

10-Bit buffer/line driver; 3-state

74LVC827

FEATURES

- Optimized for Low Voltage applications: 1.0 to 3.6 V
- Accepts TTL input levels between $V_{CC} = 2.7$ V and $V_{CC} = 3.6$ V
- Typical V_{OLP} (output ground bounce) < 0.8 V at $V_{CC} = 3.3$ V, $T_{amb} = 25$ °C.
- Typical V_{OHV} (output V_{OH} undershoot) > 2 V at $V_{CC} = 3.3$ V, $T_{amb} = 25$ °C.
- Non-inverting outputs
- Output capability: bus driver
- I_{CC} category: MSI

GENERAL DESCRIPTION

The 74LVC821 is a low-power, low-voltage, Si-gate CMOS device and superior to most advanced CMOS compatible TTL families.

The 74LVC827 is an 10-bit buffer/line driver with 3-state outputs. The 3-state outputs are controlled by the output enable inputs $\overline{OE}1$ and $\overline{OE}2$.

A HIGH on $\overline{OE}n$ causes the outputs to assume a high impedance OFF-state.

FUNCTION TABLE

INPUTS			OUTPUT
\overline{OE}_1	\overline{OE}_2	nA	nY
L	L	L	L
L	L	H	H
X	H	X	Z
H	X	X	Z

H = HIGH voltage level

L = LOW voltage level

X = don't care

Z = high impedance OFF-state

QUICK REFERENCE DATA

GND = 0 V; $T_{amb} = 25$ °C; $t_r = t_f \leq 2.5$ ns

SYMBOL	PARAMETER	CONDITIONS	TYPICAL	UNIT
t_{PHL}/t_{PLH}	propagation delay A_n to Y_n	$C_L = 15$ pF $V_{CC} = 3.3$ V	10	ns
C_i	input capacitance		3.5	pF
C_{PD}	power dissipation capacitance per buffer	notes 1 and 2	37	pF

Notes to the quick reference data

1. C_{PD} is used to determine the dynamic power dissipation (P_D in μ W)
 $P_D = C_{PD} \times V_{CC}^2 \times f_i + \Sigma (C_L \times V_{CC}^2 \times f_o)$ where:
 f_i = input frequency in MHz; C_L = output load capacity in pF;
 f_o = output frequency in MHz; V_{CC} = supply voltage in V;
 $\Sigma (C_L \times V_{CC}^2 \times f_o)$ = sum of the outputs.
2. The condition is $V_i = \text{GND to } V_{CC}$

ORDERING INFORMATION

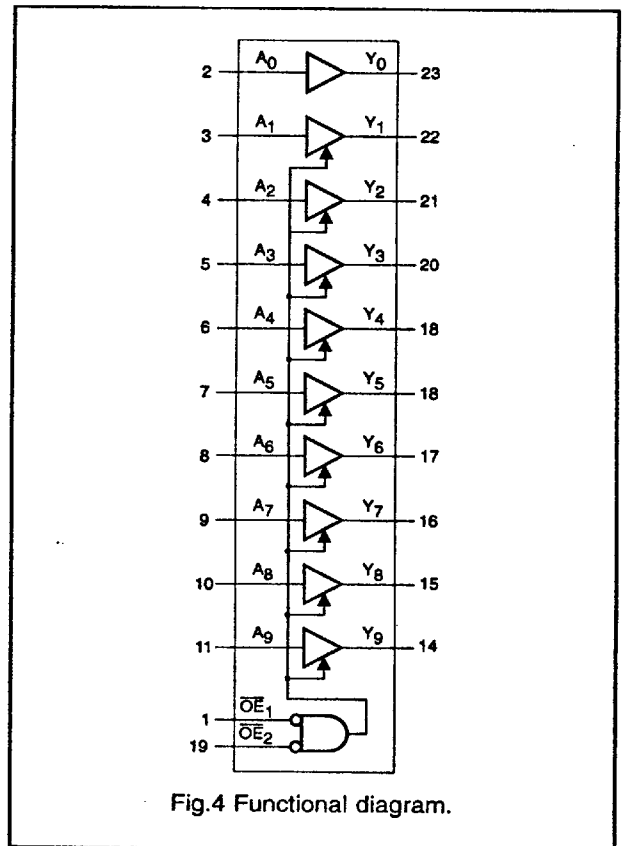
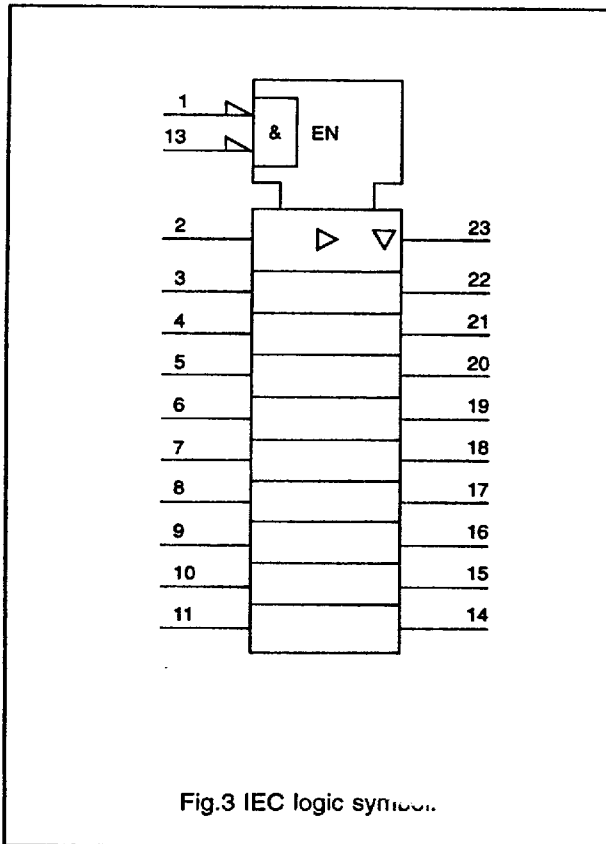
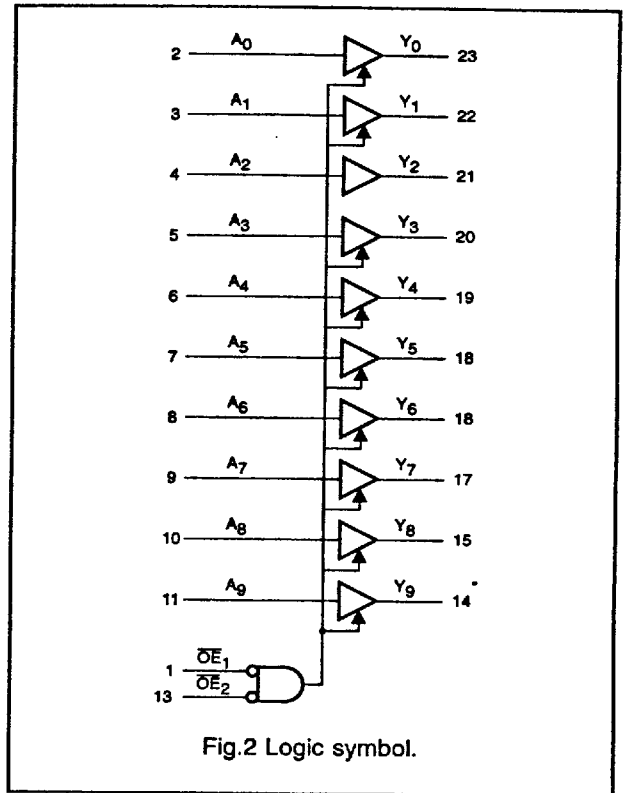
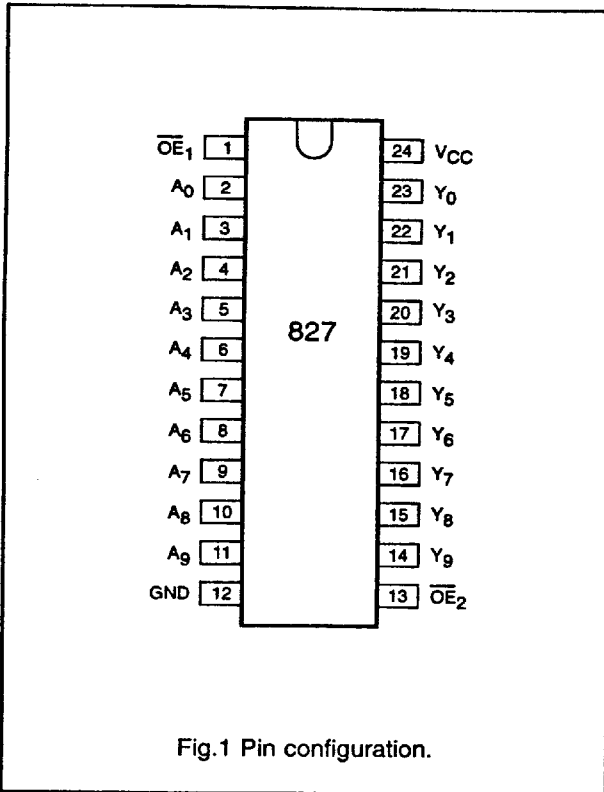
TYPE NUMBER	PACKAGES			
	PINS	PACKAGE	MATERIAL	CODE
74LVC827D	24	SO	plastic	SO24/SOT137
74LVC827DB	24	SSOP	plastic	SSOP24/SOT340
74LVC827PW	24	TSSOP	plastic	TSSOP24/SOT355

PINNING

PIN NO.	SYMBOL	NAME AND FUNCTION
1, 13	$\overline{OE}_1, \overline{OE}_2$	output enable input (active LOW)
2, 3, 4, 5, 6, 7, 8, 9, 10, 11	A_0 to A_9	data inputs
10	GND	ground (0 V)
23, 22, 21, 20, 19, 18, 17, 16, 15, 14	Y_0 to Y_9	bus outputs
20	V_{CC}	positive supply voltage

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DC CHARACTERISTICS FOR 74LVC827

For the DC characteristics see chapter "LVC family characteristics", section "Family specifications".

Output capability: bus driver

 I_{CC} category: MSI**AC CHARACTERISTICS FOR 74LVC827**GND = 0 V; $t_r = t_f \leq 2.5$ ns; $C_L = 50$ pF

SYMBOL	PARAMETER	T_{amb} (°C)			UNIT	TEST CONDITIONS	
		MIN.	TYP.	MAX.		V_{CC} (V)	WAVEFORMS
t_{PHL}/t_{PLH}	propagation delay	-	-	-	ns	1.2	Fig. 5
	1A _n to 1Y _n	-	-	8.0		2.7	
	2A _n to 2Y _n	-	-	7.0		3.0 to 3.6	
t_{PZH}/t_{PZL}	3-state output enable time	-	-	-	ns	1.2	Figs 6
	1OE to 1Y _n	-	-	9.0		2.7	
	2OE to 2Y _n	-	-	8.5		3.0 to 3.6	
t_{PHZ}/t_{PLZ}	3-state output disable time	-	-	-	ns	1.2	Figs 6
	1OE to 1Y _n	-	-	8.0		2.7	
	2OE to 2Y _n	-	-	7.5		3.0 to 3.6	

Notes: All typical values are measured at $T_{amb} = 25$ °C.* Typical values are measured at $V_{CC} = 3.3$ V.

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AC WAVEFORMS

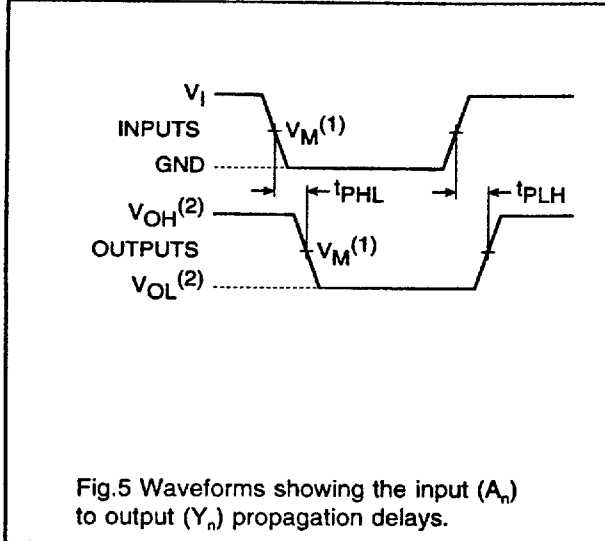


Fig.5 Waveforms showing the input (A_n) to output (Y_n) propagation delays.

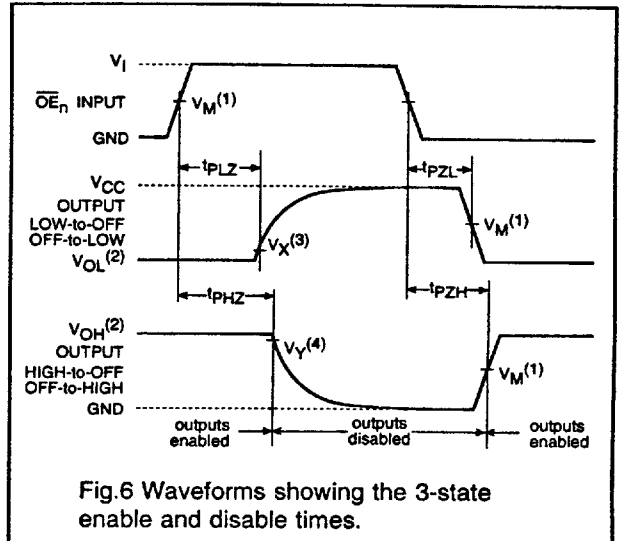


Fig.6 Waveforms showing the 3-state enable and disable times.

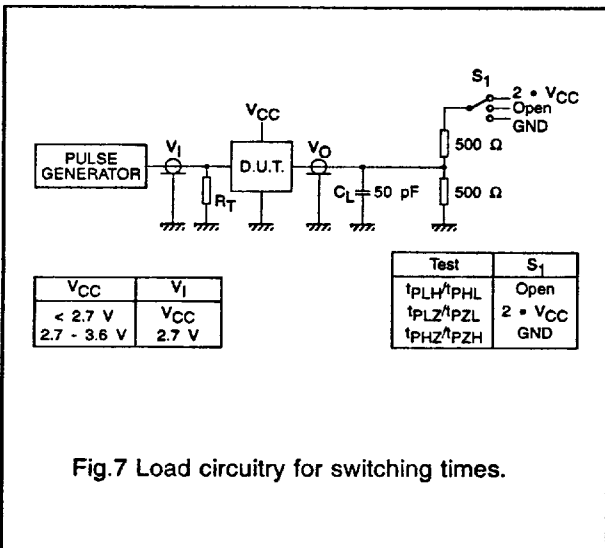


Fig.7 Load circuitry for switching times.

- Notes:
- (1) $V_M = 1.5 \text{ V}$ at $V_{CC} \geq 2.7 \text{ V}$
 $V_M = 0.5 \cdot V_{CC}$ at $V_{CC} < 2.7 \text{ V}$
 - (2) V_{OL} and V_{OH} are the typical output voltage drop that occur with the output load
 - (3) $V_X = V_{OL} + 0.3 \text{ V}$ at $V_{CC} \geq 2.7 \text{ V}$
 $V_X = V_{OL} + 0.1 \cdot V_{CC}$ at $V_{CC} < 2.7 \text{ V}$
 - (4) $V_Y = V_{OH} - 0.3 \text{ V}$ at $V_{CC} \geq 2.7 \text{ V}$
 $V_Y = V_{OH} - 0.1 \cdot V_{CC}$ at $V_{CC} < 2.7 \text{ V}$