

查询"74HC7541D"供应商

FEATURES

- **Non-inverting outputs**
- **Schmitt trigger action on all data inputs**
- **Output capability: bus driver**
- **I_{CC} category: MSI**

The 74HC/HCT7541 are high-speed Si-gate CMOS devices and are pin compatible with low power Schottky TTL (LSTTL). They are specified in compliance with JEDEC standard no. 7A.

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

The "7541" is identical to the "541" but has hysteresis on the data inputs.

SYMBOL	PARAMETER	CONDITIONS	TYPICAL		UNIT
			HC	HCT	
t _{PHL} / t _{PLH}	propagation delay A _n to Y _n	C _L = 15 pF V _{CC} = 5 V	10	16	ns
C _I	input capacitance		3.5	3.5	pF
C _{PD}	power dissipation capacitance per buffer	notes 1 and 2	30	32	pF

$\text{GND} = 0 \text{ V}; T_{\text{amb}} = 25^\circ \text{C}; t_r = t_f = 6 \text{ ns}$

1. CPD is used to determine the dynamic power dissipation (P_D in μW):

f_i = input frequency in MHz C_L = output load capacitance 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 outputs

2. For HC the condition is $V_I = \text{GND to } V_{CC}$
For HCT the condition is $V_I = \text{GND to } V_{CC} - 1.5 \text{ V}$

20-lead DIL; plastic (SOT146).
20-lead mini-pack; plastic (SO20; SOT163A).

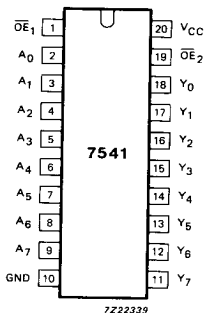


Fig. 1 Pin configuration.

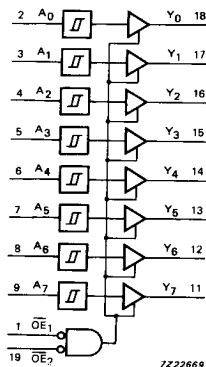


Fig. 2 Logic symbol.

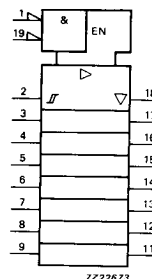
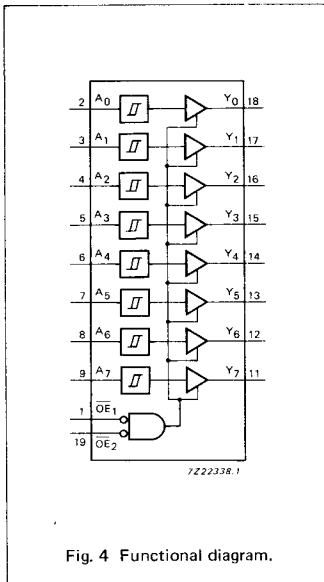


Fig. 3 IEC logic symbol.

[查询"74HC7541D"供应商](#)


PIN DESCRIPTION

PIN NO.	SYMBOL	NAME AND FUNCTION
1, 19	$\overline{OE}_1, \overline{OE}_2$	output enable inputs (active LOW)
2, 3, 4, 5, 6, 7, 8, 9	A_0 to A_7	data inputs
10	GND	ground (0 V)
18, 17, 16, 15, 14, 13, 12, 11	Y_0 to Y_7	bus outputs
20	V_{CC}	positive supply voltage

FUNCTION TABLE

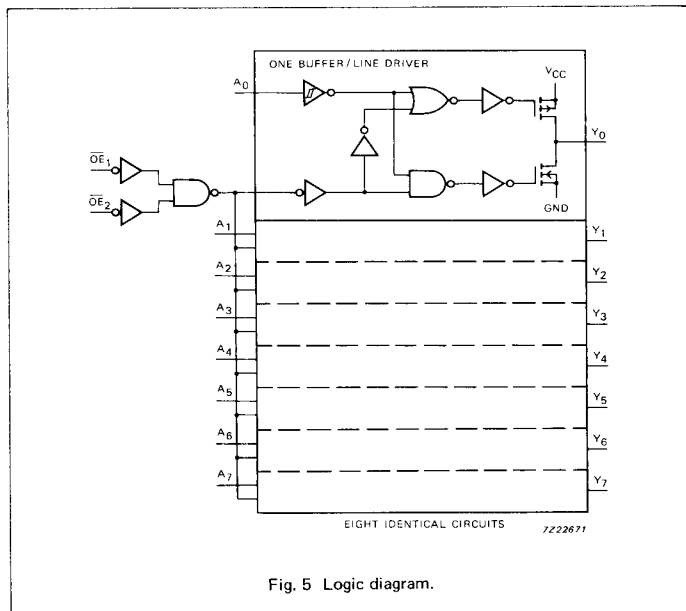
INPUTS			OUTPUTS
$\overline{OE}_1$	$\overline{OE}_2$	A_n	Y_n
L	L	L	L
L	L	H	H
X	H	X	Z
H	X	X	Z

H = HIGH voltage level

L = LOW voltage level

X = don't care

Z = high impedance OFF-state



[查询"74HC7541D"供应商](#)**DC CHARACTERISTICS FOR 74HC**

For the DC characteristics see chapter "HCMOS family characteristics", section "Family specifications".
Transfer characteristics are given below (not applicable for $\overline{OE}_n$ inputs).

Output capability: bus driver

I_{CC} category: MSI

AC CHARACTERISTICS FOR 74HC

GND = 0 V; $t_r = t_f = 6$ ns; $C_L = 50$ pF

SYMBOL	PARAMETER	T _{amb} (°C)							UNIT	TEST CONDITIONS	
		74HC								V _{CC} V	WAVEFORMS
		+25			−40 to +85		−40 to +125				
		min.	typ.	max.	min.	max.	min.	max.			
t _{PHL} / t _{PLH}	propagation delay A _n to Y _n		39 14 11	120 24 20		150 30 26		180 36 32	ns	2.0 4.5 6.0	Fig. 8
t _{PZH} / t _{PZL}	3-state output enable time OE _n to Y _n		44 16 13	160 32 27		200 40 34		240 48 41	ns	2.0 4.5 6.0	Fig. 9
t _{PHZ} / t _{PLZ}	3-state output disable time OE _n to Y _n		58 21 17	160 32 27		200 40 34		240 48 41	ns	2.0 4.5 6.0	Fig. 9
t _{THL} / t _{TLH}	output transition time		14 5 4	60 12 10		75 15 13		90 18 15	ns	2.0 4.5 6.0	Fig. 8

TRANSFER CHARACTERISTICS FOR 74HC

Voltages are referred to GND (ground = 0 V)

SYMBOL	PARAMETER	T _{amb} (°C)								UNIT	TEST CONDITIONS	
		74HC									V _{CC} V	WAVEFORMS
		+25			−40 to +85		−40 to +125					
		min.	typ.	max.	min.	max.	min.	max.				
V _{T+}	positive-going threshold			1.50 3.15 4.20		1.50 3.15 4.20		1.50 3.15 4.20	V	2.0 4.5 6.0	Figs 6 and 7	
V _{T−}	negative-going threshold	0.30 1.35 1.80			0.30 1.35 1.80		0.30 1.35 1.80		V	2.0 4.5 6.0	Figs 6 and 7	
V _H	hysteresis (V _{T+} − V _{T−})	0.10 0.25 0.30	0.20 0.40 0.50		0.10 0.25 0.30		0.10 0.25 0.30		V	2.0 4.5 6.0	Figs 6 and 7	

[查询"74HC7541D"供应商](#)
DC CHARACTERISTICS FOR 74HCT

For the DC characteristics see chapter "HCMOS family characteristics", section "Family specifications".
Transfer characteristics are given below (not applicable for $\overline{OE}_n$ inputs).

Output capability: bus driver

I_{CC} category: MSI

Note to HCT types

The value of additional quiescent supply current (ΔI_{CC}) for a unit load of 1 is given in the family specifications.
To determine ΔI_{CC} per input, multiply this value by the unit load coefficient shown in the table below.

INPUT	UNIT LOAD COEFFICIENT
$\overline{OE}_1$	1.30
$\overline{OE}_2$	1.30
A_n	0.20

AC CHARACTERISTICS FOR 74HCT

GND = 0 V; $t_r = t_f = 6$ ns; $C_L = 50$ pF

SYMBOL	PARAMETER	T _{amb} (°C)							UNIT	TEST CONDITIONS	
		74HCT								V _{CC} V	WAVEFORMS
		+25			−40 to +85		−40 to +125				
		min.	typ.	max.	min.	max.	min.	max.			
t _{PHL} / t _{PLH}	propagation delay A _n to Y _n		19	32		40		48	ns	4.5	Fig. 8
t _{pZH} / t _{pZL}	3-state output enable time OE _n to Y _n		18	32		40		48	ns	4.5	Fig. 9
t _{pHZ} / t _{PLZ}	3-state output disable time OE _n to Y _n		20	32		40		48	ns	4.5	Fig. 9
t _{THL} / t _{TLH}	output transition time		5	12		15		18	ns	4.5	Fig. 8

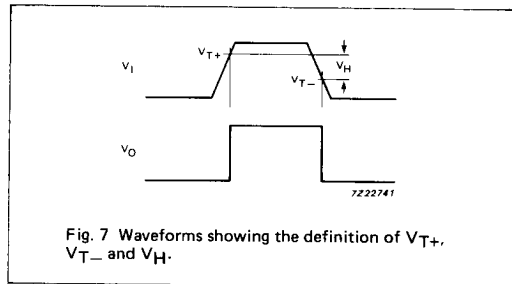
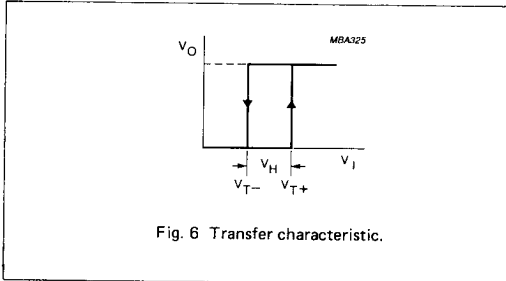
TRANSFER CHARACTERISTICS FOR 74HCT

Voltages are referred to GND (ground = 0 V)

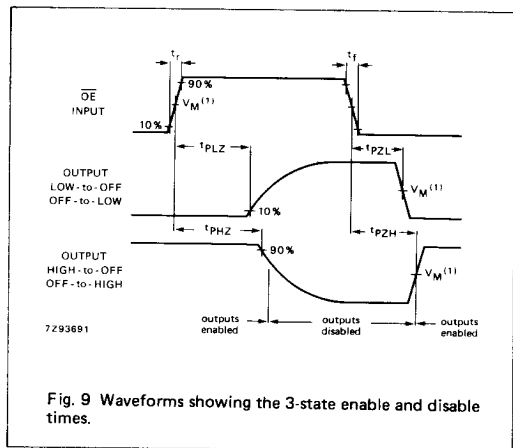
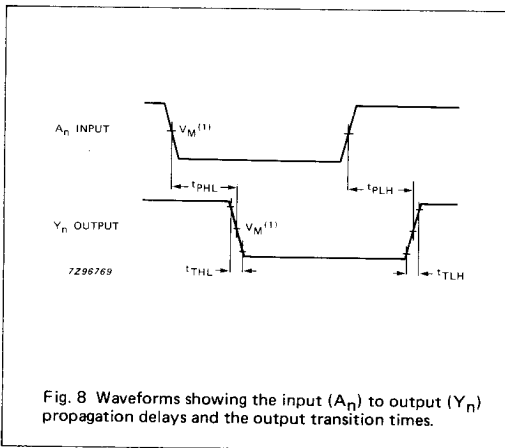
SYMBOL	PARAMETER	T _{amb} (°C)								UNIT	TEST CONDITIONS	
		74HCT									V _{CC} V	WAVEFORMS
		+25			−40 to +85		−40 to +125					
		min.	typ.	max.	min.	max.	min.	max.				
V _{T+}	positive-going threshold			2.0 2.1		2.0 2.1		2.0 2.1	V	4.5 5.5	Figs 6 and 7	
V _{T−}	negative-going threshold	0.70 0.80			0.64 0.74		0.60 0.70		V	4.5 5.5	Figs 6 and 7	
V _H	hysteresis (V _{T+} − V _{T−})	0.17 0.17	0.23 0.23						V	4.5 5.5	Figs 6 and 7	

[查询"74HC7541D"供应商](#)

TRANSFER CHARACTERISTIC WAVEFORMS



AC WAVEFORMS



Note to AC waveforms

- (1) HC : $V_M = 50\%$; $V_L = \text{GND to } V_{CC}$.
HCT: $V_M = 1.3 \text{ V}$; $V_L = \text{GND to } 3 \text{ V}$.