% to 90%) Duty
Cycle = 50%
- When testing receiver, Disable = 0;
when testing disable, Receiver = 0.

*To be announced.

Each terminator is 120Ω the venins equivalent circuit. Using fl at ribbon a maximum reasonable length is 50 ft. from which the combined length of all taps or stubs should be subtracted.

TYPICAL APPLICATION

