Octal Buffer/Line Driver; 3-state

CJ74HC/HCT541 Logic

1 Introduction

The CJ74HC/HCT541 is an octal non-inverting buffer/line driver with 3-state outputs. The device features two output enables (/OE1 and /OE2). A HIGH on /OEn causes the outputs to assume a high-impedance OFF-state. Inputs include clamp diodes that enable the use of current limiting resistors to interface inputs to voltages in excess of V_{CC}.

2 Available Packages

PART NUMBER	PACKAGE
CJ74HC541	SOP20
	TSSOP20
CJ74HCT541	SOP20
	TSSOP20

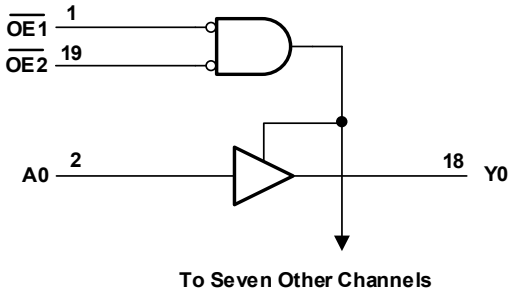
Note: For all available packages, please refer to the part Orderable Information.

3 Features

- Input levels:
  - For CJ74HC541: CMOS level
  - For CJ74HCT541: TTL level
- Non-Inverting outputs
- Specified from -40°C to +125°C

4 Applications

- Servers
- PCs and Notebooks
- Network Switches
- Wearable Health and Fitness Devices
- Telecom Infrastructures
- Electronic Points of Sale



Simplified block diagram

5 Orderable Information

DEVICE	PACKAGE	OP TEMP	ECO PLAN	MSL	PACKING OPTION	SORT
CJ74HC541AGN	SOP20	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 2000 Units / Reel	Active
CJ74HCT541AGN	SOP20	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 2000 Units / Reel	Active
CJ74HC541BGN	TSSOP20	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 4000 Units / Reel	Active
CJ74HCT541BGN	TSSOP20	-40~125°C	RoHS & Green	Level 3 168HR	Tape and Reel 4000 Units / Reel	Active

Note:

ECO PLAN: For the RoHS and Green certification standards of this product, please refer to the official report provided by JSCJ.

MSL: Moisture Sensitivity Level. Determined according to JEDEC industry standard classification.

SORT: Specifically defined as follows:
Active: Recommended for new products;
Customized: Products manufactured to meet the specific needs of customers;
Preview: The device has been released and has not been fully mass produced. The sample may or may not be available;
NoRD: It is not recommended to use the device for new design. The device is only produced for the needs of existing customers;
Obsolete: The device has been discontinued.

6 Pin Configuration and Marking Information

6.1 Pin Configuration

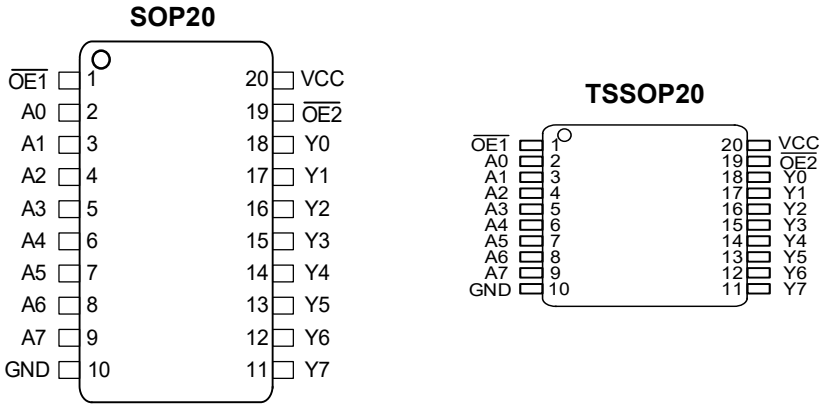


Figure 6-1 Pin configuration

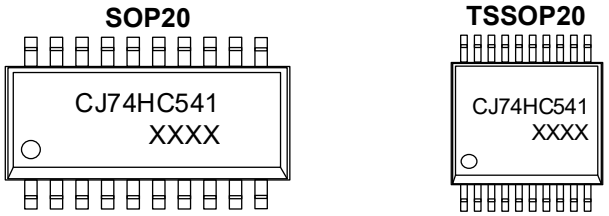
6.2 Pin Function

PIN		I/O(1)	DESCRIPTION
No.	NAME		
1	$\overline{OE1}$	I	Output enable input (active LOW)
2	A0	I	Data input
3	A1	I	Data input
4	A2	I	Data input
5	A3	I	Data input
6	A4	I	Data input
7	A5	I	Data input
8	A6	I	Data input
9	A7	I	Data input
10	GND	G	Ground (0V)
11	Y7	O	Data output
12	Y6	O	Data output
13	Y5	O	Data output
14	Y4	O	Data output
15	Y3	O	Data output
16	Y2	O	Data output
17	Y1	O	Data output
18	Y0	O	Data output
19	$\overline{OE2}$	I	Output enable input (active LOW)
20	VCC	P	Supply voltage

(1) I-Input, O-Output, P-Power, G-Ground.

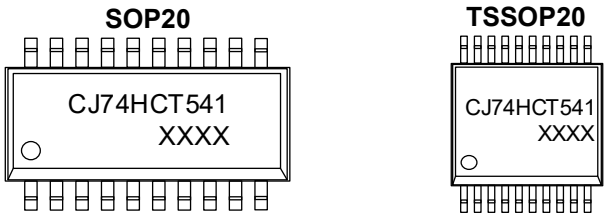
6.3 Marking Information

6.3.1 CJ74HC541



XXXX: Code, indicates weekly record information.

6.3.2 CJ74HCT541



XXXX: Code, indicates weekly record information.

7 Specifications

7.1 Absolute Maximum Ratings

Voltages are referenced to GND(ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	MAX.	UNIT
V_{CC}	Supply voltage	-		-0.5	+7.0	V
I_{IK}	Input clamping current	V_I < -0.5V or V_I > V_{CC}+0.5V		-	±20	mA
I_{OK}	Output clamping current	V_O < -0.5V or V_O > V_{CC}+0.5V		-	±20	mA
I_O	Output current	-0.5V < V_O < V_{CC}+0.5V		-	±35	mA
I_{CC}	Supply current	-		-	70	mA
I_{GND}	Ground current	-		-70	-	mA
T_{stg}	Storage temperature	-		-65	+150	°C
P_{tot}	Total power dissipation	-		-	500	mW
T_L	Soldering temperature	10s	SOP/TSSOP	-	260	°C

Note: Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur. All voltage parameters are absolute voltages referenced to GND. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions.

7.2 Recommended Operating Conditions

SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
CJ74HC541						
V_{CC}	Supply voltage	-	2.0	5.0	6.0	V
V_I	Input voltage	-	0	-	V_{CC}	V
V_O	Output voltage	-	0	-	V_{CC}	V
Δt/ΔV	Input transition rise and fall rate	V_{CC}=2.0V	-	-	625	ns/V
		V_{CC}=4.5V	-	1.67	139	ns/V
		V_{CC}=6.0V	-	-	83	ns/V
T_{amb}	Ambient temperature	-	-40	-	+125	°C
CJ74HCT541						
V_{CC}	Supply voltage	-	4.5	5.0	5.5	V
V_I	Input voltage	-	0	-	V_{CC}	V
V_O	Output voltage	-	0	-	V_{CC}	V
Δt/ΔV	Input transition rise and fall rate	V_{CC}=4.5V	-	1.67	139	ns/V
T_{amb}	Ambient temperature	-	-40	-	+125	°C

7.3 ESD Ratings

SYMBOL	ESD RATINGS		VALUE	UNIT
$V_{ESD-HBM}$	Electrostatic discharge	Human body model (HBM) (1)	±1000	V

(1) JEDEC document JEP155 states that 500-V H1BM allows safe manufacturing with a standard ESD control process.

7.4 Electrical Characteristics

7.4.1 DC Characteristics 1

T_{amb}=25°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC541							
V_{IH}	HIGH-level input voltage	V_{CC}=2.0V		1.5	-	-	V
		V_{CC}=4.5V		3.15	-	-	V
		V_{CC}=6.0V		4.2	-	-	V
V_{IL}	LOW-level input voltage	V_{CC}=2.0V		-	-	0.5	V
		V_{CC}=4.5V		-	-	1.35	V
		V_{CC}=6.0V		-	-	1.8	V
V_{OH}	HIGH-level output voltage	V_I=V_{IH} or V_{IL}	I_O=-20uA; V_{CC}=2.0V	1.9	2.0	-	V
			I_O=-20uA; V_{CC}=4.5V	4.4	4.5	-	V
			I_O=-20uA; V_{CC}=6.0V	5.9	6.0	-	V
			I_O=-6.0mA; V_{CC}=4.5V	3.98	4.32	-	V
			I_O=-7.8mA; V_{CC}=6.0V	5.48	5.81	-	V
V_{OL}	LOW-level output voltage	V_I=V_{IH} or V_{IL}	I_O=20uA; V_{CC}=2.0V	-	0	0.1	V
			I_O=20uA; V_{CC}=4.5V	-	0	0.1	V
			I_O=20uA; V_{CC}=6.0V	-	0	0.1	V
			I_O=6.0mA; V_{CC}=4.5V	-	0.15	0.26	V
			I_O=7.8mA; V_{CC}=6.0V	-	0.16	0.26	V
I_I	Input leakage current	V_I=V_{CC} or GND; V_{CC}=6.0V		-	-	±1.0	uA
I_{OZ}	OFF-state output current	V_I=V_{IH} or V_{IL}; V_{CC}=6.0V; V_O=V_{CC} or GND		-	-	±1.0	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}=6.0V		-	-	8.0	uA
C_I	Input capacitance	-		-	3.5	-	pF
CJ74HCT541							
V_{IH}	HIGH-level input voltage	V_{CC}=4.5V to 5.5V		2.0	-	-	V
V_{IL}	LOW-level input voltage	V_{CC}=4.5V to 5.5V		-	-	0.8	V
V_{OH}	HIGH-level output voltage	V_I=V_{IH} or V_{IL}; V_{CC}=4.5V	I_O=-20uA	4.4	4.5	-	V
			I_O=-6.0mA	3.98	4.32	-	V
V_{OL}	LOW-level output voltage	V_I=V_{IH} or V_{IL}; V_{CC}=4.5V	I_O=20uA	-	0	0.1	V
			I_O=6.0mA	-	0.16	0.26	V
I_I	Input leakage current	V_I=V_{CC} or GND;V_{CC}=5.5V		-	-	±1.0	uA
I_{OZ}	OFF-state output current	V_I=V_{IH} or V_{IL}; V_{CC}=5.5V; V_O=V_{CC} or GND		-	-	±1.0	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}=5.5V		-	-	8.0	uA
ΔI_{CC}	Additional supply current	Per input pin; V_I=V_{CC}-	An input	-	-	252	uA

		2.1V; Other inputs at V_{CC} or GND; V_{CC}=4.5V to 5.5V; I_O=0A	$\overline{OE1}$ input	-	-	540	uA
			$\overline{OE2}$ input	-	-	360	uA
C_I	Input capacitance	-		-	3.5	-	pF

7.4.2 DC Characteristics 2

T_{amb}=-40°C to +85°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC541							
V_{IH}	HIGH-level input voltage	V_{CC}=2.0V		1.5	-	-	V
		V_{CC}=4.5V		3.15	-	-	V
		V_{CC}=6.0V		4.2	-	-	V
V_{IL}	LOW-level input voltage	V_{CC}=2.0V		-	-	0.5	V
		V_{CC}=4.5V		-	-	1.35	V
		V_{CC}=6.0V		-	-	1.8	V
V_{OH}	HIGH-level output voltage	V_I=V_{IH} or V_{IL}	I_O=-20uA; V_{CC}=2.0V	1.9	-	-	V
			I_O=-20uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-20uA; V_{CC}=6.0V	5.9	-	-	V
			I_O=-6.0mA; V_{CC}=4.5V	3.84	-	-	V
			I_O=-7.8mA; V_{CC}=6.0V	5.34	-	-	V
V_{OL}	LOW-level output voltage	V_I=V_{IH} or V_{IL}	I_O=20uA; V_{CC}=2.0V	-	-	0.1	V
			I_O=20uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=20uA; V_{CC}=6.0V	-	-	0.1	V
			I_O=6.0mA; V_{CC}=4.5V	-	-	0.33	V
			I_O=7.8mA; V_{CC}=6.0V	-	-	0.33	V
I_I	Input leakage current	V_I=V_{CC} or GND; V_{CC}=6.0V		-	-	±1.0	uA
I_{OZ}	OFF-state output current	V_I=V_{IH} or V_{IL}; V_{CC}=6.0V; V_O=V_{CC} or GND		-	-	±5.0	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}=6.0V		-	-	80	uA
CJ74HCT541							
V_{IH}	HIGH-level input voltage	V_{CC}=4.5V to 5.5V		2.0	-	-	V
V_{IL}	LOW-level input voltage	V_{CC}=4.5V to 5.5V		-	-	0.8	V
V_{OH}	HIGH-level output voltage	V_I=V_{IH} or V_{IL}; V_{CC}=4.5V	I_O=-20uA	4.4	-	-	V
			I_O=-6.0mA	3.84	-	-	V
V_{OL}	LOW-level output voltage	V_I=V_{IH} or V_{IL}; V_{CC}=4.5V	I_O=20uA	-	-	0.1	V
			I_O=6.0mA	-	-	0.33	V
I_I	Input leakage current	V_I=V_{CC} or GND; V_{CC}=5.5V		-	-	±1.0	uA

I_{OZ}	OFF-state output current	$V_I=V_{IH}$ or V_{IL}; V_{CC}=5.5V; $V_O=V_{CC}$ or GND		-	-	±5.0	uA
I_{CC}	Supply current	$V_I=V_{CC}$ or GND; I_O=0A; V_{CC}=5.5V		-	-	80	uA
ΔI_{CC}	Additional supply current	Per input pin; $V_I=V_{CC}$-2.1V; Other inputs at V_{CC} or GND; V_{CC}=4.5V to 5.5V; I_O=0A	An input	-	-	315	uA
			$\overline{OE1}$ input	-	-	675	uA
			$\overline{OE2}$ input	-	-	450	uA

7.4.3 DC Characteristics 3

T_{amb}=-40°C to +125°C, voltages are referenced to GND (ground=0V), unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC541							
V_{IH}	HIGH-level input voltage	V_{CC}=2.0V		1.5	-	-	V
		V_{CC}=4.5V		3.15	-	-	V
		V_{CC}=6.0V		4.2	-	-	V
V_{IL}	LOW-level input voltage	V_{CC}=2.0V		-	-	0.5	V
		V_{CC}=4.5V		-	-	1.35	V
		V_{CC}=6.0V		-	-	1.8	V
V_{OH}	HIGH-level output voltage	$V_I=V_{IH}$ or V_{IL}	I_O=-20uA; V_{CC}=2.0V	1.9	-	-	V
			I_O=-20uA; V_{CC}=4.5V	4.4	-	-	V
			I_O=-20uA; V_{CC}=6.0V	5.9	-	-	V
			I_O=-6.0mA; V_{CC}=4.5V	3.7	-	-	V
			I_O=-7.8mA; V_{CC}=6.0V	5.2	-	-	V
V_{OL}	LOW-level output voltage	$V_I=V_{IH}$ or V_{IL}	I_O=20uA; V_{CC}=2.0V	-	-	0.1	V
			I_O=20uA; V_{CC}=4.5V	-	-	0.1	V
			I_O=20uA; V_{CC}=6.0V	-	-	0.1	V
			I_O=6.0mA; V_{CC}=4.5V	-	-	0.4	V
			I_O=7.8mA; V_{CC}=6.0V	-	-	0.4	V
I_I	Input leakage current	$V_I=V_{CC}$ or GND; V_{CC}=6.0V		-	-	±1.0	uA
I_{OZ}	OFF-state output current	$V_I=V_{IH}$ or V_{IL}; V_{CC}=6.0V; $V_O=V_{CC}$ or GND		-	-	±10	uA
I_{CC}	Supply current	$V_I=V_{CC}$ or GND; I_O=0A; V_{CC}=6.0V		-	-	160	uA
CJ74HCT541							
V_{IH}	HIGH-level input voltage	V_{CC}=4.5V to 5.5V		2.0	-	-	V
V_{IL}	LOW-level input voltage	V_{CC}=4.5V to 5.5V		-	-	0.8	V
V_{OH}	HIGH-level output voltage	$V_I=V_{IH}$ or V_{IL}; V_{CC}=4.5V	I_O=-20uA	4.4	-	-	V
			I_O=-6.0mA	3.7	-	-	V
V_{OL}	LOW-level output	$V_I=V_{IH}$ or V_{IL};	I_O=20uA	-	-	0.1	V

	voltage	V_{CC}=4.5V	I_O=6.0mA	-	-	0.4	V
I_I	Input leakage current	V_I=V_{CC} or GND; V_{CC}=5.5V		-	-	±1.0	uA
I_{OZ}	OFF-state output current	V_I=V_{IH} or V_{IL}; V_{CC}=5.5V; V_O=V_{CC} or GND		-	-	±10	uA
I_{CC}	Supply current	V_I=V_{CC} or GND; I_O=0A; V_{CC}=5.5V		-	-	160	uA
ΔI_{CC}	Additional supply current	Per input pin; V_I=V_{CC}-2.1V; Other inputs at V_{CC} or GND; V_{CC}=4.5V to 5.5V; I_O=0A	An input	-	-	343	uA
			$\overline{OE1}$ input	-	-	735	uA
			$\overline{OE2}$ input	-	-	490	uA

7.4.4 AC Characteristics 1

T_{amb}=25°C, GND=0V, C_L=50pF, unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC541							
t_{pd}	An to Yn propagation delay	See Figure 8-6	V_{CC}=2.0V	-	33	115	ns
			V_{CC}=4.5V	-	12	23	ns
			V_{CC}=5.0V; C_L=15pF	-	10	-	ns
			V_{CC}=6.0V	-	10	20	ns
t_{en}	$\overline{OE}$n to Yn enable time	See Figure 8-7	V_{CC}=2.0V	-	55	160	ns
			V_{CC}=4.5V	-	20	32	ns
			V_{CC}=6.0V	-	16	27	ns
t_{dis}	$\overline{OE}$n to Yn disable time	See Figure 8-7	V_{CC}=2.0V	-	61	160	ns
			V_{CC}=4.5V	-	22	32	ns
			V_{CC}=6.0V	-	18	27	ns
t_t	Transition time	See Figure 8-6	V_{CC}=2.0V	-	14	60	ns
			V_{CC}=4.5V	-	5	12	ns
			V_{CC}=6.0V	-	4	10	ns
C_{PD}	Power dissipation capacitance	Per buffer; V_I=GND to V_{CC}		-	37	-	pF
CJ74HCT541							
t_{pd}	An to Yn propagation delay	See Figure 8-6	V_{CC}=4.5V	-	15	28	ns
			V_{CC}=5.0V; C_L=15pF	-	12	-	ns
t_{en}	$\overline{OE}$n to Yn enable time	V_{CC}=4.5V; See Figure 8-7		-	21	35	ns
t_{dis}	$\overline{OE}$n to Yn disable time	V_{CC}=4.5V; See Figure 8-7		-	21	35	ns
t_t	Transition time	V_{CC}=4.5V; See Figure 8-6		-	5	12	ns
C_{PD}	Power dissipation capacitance	Per buffer; V_I=GND to V_{CC}-1.5V		-	39	-	pF

Note:

(1) t_{pd} is the same as t_{PLH} and t_{PHL}.

(2) t_{en} is the same as t_{PZL} and t_{PZH}.

(3) t_{dis} is the same as t_{PLZ} and t_{PHZ}.

(4) t_t is the same as t_{THL} and t_{TLH}.

(5) C_{PD} is used to determine the dynamic power dissipation (P_D in uW).

$P_D=(C_{PD}xV_{CC}^2xf_ixN)+\sum(C_LxV_{CC}^2xf_o)$ where:

f_i=input frequency in MHz;

f_o=output frequency in MHz;

C_L=output load capacitance in pF;

V_{CC}=supply voltage in V;

N=number of inputs switching;

$\sum(C_LxV_{CC}^2xf_o)$=sum of outputs.

7.4.5 AC Characteristics 2

T_{amb}=-40°C to +85°C, GND=0V, C_L=50pF, unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC541							
t_{pd}	An to Yn propagation delay	See Figure 8-6	V_{CC}=2.0V	-	-	145	ns
			V_{CC}=4.5V	-	-	29	ns
			V_{CC}=6.0V	-	-	25	ns
t_{en}	$\overline{OE}$n to Yn enable time	See Figure 8-7	V_{CC}=2.0V	-	-	200	ns
			V_{CC}=4.5V	-	-	40	ns
			V_{CC}=6.0V	-	-	34	ns
t_{dis}	$\overline{OE}$n to Yn disable time	See Figure 8-7	V_{CC}=2.0V	-	-	200	ns
			V_{CC}=4.5V	-	-	40	ns
			V_{CC}=6.0V	-	-	34	ns
t_t	Transition time	See Figure 8-6	V_{CC}=2.0V	-	-	75	ns
			V_{CC}=4.5V	-	-	15	ns
			V_{CC}=6.0V	-	-	13	ns
CJ74HCT541							
t_{pd}	An to Yn propagation delay	See Figure 8-6	V_{CC}=4.5V	-	-	35	ns
t_{en}	$\overline{OE}$n to Yn enable time	V_{CC}=4.5V; See Figure 8-7		-	-	44	ns
t_{dis}	$\overline{OE}$n to Yn disable time	V_{CC}=4.5V; See Figure 8-7		-	-	44	ns
t_t	Transition time	V_{CC}=4.5V; See Figure 8-6		-	-	15	ns

Note:

(1) t_{pd} is the same as t_{PLH} and t_{PHL}.

(2) t_{en} is the same as t_{PZL} and t_{PZH}.

(3) t_{dis} is the same as t_{PLZ} and t_{PHZ}.

(4) t_t is the same as t_{THL} and t_{TLH}.

7.4.6 AC Characteristics 3

T_{amb}=-40°C to +125°C, GND=0V, C_L=50pF, unless otherwise specified.

SYMBOL	PARAMETER	CONDITIONS		MIN.	TYP.	MAX.	UNIT
CJ74HC541							
t_{pd}	An to Yn propagation delay	See Figure 8-6	V_{CC}=2.0V	-	-	175	ns
			V_{CC}=4.5V	-	-	35	ns
			V_{CC}=6.0V	-	-	30	ns
t_{en}	$\overline{OE}$n to Yn enable time	See Figure 8-7	V_{CC}=2.0V	-	-	240	ns
			V_{CC}=4.5V	-	-	48	ns
			V_{CC}=6.0V	-	-	41	ns
t_{dis}	$\overline{OE}$n to Yn disable time	See Figure 8-7	V_{CC}=2.0V	-	-	240	ns
			V_{CC}=4.5V	-	-	48	ns
			V_{CC}=6.0V	-	-	41	ns
t_t	Transition time	See Figure 8-6	V_{CC}=2.0V	-	-	90	ns
			V_{CC}=4.5V	-	-	18	ns
			V_{CC}=6.0V	-	-	15	ns
CJ74HCT541							
t_{pd}	An to Yn propagation delay	See Figure 8-6	V_{CC}=4.5V	-	-	42	ns
t_{en}	$\overline{OE}$n to Yn enable time	V_{CC}=4.5V; See Figure 8-7		-	-	53	ns
t_{dis}	$\overline{OE}$n to Yn disable time	V_{CC}=4.5V; See Figure 8-7		-	-	53	ns
t_t	Transition time	V_{CC}=4.5V; See Figure 8-6		-	-	18	ns

Note:

(1) t_{pd} is the same as t_{PLH} and t_{PHL}.

(2) t_{en} is the same as t_{PZL} and t_{PZH}.

(3) t_{dis} is the same as t_{PLZ} and t_{PHZ}.

(4) t_t is the same as t_{THL} and t_{TLH}.

8 Detailed Description

8.1 Overview

The CJ74HC/HCT541 is an octal non-inverting buffer/line driver with 3-state outputs. The device features two output enables (/OE1 and /OE2). A HIGH on /OEn causes the outputs to assume a high-impedance OFF-state. Inputs include clamp diodes that enable the use of current limiting resistors to interface inputs to voltages in excess of V_{CC}.

8.2 Functional Block Diagram

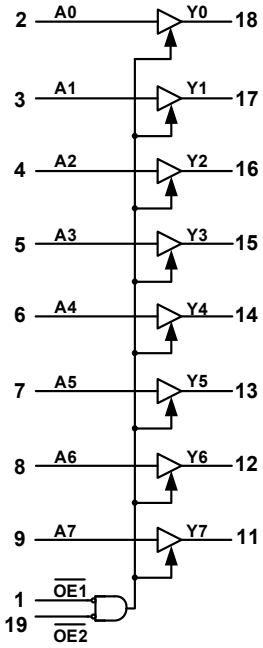


Figure 8-1 Logic symbol

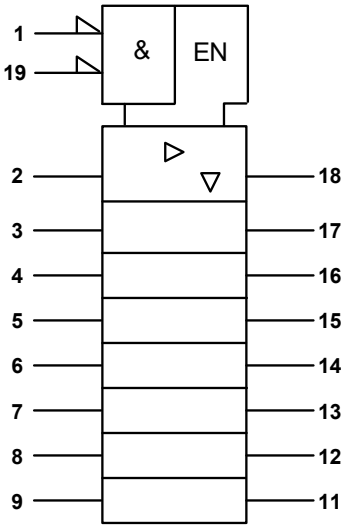


Figure 8-2 IEC logic symbol

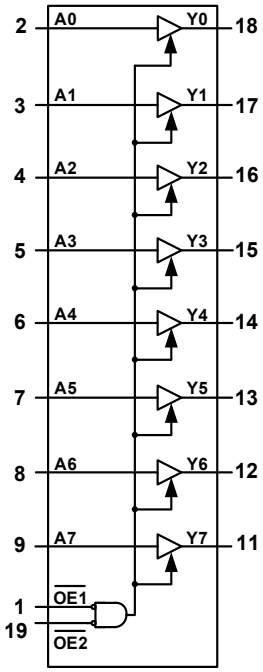


Figure 8-3 Functional diagram

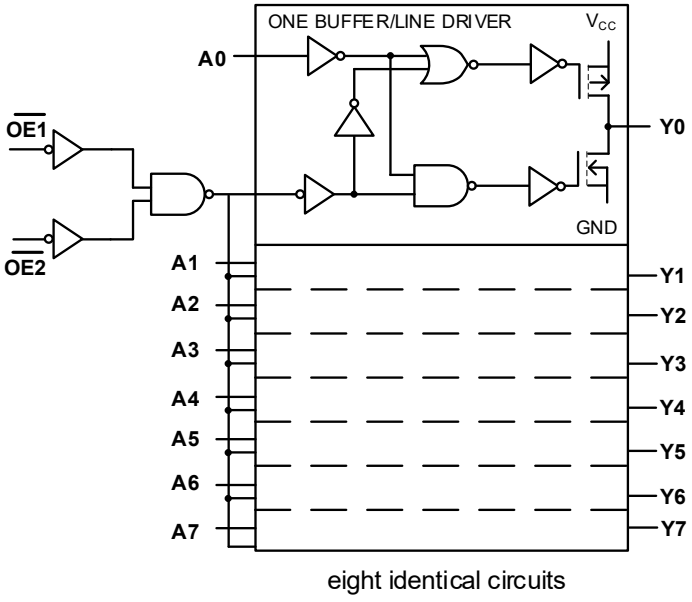


Figure 8-4 Logic diagram

8.3 Function Table(1)

INPUT			OUTPUT
$\overline{OE1}$	$\overline{OE2}$	An	Yn
L	L	L	L
L	L	H	H
X	H	X	Z
H	X	X	Z

(1) H=HIGH voltage level; L=LOW voltage level; X=don't care; Z=high-impedance OFF-state.

8.4 Testing Circuit

8.4.1 AC Testing Circuit

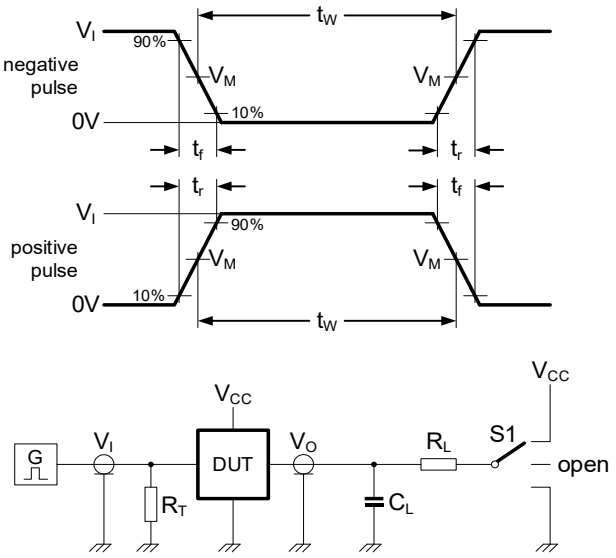


Figure 8-5 Test circuit for measuring switching times

Definitions for test circuit:

R_L=Load resistance.

C_L=Load capacitance including jig and probe capacitance.

R_T=Termination resistance should be equal to the output impedance Z_o of the pulse generator.

S1=Test selection switch.

8.4.2 AC Testing Waveforms

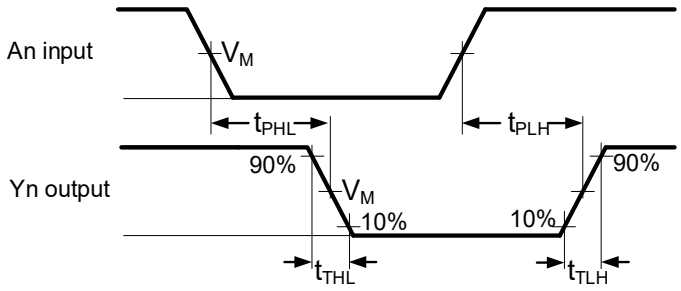


Figure 8-6 Input to output propagation delays

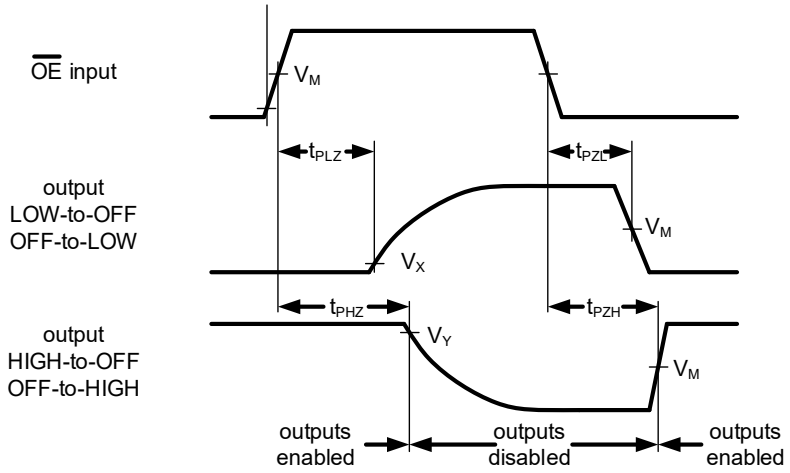


Figure 8-7 3-state enable and disable times

8.4.3 Measurement Points

TYPE	INPUT	OUTPUT		
	V_M	V_M	V_X	V_Y
CJ74HC541	0.5xV_{CC}	0.5xV_{CC}	0.1xV_{CC}	0.9xV_{CC}
CJ74HCT541	1.3V	1.3V	0.1xV_{CC}	0.9xV_{CC}

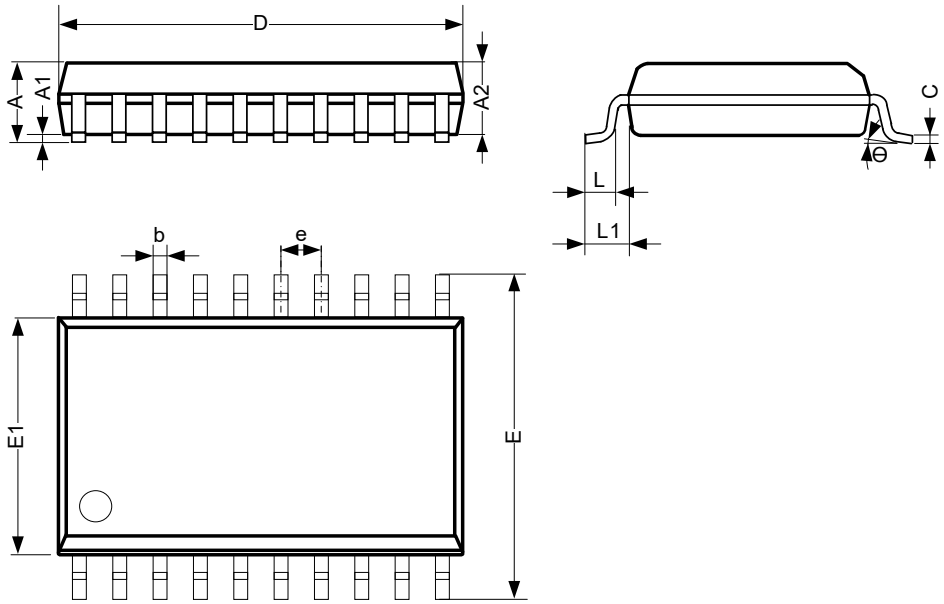
8.4.4 Test Data

TYPE	INPUT		LOAD		S1 POSITION		
	V_I	t_r , t_f	C_L	R_L	t_{PHL},t_{PLH}	t_{PZH},t_{PHZ}	t_{PZL},t_{PLZ}
CJ74HC541	V_{CC}	6ns	15pF, 50pF	1kΩ	Open	GND	V_{CC}
CJ74HCT541	3V	6ns	15pF, 50pF	1kΩ	Open	GND	V_{CC}

9 Mechanical Information

9.1 SOP20 Mechanical Information

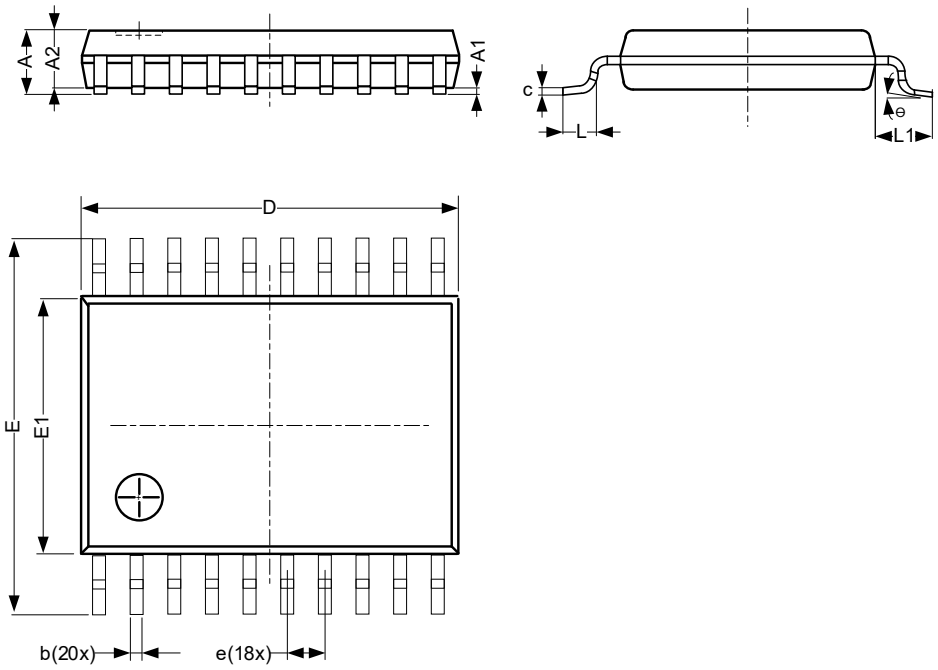
9.1.1 SOP20 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	2.47	-	2.65
A1	0.05	-	0.30
A2	2.20	-	2.44
b	0.35	-	0.50
c	0.15	-	0.30
D	12.54	-	12.94
E	10.00	-	10.60
E1	7.30	-	7.70
e	1.27 BSC		
L	0.40	-	1.05
L1	1.30	-	1.50
Θ	0°	-	8°
Unit: mm			

9.2 TSSOP20 Mechanical Information

9.2.1 TSSOP20 Outline Dimensions



SYMBOL	Dimensions In Millimeters		
	Min.	Typ.	Max.
A	-	-	1.20
A1	0.05	-	0.15
A2	0.80	-	1.05
b	0.19	-	0.30
c	0.09	-	0.20
D	6.40	-	6.60
E	6.20	-	6.60
E1	4.30	-	4.50
e	0.65 BSC		
L	0.45	-	0.75
L1	-	1.00	-
θ	0°	-	8°
Unit: mm			

10 Notes and Revision History

10.1 Associated Product Family and Others

To view other products of the same type or IC products of other types, click the official website of JSCJ -- ***https:www.jscj-elec.com*** for more details.

10.2 Notes

Electrostatic Discharge Caution

This IC may be damaged by ESD. Relevant personnel shall comply with correct installation and use specifications to avoid ESD damage to the IC. If appropriate measures are not taken to prevent ESD damage, the hazards caused by ESD include but are not limited to degradation of integrated circuit performance or complete damage of integrated circuit. For some precision integrated circuits, a very small parameter change may cause the whole device to be inconsistent with its published specifications.

10.3 Revision History

July, 2025: rev - 1.1, Change marking information.

DISCLAIMER

IMPORTANT NOTICE, PLEASE READ CAREFULLY

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