

# 74HC7541D-Q100J Datasheet

Di

Mar



iGi Electronics Part Number	74HC7541D-Q100J-DG
Manufacturer	Nexperia USA Inc.
nufacturer Product Number	74HC7541D-Q100J
Description	IC BUFFER NON-INVERT 6V 20SO
Detailed Description	Buffer, Non-Inverting 1 Element 8 Bit per Element 3 -State Output 20-SO

https://www.DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.



# Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
74HC7541D-Q100J	Nexperia USA Inc.
Series:	Product Status:
74HC	Active
Logic Type:	Number of Elements:
Buffer, Non-Inverting	1
Number of Bits per Element:	Input Type:
8	Schmitt Trigger
Output Type:	Current - Output High, Low:
3-State	7.8mA, 7.8mA
Voltage - Supply:	Operating Temperature:
2V ~ 6V	-40°C ~ 125°C (TA)
Grade:	Qualification:
Automotive	AEC-Q100
Mounting Type:	Package / Case:
Surface Mount	20-SOIC (0.295", 7.50mm Width)
Supplier Device Package:	Base Product Number:
20-50	74HC7541

# **Environmental & Export classification**

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8542.39.0001	

# 74HC7541-Q100; 74HCT7541-Q100

Octal Schmitt trigger buffer/line driver; 3-state

Rev. 3 — 5 August 2024

**Product data sheet** 

## 1. General description

The 74HC7541-Q100; 74HCT7541-Q100 is an 8-bit buffer/line driver with Schmitt-trigger inputs and 3-state outputs. The device features two output enables ( $\overline{OE1}$  and  $\overline{OE2}$ ). A HIGH on  $\overline{OEn}$  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<sub>CC</sub>. Schmitt trigger inputs transform slowly changing input signals into sharply defined jitter-free output signals.

This product has been qualified to the Automotive Electronics Council (AEC) standard Q100 (Grade 1) and is suitable for use in automotive applications.

## 2. Features and benefits

- Automotive product qualification in accordance with AEC-Q100 (Grade 1)

   Specified from -40 °C to +85 °C and from -40 °C to +125 °C
- Wide supply voltage range from 2.0 V to 6.0 V
- CMOS low power dissipation
- High noise immunity
- · Unlimited input rise and fall times
- Latch-up performance exceeds 100 mA per JESD 78 Class II Level B
- Complies with JEDEC standards:
  - JESD8C (2.7 V to 3.6 V)
  - JESD7A (2.0 V to 6.0 V)
- Non-inverting outputs
- Input levels:
  - For 74HC7541: CMOS level
  - For 74HCT7541-Q100: TTL level
- ESD protection:
  - HBM: ANSI/ESDA/JEDEC JS-001 class 2 exceeds 2000 V
  - CDM: ANSI/ESDA/JEDEC JS-002 class C3 exceeds 1000 V

## 3. Ordering information

#### Table 1. Ordering information

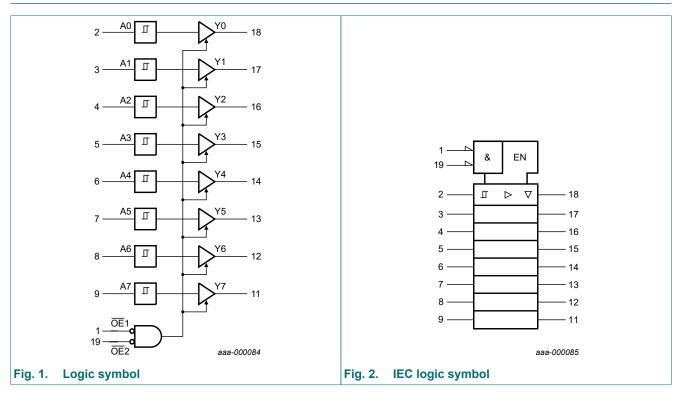
Type number	Package			
	Temperature range	Name	Description	Version
74HC7541D-Q100 74HCT7541D-Q100	-40 °C to +125 °C	SO20	plastic small outline package; 20 leads; body width 7.5 mm	<u>SOT163-1</u>
74HC7541PW-Q100 74HCT7541PW-Q100	-40 °C to +125 °C	TSSOP20	plastic thin shrink small outline package; 20 leads; body width 4.4 mm	<u>SOT360-1</u>

# ne<mark>x</mark>peria

## 74HC7541-Q100; 74HCT7541-Q100

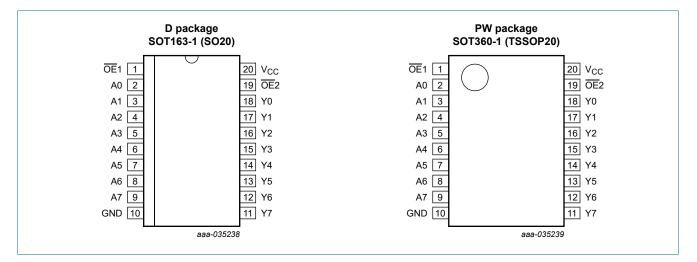
#### Octal Schmitt trigger buffer/line driver; 3-state

# 4. Functional diagram



# 5. Pinning information

## 5.1. Pinning



## 5.2. Pin description

Symbol	Pin	Description
OE1, OE2	1, 19	output enable input (active LOW)
A0, A1, A2, A3, A4, A5, A6, A7	2, 3, 4, 5, 6, 7, 8, 9	data input
GND	10	ground (0 V)
Y0, Y1, Y2, Y3, Y4, Y5, Y6, Y7	18, 17, 16, 15, 14, 13, 12, 11	data output
V <sub>CC</sub>	20	supply voltage

## 6. Functional description

#### Table 3. Functional table

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

		Input	Output
OE1	1 OE2 A		Yn
L	L	L	L
L	L	Н	Н
Х	Н	Х	Z
Н	Х	Х	Z

## 7. Limiting values

#### **Table 4. Limiting values**

In accordance with the Absolute Maximum Rating System (IEC 60134). Voltages are referenced to GND (ground = 0 V).

Symbol	Parameter	Conditions		Min	Мах	Unit
V <sub>CC</sub>	supply voltage			-0.5	+7	V
I <sub>IK</sub>	input clamping current	$V_{\rm I}$ < -0.5 V or $V_{\rm I}$ > $V_{\rm CC}$ + 0.5 V	[1]	-	±20	mA
I <sub>ОК</sub>	output clamping current	$V_{\rm O}$ < -0.5 V or $V_{\rm O}$ > $V_{\rm CC}$ + 0.5 V	[1]	-	±20	mA
I <sub>O</sub>	output current	$-0.5 V < V_O < V_{CC} + 0.5 V$		-	±35	mA
I <sub>CC</sub>	supply current			-	70	mA
I <sub>GND</sub>	ground current			-70	-	mA
T <sub>stg</sub>	storage temperature			-65	+150	°C
P <sub>tot</sub>	total power dissipation		[2]	-	500	mW

The input and output voltage ratings may be exceeded if the input and output current ratings are observed. [1] [2]

For SOT163-1 (SO20) package: Ptot derates linearly with 12.3 mW/K above 109 °C.

For SOT360-1 (TSSOP20) package: Ptot derates linearly with 10.0 mW/K above 100 °C.

# 8. Recommended operating conditions

#### Table 5. Recommended operating conditions

Voltages are referenced to GND (ground = 0 V)

Symbol	Parameter	Conditions	74HC7541-Q100			74H0	Unit		
			Min	Тур	Max	Min	Тур	Max	]
V <sub>CC</sub>	supply voltage		2.0	5.0	6.0	4.5	5.0	5.5	V
VI	input voltage		0	-	V <sub>CC</sub>	0	-	V <sub>CC</sub>	V
Vo	output voltage		0	-	V <sub>CC</sub>	0	-	V <sub>CC</sub>	V
T <sub>amb</sub>	ambient temperature		-40	+25	+125	-40	+25	+125	°C

## 9. Static characteristics

#### **Table 6. Static characteristics**

At recommended operating conditions; voltages are referenced to GND (ground = 0 V).

Symbol	Parameter	Conditions		25 °C		-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Тур	Max	Min	Мах	Min	Max	
74HC754	41-Q100							1		1
V <sub>OH</sub>	HIGH-level	$V_{I} = V_{T+}$ or $V_{T-}$								
	output voltage	I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 2.0 V	1.9	2.0	-	1.9	-	1.9	-	V
		I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 4.5 V	4.4	4.5	-	4.4	-	4.4	-	V
		I <sub>O</sub> = -20 μA; V <sub>CC</sub> = 6.0 V	5.9	6.0	-	5.9	-	5.9	-	V
		I <sub>O</sub> = -6.0 mA; V <sub>CC</sub> = 4.5 V	3.98	4.32	-	3.84	-	3.7	-	V
		I <sub>O</sub> = -7.8 mA; V <sub>CC</sub> = 6.0 V	5.48	5.81	-	5.34	-	5.2	-	V
V <sub>OL</sub>	LOW-level output voltage	$V_I = V_{T+}$ or $V_{T-}$								
		I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 2.0 V	-	0	0.1	-	0.1	-	0.1	V
		I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 4.5 V	-	0	0.1	-	0.1	-	0.1	V
		I <sub>O</sub> = 20 μA; V <sub>CC</sub> = 6.0 V	-	0	0.1	-	0.1	-	0.1	V
		I <sub>O</sub> = 6.0 mA; V <sub>CC</sub> = 4.5 V	-	0.15	0.26	-	0.33	-	0.4	V
		I <sub>O</sub> = 7.8 mA; V <sub>CC</sub> = 6.0 V	-	0.16	0.26	-	0.33	-	0.4	V
I <sub>I</sub>	input leakage current	$V_{I} = V_{CC}$ or GND; $V_{CC} = 6.0$ V	-	-	±0.1	-	±1.0	-	±1.0	μA
I <sub>OZ</sub>	OFF-state output current	$V_{I} = V_{T+} \text{ or } V_{T-}; V_{CC} = 6.0 \text{ V};$ $V_{O} = V_{CC} \text{ or GND}$	-	-	±0.5	-	±5.0	-	±10	μA
I <sub>CC</sub>	supply current	$V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 6.0$ V	-	-	8.0	-	80	-	160	μA
CI	input capacitance		-	3.5	-	-	-	-	-	pF

## 74HC7541-Q100; 74HCT7541-Q100

#### Octal Schmitt trigger buffer/line driver; 3-state

Symbol	Parameter	Conditions		25 °C		-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Тур	Max	Min	Мах	Min	Max	
74HCT7	541-Q100	1								
V <sub>OH</sub>	HIGH-level	$V_{I} = V_{T+} \text{ or } V_{T-}; V_{CC} = 4.5 \text{ V}$								
output voltage	output voltage	I <sub>O</sub> = -20 μA	4.4	4.5	-	4.4	-	4.4	-	V
		I <sub>O</sub> = -6.0 mA	3.98	4.32	-	3.84	-	3.7	-	V
V <sub>OL</sub>	LOW-level	$V_{I} = V_{T+} \text{ or } V_{T-}; V_{CC} = 4.5 \text{ V}$								
	output voltage	I <sub>O</sub> = 20 μA;	-	0	0.1	-	0.1	-	0.1	V
		I <sub>O</sub> = 6.0 mA;	-	0.15	0.26	-	0.33	-	•	V
lı	input leakage current	$V_1 = V_{CC}$ or GND; $V_{CC} = 5.5$ V	-	-	±0.1	-	±1.0	-	±1.0	μA
I <sub>OZ</sub>	OFF-state output current	$V_1 = V_{T+}$ or $V_{T-}$ ; $V_{CC} = 5.5 V$ ; $V_O = V_{CC}$ or GND	-	-	±0.5	-	±5.0	-	±10	μA
I <sub>CC</sub>	supply current	$V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 5.5$ V	-	-	8.0	-	80	-	160	μA
ΔI <sub>CC</sub>	additional supply current	per input pin; I <sub>O</sub> = 0 A; V <sub>I</sub> = V <sub>CC</sub> - 2.1 V; other inputs at V <sub>CC</sub> or GND; V <sub>CC</sub> = 4.5 V to 5.5 V								
		An input	-	20	72	-	90	-	98	μA
		OEn input	-	130	468	-	585	-	637	μA
Cı	input capacitance		-	3.5	-	-	-	-	-	pF

# **10.** Dynamic characteristics

#### Table 7. Dynamic characteristics

 $GND = 0 V; C_L = 50 pF;$  for test circuit see Fig. 5.

Symbol	Parameter	Conditions		25 °C		-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Тур	Max	Min	Max	Min	Max	1
74HC754	41-Q100					1	1		1	
t <sub>pd</sub>	propagation	An to Yn; see Fig. 3 [1]								
	delay	V <sub>CC</sub> = 2.0 V	-	39	120	-	150	-	180	ns
		V <sub>CC</sub> = 4.5 V	-	14	24	-	30	-	36	ns
		V <sub>CC</sub> = 5.0 V; C <sub>L</sub> = 15 pF	-	10	-	-	-	-	-	ns
		V <sub>CC</sub> = 6.0 V	-	11	20	-	26	-	32	ns
t <sub>en</sub>	enable time	OEn to Yn; see Fig. 4 [1]								
		V <sub>CC</sub> = 2.0 V	-	44	160	-	200	-	240	ns
		V <sub>CC</sub> = 4.5 V	-	16	32	-	40	-	48	ns
		V <sub>CC</sub> = 6.0 V	-	13	27	-	34	-	41	ns
t <sub>dis</sub>	disable time	OEn to Yn; see Fig. 4 [1]								
		V <sub>CC</sub> = 2.0 V	-	58	160	-	200	-	240	ns
		V <sub>CC</sub> = 4.5 V	-	21	32	-	40	-	48	ns
		V <sub>CC</sub> = 6.0 V	-	17	27	-	34	-	41	ns

### 74HC7541-Q100; 74HCT7541-Q100

#### Octal Schmitt trigger buffer/line driver; 3-state

Symbol	Parameter	Conditions		25 °C		-40 °C t	-40 °C to +85 °C		-40 °C to +125 °C	
			Min	Тур	Мах	Min	Max	Min	Max	
tt	transition time	see <u>Fig. 3</u> [2	2]							
		V <sub>CC</sub> = 2.0 V	-	14	60	-	75	-	90	ns
		V <sub>CC</sub> = 4.5 V	-	5	12	-	15	-	18	ns
		V <sub>CC</sub> = 6.0 V	-	4	10	-	13	-	15	ns
C <sub>PD</sub>	power dissipation capacitance	per package; [3 V <sub>I</sub> = GND to V <sub>CC</sub>	3] -	30	-	-	-	-	-	pF
74HCT7	541-Q100		_						-	
t <sub>pd</sub>	propagation delay	An to Yn; see Fig. 3	]							
		V <sub>CC</sub> = 4.5 V	-	19	32	-	40	-	48	ns
		V <sub>CC</sub> = 5.0 V; C <sub>L</sub> = 15 pF	-	16	-	-	-	-	-	ns
t <sub>en</sub>	enable time	OEn to Yn; see Fig. 4 [	]							
		V <sub>CC</sub> = 4.5 V	-	18	32	-	40	-	48	ns
t <sub>dis</sub>	disable time	OEn to Yn; see Fig. 4 [	]							
		V <sub>CC</sub> = 4.5 V	-	20	32	-	40	-	48	ns
t <sub>t</sub>	transition time	V <sub>CC</sub> = 4.5 V; see <u>Fig. 3</u> [2	2] -	5	12	-	15	-	18	ns
C <sub>PD</sub>	power dissipation capacitance	per package; [3 V <sub>I</sub> = GND to V <sub>CC</sub> - 1.5 V	3] -	32	-	-	-	-	-	pF

 $\label{eq:tpd} [1] \quad t_{pd} \text{ is the same as } t_{PLH} \text{ and } t_{PHL}.$  $t_{en}$  is the same as  $t_{\text{PZL}}$  and  $t_{\text{PZH}}.$  $t_{\text{dis}}$  is the same as  $t_{\text{PLZ}}$  and  $t_{\text{PHZ}}.$ 

[2]  $t_t$  is the same as  $t_{THL}$  and  $t_{TLH}$ .

[3]  $C_{PD}$  is used to determine the dynamic power dissipation ( $P_D$  in  $\mu$ W):  $P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$  where:

 $f_i$  = input frequency in MHz;

 $f_o$  = output frequency in MHz;

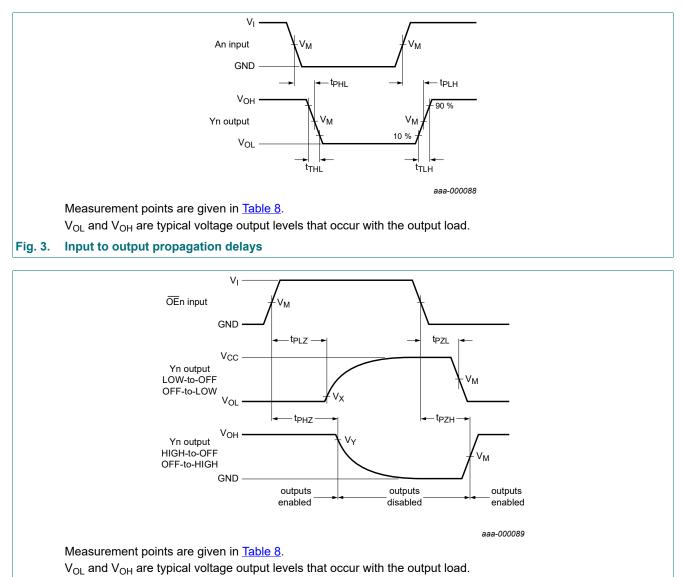
C<sub>L</sub> = output load capacitance in pF;

V<sub>CC</sub> = supply voltage in V;

N = number of inputs switching;

 $\Sigma(C_L \times V_{CC}^2 \times f_o) = \text{sum of outputs.}$ 

## 10.1. Waveforms and test circuit



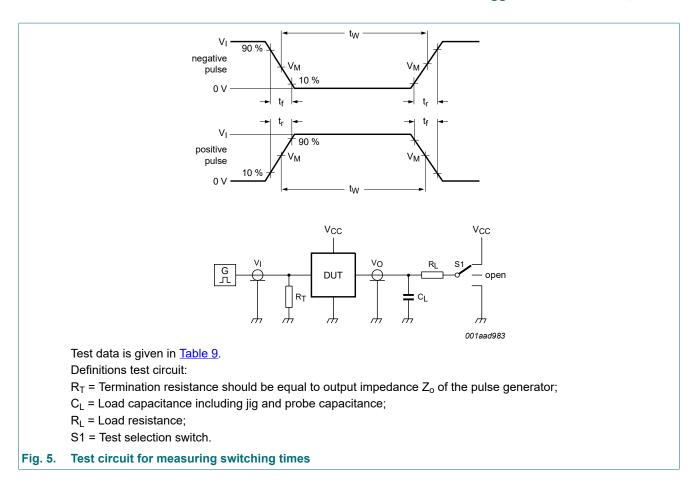
#### Fig. 4. 3-state enable and disable times

#### Table 8. Measurement points

Туре	Input	Output		
	V <sub>M</sub>	V <sub>M</sub>	V <sub>X</sub>	V <sub>Y</sub>
74HC7541-Q100	0.5 × V <sub>CC</sub>	0.5 × V <sub>CC</sub>	0.1 × V <sub>CC</sub>	$0.9 \times V_{CC}$
74HCT7541-Q100	1.3 V	1.3 V	0.1 × V <sub>CC</sub>	$0.9 \times V_{CC}$

#### 74HC7541-Q100; 74HCT7541-Q100

#### Octal Schmitt trigger buffer/line driver; 3-state



#### Table 9. Test data

Туре	pe Input		Load		S1 position		
	VI	t <sub>r</sub> , t <sub>f</sub>	CL	RL	t <sub>PHL</sub> , t <sub>PLH</sub>	t <sub>PZH</sub> , t <sub>PHZ</sub>	t <sub>PZL</sub> , t <sub>PLZ</sub>
74HC7541-Q100	V <sub>CC</sub>	6 ns	15 pF, 50 pF	1 kΩ	open	GND	V <sub>CC</sub>
74HCT7541-Q100	3 V	6 ns	15 pF, 50 pF	1 kΩ	open	GND	V <sub>CC</sub>

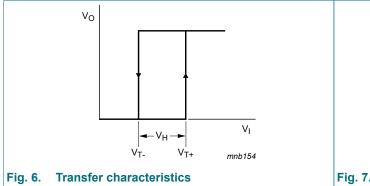
# **11. Transfer characteristics**

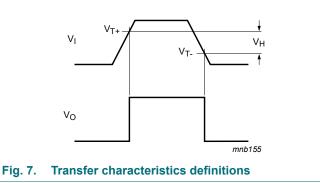
#### Table 10. Transfer characteristics

At recommended operating conditions; voltages are referenced to GND (ground = 0 V); see Fig. 6 and Fig. 7.

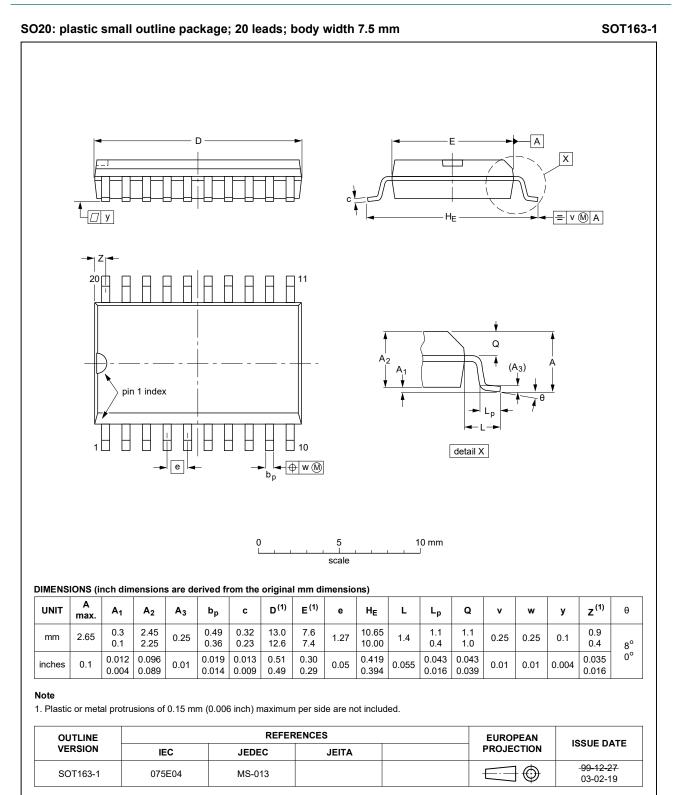
Symbol Parameter		Conditions		25 °C		-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Тур	Мах	Min	Max	Min	Мах	
74HC75	41-Q100	1	_				<u> </u>		-	
V <sub>T+</sub>	positive-going	V <sub>CC</sub> = 2.0 V	-	-	1.5	-	1.5	-	1.5	V
	threshold voltage	V <sub>CC</sub> = 4.5 V	-	-	3.15	-	3.15	-	3.15	V
		V <sub>CC</sub> = 6.0 V	-	-	4.2	-	4.2	-	4.2	V
V <sub>T-</sub>	negative-going	V <sub>CC</sub> = 2.0 V	0.3	-	-	0.3	-	0.3	-	V
	threshold voltage	V <sub>CC</sub> = 4.5 V	1.35	-	-	1.35	-	1.35	-	V
		V <sub>CC</sub> = 6.0 V	1.8	-	-	1.8	-	1.8	-	V
V <sub>H</sub>	hysteresis	V <sub>CC</sub> = 2.0 V 0.1 0.20 - 0.1 - 0.1 -	V							
	voltage	V <sub>CC</sub> = 4.5 V	0.25	0.40	-	0.25	-	0.25	-	V
		V <sub>CC</sub> = 6.0 V	0.3	0.5	-	0.3	-	0.3	-	V
74HCT7	541-Q100		_							
V <sub>T+</sub>	positive-going	V <sub>CC</sub> = 4.5 V	-	-	2.0	-	2.0	-	2.0	V
	threshold voltage	V <sub>CC</sub> = 5.5 V	-	-	2.1	-	2.1	-	2.1	V
V <sub>T-</sub>	negative-going	V <sub>CC</sub> = 4.5 V	0.7	-	-	0.64	-	0.6	-	V
	threshold voltage	V <sub>CC</sub> = 5.5 V	0.8	-	-	0.74	-	0.7	-	V
V <sub>H</sub>	hysteresis	V <sub>CC</sub> = 4.5 V	0.17	0.23	-	-	-	-	-	V
	voltage	V <sub>CC</sub> = 5.5 V	0.17	0.23	-	-	-	-	-	V

## 11.1. Transfer characteristics waveforms





# 12. Package outline



#### Fig. 8. Package outline SOT163-1 (SO20)

#### 74HC7541-Q100; 74HCT7541-Q100

#### Octal Schmitt trigger buffer/line driver; 3-state

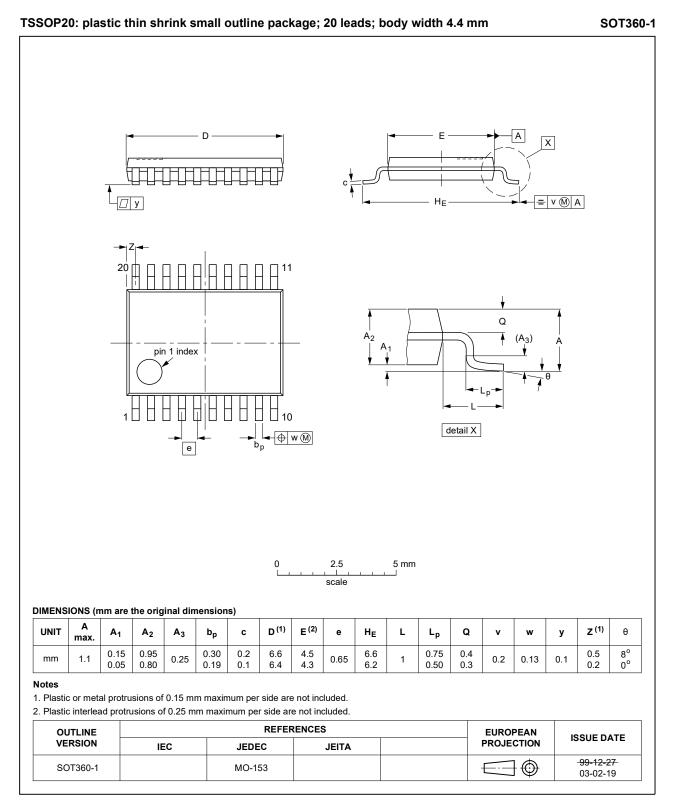


Fig. 9. Package outline SOT360-1 (TSSOP20)

# 13. Abbreviations

A	Description
Acronym	Description
ANSI	American National Standards Institute
CDM	Charged Device Model
CMOS	Complementary Metal Oxide Semiconductor
DUT	Device Under Test
ESD	ElectroStatic Discharge
ESDA	ElectroStatic Discharge Association
HBM	Human Body Model
JEDEC	Joint Electron Device Engineering Council
TTL	Transistor-Transistor Logic

# 14. Revision history

Table 12. Revision history						
Document ID	Release date	Data sheet status	Change notice	Supersedes		
74HC_HCT7541_Q100 v.3	20240805	Product data sheet	-	74HC_HCT7541_Q100 v.2		
Modifications:	<u>Section 2</u> : Es	Section 2: ESD specification updated according to the latest JEDEC standard.				
74HC_HCT7541_Q100 v.2	20210803	Product data sheet	-	74HC_HCT7541_Q100 v.1		
Modifications:	of Nexperia. • Legal texts h • <u>Section 2</u> up	ave been adapted to the	new company name v			
74HC_HCT7541_Q100 v.1	20140324	Product data sheet	-	-		

# 15. Legal information

#### Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

 Please consult the most recently issued document before initiating or completing a design.

- [2] The term 'short data sheet' is explained in section "Definitions".
- [3] The product status of device(s) described in this document may have changed since this document was published and may differ in case of multiple devices. The latest product status information is available on the internet at <u>https://www.nexperia.com</u>.

#### **Definitions**

**Draft** — The document is a draft version only. The content is still under internal review and subject to formal approval, which may result in modifications or additions. Nexperia does not give any representations or warranties as to the accuracy or completeness of information included herein and shall have no liability for the consequences of use of such information.

Short data sheet — A short data sheet is an extract from a full data sheet with the same product type number(s) and title. A short data sheet is intended for quick reference only and should not be relied upon to contain detailed and full information. For detailed and full information see the relevant full data sheet, which is available on request via the local Nexperia sales office. In case of any inconsistency or conflict with the short data sheet, the full data sheet shall prevail.

**Product specification** — The information and data provided in a Product data sheet shall define the specification of the product as agreed between Nexperia and its customer, unless Nexperia and customer have explicitly agreed otherwise in writing. In no event however, shall an agreement be valid in which the Nexperia product is deemed to offer functions and qualities beyond those described in the Product data sheet.

#### **Disclaimers**

Limited warranty and liability — Information in this document is believed to be accurate and reliable. However, Nexperia does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of use of such information. Nexperia takes no responsibility for the content in this document if provided by an information source outside of Nexperia.

In no event shall Nexperia be liable for any indirect, incidental, punitive, special or consequential damages (including - without limitation - lost profits, lost savings, business interruption, costs related to the removal or replacement of any products or rework charges) whether or not such damages are based on tort (including negligence), warranty, breach of contract or any other legal theory.

Notwithstanding any damages that customer might incur for any reason whatsoever, Nexperia's aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the Terms and conditions of commercial sale of Nexperia.

**Right to make changes** — Nexperia reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.

Suitability for use in automotive applications — This Nexperia product has been qualified for use in automotive applications. Unless otherwise agreed in writing, the product is not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or

## 74HC7541-Q100; 74HCT7541-Q100

#### Octal Schmitt trigger buffer/line driver; 3-state

equipment, nor in applications where failure or malfunction of an Nexperia product can reasonably be expected to result in personal injury, death or severe property or environmental damage. Nexperia and its suppliers accept no liability for inclusion and/or use of Nexperia products in such equipment or applications and therefore such inclusion and/or use is at the customer's own risk.

**Quick reference data** — The Quick reference data is an extract of the product data given in the Limiting values and Characteristics sections of this document, and as such is not complete, exhaustive or legally binding.

**Applications** — Applications that are described herein for any of these products are for illustrative purposes only. Nexperia makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.

Customers are responsible for the design and operation of their applications and products using Nexperia products, and Nexperia accepts no liability for any assistance with applications or customer product design. It is customer's sole responsibility to determine whether the Nexperia product is suitable and fit for the customer's applications and products planned, as well as for the planned application and use of customer's third party customer(s). Customers should provide appropriate design and operating safeguards to minimize the risks associated with their applications and products.

Nexperia does not accept any liability related to any default, damage, costs or problem which is based on any weakness or default in the customer's applications or products, or the application or use by customer's third party customer(s). Customer is responsible for doing all necessary testing for the customer's applications and products using Nexperia products in order to avoid a default of the applications and the products or of the application or use by customer's third party customer(s). Nexperia does not accept any liability in this respect.

Limiting values — Stress above one or more limiting values (as defined in the Absolute Maximum Ratings System of IEC 60134) will cause permanent damage to the device. Limiting values are stress ratings only and (proper) operation of the device at these or any other conditions above those given in the Recommended operating conditions section (if present) or the Characteristics sections of this document is not warranted. Constant or repeated exposure to limiting values will permanently and irreversibly affect the quality and reliability of the device.

Terms and conditions of commercial sale — Nexperia products are sold subject to the general terms and conditions of commercial sale, as published at <u>http://www.nexperia.com/profile/terms</u>, unless otherwise agreed in a valid written individual agreement. In case an individual agreement is concluded only the terms and conditions of the respective agreement shall apply. Nexperia hereby expressly objects to applying the customer's general terms and conditions with regard to the purchase of Nexperia products by customer.

No offer to sell or license — Nothing in this document may be interpreted or construed as an offer to sell products that is open for acceptance or the grant, conveyance or implication of any license under any copyrights, patents or other industrial or intellectual property rights.

**Export control** — This document as well as the item(s) described herein may be subject to export control regulations. Export might require a prior authorization from competent authorities.

**Translations** — A non-English (translated) version of a document is for reference only. The English version shall prevail in case of any discrepancy between the translated and English versions.

#### Trademarks

Notice: All referenced brands, product names, service names and trademarks are the property of their respective owners.

# Contents

1. General description	1
2. Features and benefits	1
3. Ordering information	1
4. Functional diagram	2
5. Pinning information	2
5.1. Pinning	2
5.2. Pin description	3
6. Functional description	3
7. Limiting values	3
8. Recommended operating conditions	4
9. Static characteristics	4
10. Dynamic characteristics	5
10.1. Waveforms and test circuit	7
11. Transfer characteristics	9
11.1. Transfer characteristics waveforms	9
12. Package outline	
13. Abbreviations	
14. Revision history	
15. Legal information	

© Nexperia B.V. 2024. All rights reserved

For more information, please visit: http://www.nexperia.com For sales office addresses, please send an email to: salesaddresses@nexperia.com Date of release: 5 August 2024

74HC\_HCT7541\_Q100



# **OUR CERTIFICATE**

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we striciy control the quality of products and services. Welcome your RFQ to Email: Info@DiGi-Electronics.com

DCI	DCI		
QUALITY MANAGEMENT SYSTEM CERTIFICATE	ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE	OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM CERTIFICATE	の可能可能可能 CERTIFICATE OF INCORPORATION
DIGI ELECTRONICS HK LIMITED	DIGI ELECTRONICS HK LIMITED	DIGI ELECTRONICS HK LIMITED	A. A. B. A. B. W. Hanniby and By that
RATINGS SHE IN HIS COMMERCIAL EXTREMENTAL AND STREET, MONGHO	PLATENTS 207, HO HOR COMMITTEE CALLES HAVE VER CHEET, MONORO	FLATENUE 267, HO HOUS CONVERTIGN AND AN AVEN STREET, MONGO	DELERATIONCE INCLAMPSO 网络電子性者作用公司
GB/T 19001-2016 ktt ISO9001:2015	GB/T 24001-2016 idt ISO14001:2015	GB/T45001-2020 idt ISO45001:2018	$0 \rightarrow 0$ B, B $\rightarrow 0$ A, H B 122 B $\subset \odot$ G $\rightarrow H >$ 11 DN: Any Incorporated In Namy Early under the Comparise Ordinaria $A \rightarrow 0$ , $A \rightarrow A \rightarrow B$ , $A \rightarrow A \rightarrow C \rightarrow C + C \rightarrow N$ (Theoret T22 D for Larms of Hong Kong, and Balling Compare is
Ref Ref Participation components	Retto nagagante	For the Index of all interviews	Constant with in the Last in Yang Wong, and the lost dompany is it is a lost a limited company.
tankan motor make monotosi mar monotosi mar mar monotosi mar monotosi mar monotosi monotosi mar monotosi mot	tomantener men photosener men metalementener meneration Manalit	torinamientes 2008 Inter land can Can 2008-000-00 Jacobierto Maria Maria	★ # 4 # 0 ± 0 − Λ + − Λ ± + ± + # ± − Name# 04. 12 heavy 200.
			Oldentrikalis or in edit a kale or Min. Au L. L. DERING Programmer Auguston Mingrade Specific Automatistrature Auguston
In the second se	The second secon	Control tests of a state of the state o	In Heps: 公司各場合公司中局工作用:工作品中提供学校公司名表式市场大型公司者包括基本中 工程品名提用: TableAdd #: TableAdd #: TableAdd #: TableAdd #: TableA





Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.