74AHC574; 74AHCT574

Octal D-type flip-flop; positive edge-trigger; 3-state

Rev. 02 — 24 January 2008 Product data sheet

1. General description

The 74AHC574; 74AHCT574 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.

The 74AHC574; 74AHCT574 are octal D-type flip-flops featuring separate D-type inputs for each flip-flop and 3-state outputs for bus oriented applications. A clock (CP) and an output enable ($\overline{OE}$) input are common to all flip-flops.

The 8 flip-flops will store the state of their individual D-inputs that meet the set-up and hold times requirements on the LOW-to-HIGH CP transition.

When $\overline{OE}$ is LOW the contents of the 8 flip-flops are available at the outputs. When $\overline{OE}$ is HIGH, the outputs go to the high-impedance OFF-state. Operation of the $\overline{OE}$ input does not affect the state of the flip-flops.

The 74AHC574; 74AHCT574 is functionally identical to the 74AHC564; 74AHCT564, but has non-inverting outputs. The 74AHC574; 74AHCT574 is functionally identical to the 74AHC374; 74AHCT374, but has a different pinning.

2. Features

- Balanced propagation delays
- All inputs have a Schmitt-trigger action
- 3-state non-inverting outputs for bus orientated applications
- 8-bit positive, edge-triggered register
- Independent register and 3-state buffer operation
- Common 3-state output enable input
- For 74AHC574 only: operates with CMOS input levels
- For 74AHCT574 only: operates with TTL input levels
- ESD protection:
  - HBM JESD22-A114E exceeds 2000 V
  - MM JESD22-A115-A exceeds 200 V
  - CDM JESD22-C101C exceeds 1000 V
- Multiple package options
- Specified from –40 °C to +85 °C and from –40 °C to +125 °C

3. Ordering information

Table 1. Ordering information

Type number	Package			
	Temperature range	Name	Description	Version
74AHC574D	–40 °C to +125 °C	SO20	plastic small outline package; 20 leads; body width 7.5 mm	SOT163-1
74AHCT574D				
74AHC574PW	–40 °C to +125 °C	TSSOP20	plastic thin shrink small outline package; 20 leads; body width 4.4 mm	SOT360-1
74AHCT574PW				
74AHC574BQ	–40 °C to +125 °C	DHVQFN20	plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 20 terminals; body 2.5 × 4.5 × 0.85 mm	SOT764-1
74AHCT574BQ				

4. Functional diagram

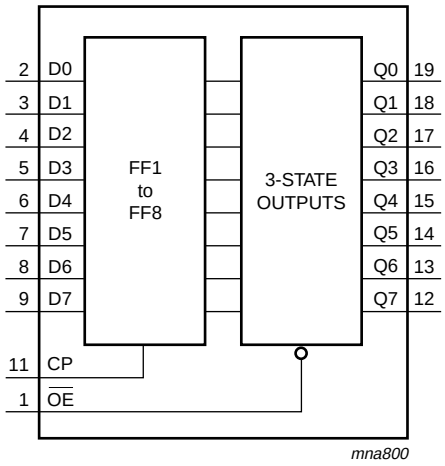


Fig 1. Functional diagram

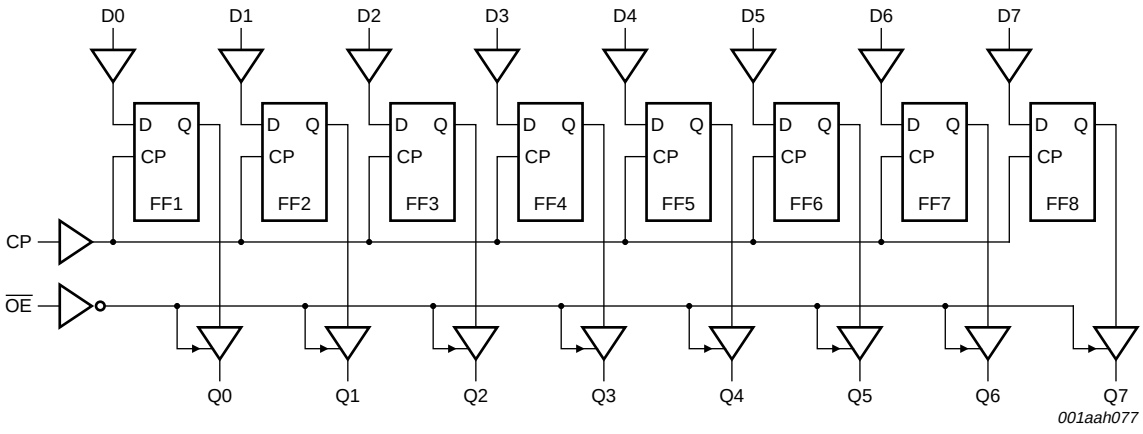


Fig 2. Logic diagram

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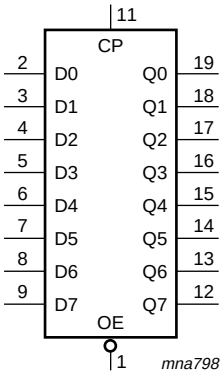


Fig 3. Logic symbol

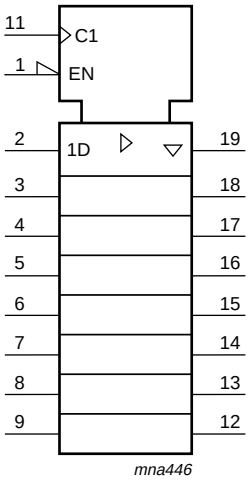


Fig 4. IEC logic symbol

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5. Pinning information

5.1 Pinning

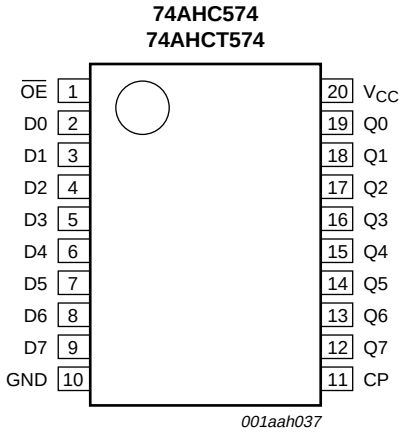
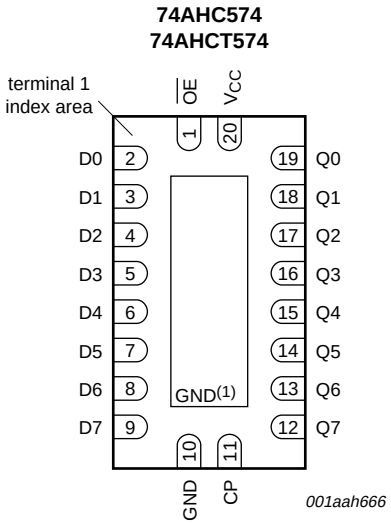


Fig 5. Pin configuration SO20, TSSOP20



Transparent top view

(1) The die substrate is attached to this pad using conductive die attach material. It can not be used as a supply pin or input.

Fig 6. Pin configuration DHVQFN20

5.2 Pin description

Table 2. Pin description

Symbol	Pin	Description
$\overline{OE}$	1	3-state output enable input (active LOW)
D[0:7]	2, 3, 4, 5, 6, 7, 8, 9	data input
GND	10	ground (0 V)
CP	11	clock input (LOW-to-HIGH, edge triggered)
Q[0:7]	19, 18, 17, 16, 15, 14, 13, 12	3-state flip-flop output
V_{CC}	20	supply voltage

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6. Functional description

Table 3. Function table[1]

Operating mode	Input			Internal flip-flop	Output
	$\overline{OE}$	CP	Dn		Qn
Load and read register	L	↑	l	L	L
	L	↑	h	H	H
Load register and disable output	H	↑	l	L	Z
	H	↑	h	H	Z

[1] H = HIGH voltage level;
h = HIGH voltage level one setup time prior to the HIGH-to-LOW CP transition;
L = LOW voltage level;
l = LOW voltage level one setup time prior to the HIGH-to-LOW CP transition;
Z = high-impedance OFF-state;
↑ = LOW-to-HIGH clock transition.

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	Max	Unit
V_{CC}	supply voltage			–0.5	+7.0	V
V_I	input voltage			–0.5	+7.0	V
I_{IK}	input clamping current	$V_I < –0.5$ V	[1]	–20	-	mA
I_{OK}	output clamping current	$V_O < –0.5$ V or $V_O > V_{CC} + 0.5$ V	[1]	-	±20	mA
I_O	output current	$V_O = –0.5$ V to ($V_{CC} + 0.5$ V)		-	±25	mA
I_{CC}	supply current			-	75	mA
I_{GND}	ground current			–75	-	mA
T_{stg}	storage temperature			–65	+150	°C
P_{tot}	total power dissipation	$T_{amb} = –40$ °C to +125 °C				
	SO20 package		[2]	-	500	mW
	TSSOP20 package		[3]	-	500	mW
	DHVQFN20 package		[4]	-	500	mW

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

[2] P_{tot} derates linearly with 8 mW/K above 70 °C.

[3] P_{tot} derates linearly with 5.5 mW/K above 60 °C.

[4] P_{tot} derates linearly with 4.5 mW/K above 60 °C.

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8. Recommended operating conditions

Table 5. Recommended operating conditions

Voltages are referenced to GND (ground = 0 V).

Symbol	Parameter	Conditions	74AHC574			74AHCT574			Unit
			Min	Typ	Max	Min	Typ	Max	
V_{CC}	supply voltage		2.0	5.0	5.5	4.5	5.0	5.5	V
V_I	input voltage		0	-	5.5	0	-	5.5	V
V_O	output voltage		0	-	V_{CC}	0	-	V_{CC}	V
T_{amb}	ambient temperature		–40	+25	+125	–40	+25	+125	°C
$\Delta t/\Delta V$	input transition rise and fall rate	V_{CC} = 3.3 V ± 0.3 V	-	-	100	-	-	-	ns/V
		V_{CC} = 5.0 V ± 0.5 V	-	-	20	-	-	20	ns/V

9. Static characteristics

Table 6. Static characteristics

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	Typ	Max	Min	Max	Min	Max	
For type 74AHC574										
V_{IH}	HIGH-level input voltage	V_{CC} = 2.0 V	1.5	-	-	1.5	-	1.5	-	V
		V_{CC} = 3.0 V	2.1	-	-	2.1	-	2.1	-	V
		V_{CC} = 5.5 V	3.85	-	-	3.85	-	3.85	-	V
V_{IL}	LOW-level input voltage	V_{CC} = 2.0 V	-	-	0.5	-	0.5	-	0.5	V
		V_{CC} = 3.0 V	-	-	0.9	-	0.9	-	0.9	V
		V_{CC} = 5.5 V	-	-	1.65	-	1.65	-	1.65	V
V_{OH}	HIGH-level output voltage	V_I = V_{IH} or V_{IL}								
		I_O = –50 µA; V_{CC} = 2.0 V	1.9	2.0	-	1.9	-	1.9	-	V
		I_O = –50 µA; V_{CC} = 3.0 V	2.9	3.0	-	2.9	-	2.9	-	V
		I_O = –50 µA; V_{CC} = 4.5 V	4.4	4.5	-	4.4	-	4.4	-	V
		I_O = –4.0 mA; V_{CC} = 3.0 V	2.58	-	-	2.48	-	2.40	-	V
		I_O = –8.0 mA; V_{CC} = 4.5 V	3.94	-	-	3.8	-	3.70	-	V
V_{OL}	LOW-level output voltage	V_I = V_{IH} or V_{IL}								
		I_O = 50 µA; V_{CC} = 2.0 V	-	0	0.1	-	0.1	-	0.1	V
		I_O = 50 µA; V_{CC} = 3.0 V	-	0	0.1	-	0.1	-	0.1	V
		I_O = 50 µA; V_{CC} = 4.5 V	-	0	0.1	-	0.1	-	0.1	V
		I_O = 4.0 mA; V_{CC} = 3.0 V	-	-	0.36	-	0.44	-	0.55	V
		I_O = 8.0 mA; V_{CC} = 4.5 V	-	-	0.36	-	0.44	-	0.55	V
I_{OZ}	OFF-state output current	V_I = V_{IH} or V_{IL}; V_O = V_{CC} or GND; V_{CC} = 5.5 V	-	-	±0.25	-	±2.5	-	±10.0	µA
I_I	input leakage current	V_I = 5.5 V or GND; V_{CC} = 0 V to 5.5 V	-	-	0.1	-	1.0	-	2.0	µA
I_{CC}	supply current	V_I = V_{CC} or GND; I_O = 0 A; V_{CC} = 5.5 V	-	-	4.0	-	40	-	80	µA

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Table 6. Static characteristics *…continued*

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	Typ	Max	Min	Max	Min	Max	
C_I	input capacitance		-	3.0	10	-	10	-	10	pF
C_O	output capacitance		-	4.0	-	-	-	-	-	pF
For type 74AHCT574										
V_{IH}	HIGH-level input voltage	V_{CC} = 4.5 V to 5.5 V	2.0	-	-	2.0	-	2.0	-	V
V_{IL}	LOW-level input voltage	V_{CC} = 4.5 V to 5.5 V	-	-	0.8	-	0.8	-	0.8	V
V_{OH}	HIGH-level output voltage	V_I = V_{IH} or V_{IL}; V_{CC} = 4.5 V								
		I_O = –50 µA	4.4	4.5	-	4.4	-	4.4	-	V
		I_O = –8.0 mA	3.94	-	-	3.8	-	3.70	-	V
V_{OL}	LOW-level output voltage	V_I = V_{IH} or V_{IL}; V_{CC} = 4.5 V								
		I_O = 50 µA	-	0	0.1	-	0.1	-	0.1	V
		I_O = 8.0 mA	-	-	0.36	-	0.44	-	0.55	V
I_{OZ}	OFF-state output current	per input pin; V_I = V_{IH} or V_{IL}; V_{CC} = 5.5 V; I_O = 0 A; V_O = V_{CC} or GND; other pins at V_{CC} or GND	-	-	±0.25	-	±2.5	-	±10.0	µA
I_I	input leakage current	V_I = 5.5 V or GND; V_{CC} = 0 V to 5.5 V	-	-	0.1	-	1.0	-	2.0	µA
I_{CC}	supply current	V_I = V_{CC} or GND; I_O = 0 A; V_{CC} = 5.5 V	-	-	4.0	-	40	-	80	µA
ΔI_{CC}	additional supply current	per input pin; V_I = V_{CC} – 2.1 V; I_O = 0 A; other pins at V_{CC} or GND; V_{CC} = 4.5 V to 5.5 V	-	-	1.35	-	1.5	-	1.5	mA
C_I	input capacitance		-	3	10	-	10	-	10	pF
C_O	output capacitance		-	4.0	-	-	-	-	-	pF

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10. Dynamic characteristics

Table 7. Dynamic characteristics

GND = 0 V. For test circuit see Figure 10.

Symbol	Parameter	Conditions		25 °C			–40 °C to +85 °C		–40 °C to +125 °C		Unit
				Min	Typ[1]	Max	Min	Max	Min	Max	
For type 74AHC574											
t_{pd}	propagation delay	CP to Qn; see Figure 7	[2]								
		V_{CC} = 3.0 V to 3.6 V									
		C_L = 15 pF		-	6.5	13.2	1.0	15.5	1.0	16.5	ns
		C_L = 50 pF		-	9.3	16.7	1.0	19.0	1.0	21.0	ns
		V_{CC} = 4.5 V to 5.5 V									
		C_L = 15 pF		-	4.4	8.6	1.0	10.0	1.0	11.0	ns
		C_L = 50 pF			6.2	10.6	1.0	12.0	1.0	13.5	ns
t_{en}	enable time	$\overline{OE}$ to Qn; see Figure 9	[1]								
		V_{CC} = 3.0 V to 3.6 V									
		C_L = 15 pF		-	5.7	12.8	1.0	15.0	1.0	16.0	ns
		C_L = 50 pF		-	8.2	16.3	1.0	18.5	1.0	20.5	ns
		V_{CC} = 4.5 V to 5.5 V									
		C_L = 15 pF		-	4.2	9.0	1.0	10.5	1.0	11.5	ns
		C_L = 50 pF		-	5.9	11.0	1.0	12.5	1.0	14.0	ns
t_{dis}	disable time	$\overline{OE}$ to Qn; see Figure 9	[2]								
		V_{CC} = 3.0 V to 3.6 V									
		C_L = 15 pF		-	6.3	13.0	1.0	15.0	1.0	16.5	ns
		C_L = 50 pF		-	9.1	15.0	1.0	17.0	1.0	19.0	ns
		V_{CC} = 4.5 V to 5.5 V									
		C_L = 15 pF		-	4.3	9.0	1.0	10.5	1.0	11.5	ns
		C_L = 50 pF		-	6.9	10.1	1.0	11.5	1.0	13.0	ns
f_{max}	maximum frequency	CP; see Figure 7									
		V_{CC} = 3.0 V to 3.6 V									
		C_L = 15 pF		80	125	-	65	-	65	-	MHz
		C_L = 50 pF		50	75	-	45	-	45	-	MHz
		V_{CC} = 4.5 V to 5.5 V									
		C_L = 15 pF		130	180	-	110	-	110	-	MHz
		C_L = 50 pF		85	115	-	75	-	75	-	MHz
t_W	pulse width	CP; HIGH or LOW; see Figure 7									
		V_{CC} = 3.0 V to 3.6 V; C_L = 50 pF		5.0	-	-	5.0	-	5.0	-	ns
		V_{CC} = 4.5 V to 5.5 V; C_L = 50 pF		5.0	-	-	5.0	-	5.0	-	ns

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Table 7. Dynamic characteristics *…continued*

GND = 0 V. For test circuit see Figure 10.

Symbol	Parameter	Conditions		25 °C			–40 °C to +85 °C		–40 °C to +125 °C		Unit
				Min	Typ[1]	Max	Min	Max	Min	Max	
t_{su}	set-up time	Dn to CP; see Figure 8									
		V_{CC} = 3.0 V to 3.6 V; C_L = 50 pF		3.5	-	-	3.5	-	3.5	-	ns
		V_{CC} = 4.5 V to 5.5 V; C_L = 50 pF		3.0	-	-	3.0	-	3.0	-	ns
t_h	hold time	Dn to CP; see Figure 8									
		V_{CC} = 3.0 V to 3.6 V; C_L = 50 pF		1.5	-	-	1.5	-	1.5	-	ns
		V_{CC} = 4.5 V to 5.5 V; C_L = 50 pF		1.5	-	-	1.5	-	1.5	-	ns
C_{PD}	power dissipation capacitance	C_L = 50 pF; f_i = 1 MHz; V_I = GND to V_{CC}	[3]	-	10	-	-	-	-	-	pF
For type 74AHCT574											
t_{pd}	propagation delay	CP to Qn; see Figure 7	[2]								
		V_{CC} = 4.5 V to 5.5 V									
		C_L = 15 pF		-	4.4	8.6	1.0	10.0	1.0	11.0	ns
		C_L = 50 pF		-	6.3	10.6	1.0	12.0	1.0	13.5	ns
t_{en}	enable time	$\overline{OE}$ to Qn; see Figure 9									
		V_{CC} = 4.5 V to 5.5 V									
		C_L = 15 pF		-	4.3	9.0	1.0	10.5	1.0	11.5	ns
		C_L = 50 pF		-	6.1	11.0	1.0	12.5	1.0	14.0	ns
t_{dis}	disable time	$\overline{OE}$ to Qn; see Figure 9	[2]								
		V_{CC} = 4.5 V to 5.5 V									
		C_L = 15 pF		-	4.3	9.0	1.0	10.5	1.0	11.5	ns
		C_L = 50 pF		-	6.2	10.1	1.0	11.5	1.0	13.0	ns
f_{max}	maximum frequency	CP; see Figure 7									
		V_{CC} = 4.5 V to 5.5 V									
		C_L = 15 pF		130	180	-	110	-	110	-	MHz
		C_L = 50 pF		85	115	-	75	-	75	-	MHz
t_W	pulse width	CP; HIGH or LOW; see Figure 7									
		V_{CC} = 4.5 V to 5.5 V; C_L = 50 pF		5.0	-	-	5.5	-	5.5	-	ns
t_{su}	set-up time	Dn to CP; see Figure 8									
		V_{CC} = 4.5 V to 5.5 V; C_L = 50 pF		3.0	-	-	3.5	-	3.5	-	ns

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Table 7. Dynamic characteristics *…continued*

GND = 0 V. For test circuit see Figure 10.

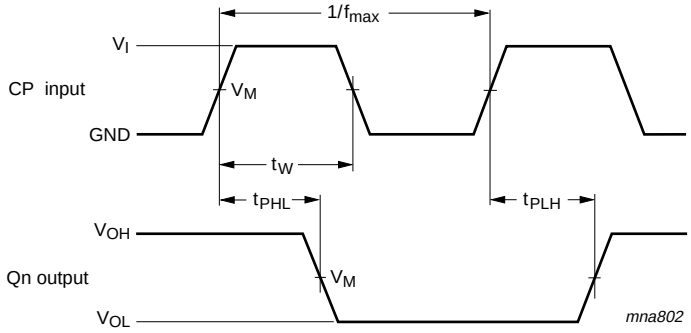
Symbol	Parameter	Conditions		25 °C			–40 °C to +85 °C		–40 °C to +125 °C		Unit
				Min	Typ[1]	Max	Min	Max	Min	Max	
t_h	hold time	Dn to CP; see Figure 8									
		V_{CC} = 4.5 V to 5.5 V; C_L = 50 pF		1.5	-	-	1.5	-	1.5	-	ns
C_{PD}	power dissipation capacitance	per buffer; C_L = 50 pF; f = 1 MHz; V_I = GND to V_{CC}	[3]	-	12	-	-	-	-	-	pF

[1] Typical values are measured at nominal supply voltage (V_{CC} = 3.3 V and V_{CC} = 5.0 V).

[2] t_{pd} is the same as t_{PLH} and t_{PHL}.
t_{en} is the same as t_{PZL} and t_{PZH}.
t_{dis} is the same as t_{PLZ} and t_{PHZ}.

[3] C_{PD} is used to determine the dynamic power dissipation P_D (µW).
$P_D = C_{PD} \times V_{CC}^2 \times f_i + \sum (C_L \times V_{CC}^2 \times f_o)$ 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.

10.1 Waveforms

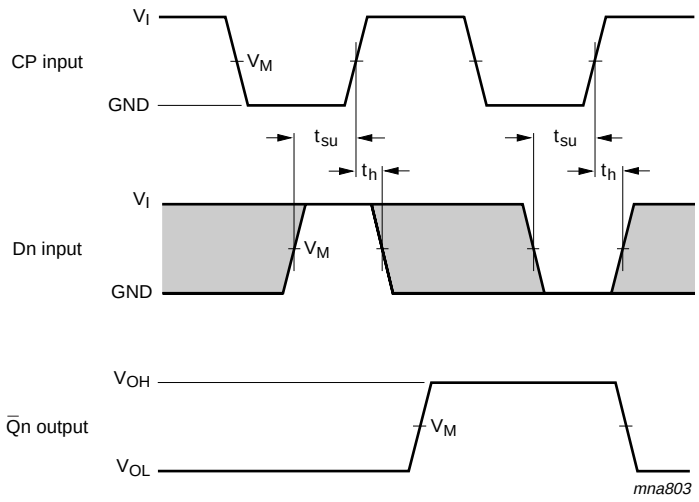


Measurement points are given in Table 8.

V_{OL} and V_{OH} are typical voltage output levels that occur with the output load.

Fig 7. Propagation delay input (CP) to output (Qn), clock input (CP) pulse width and the maximum frequency (CP)

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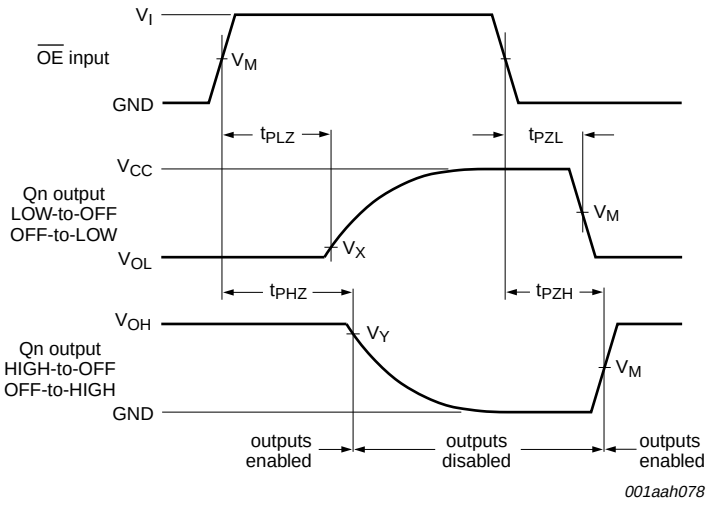


Measurement points are given in Table 8.

V_{OL} and V_{OH} are typical voltage output levels that occur with the output load.

The shaded areas indicate when the input is permitted to change for predicable output performance.

Fig 8. The data input (D) to clock input (CP) set-up times and clock input (CP) to data input (D) hold times



Measurement points are given in Table 8.

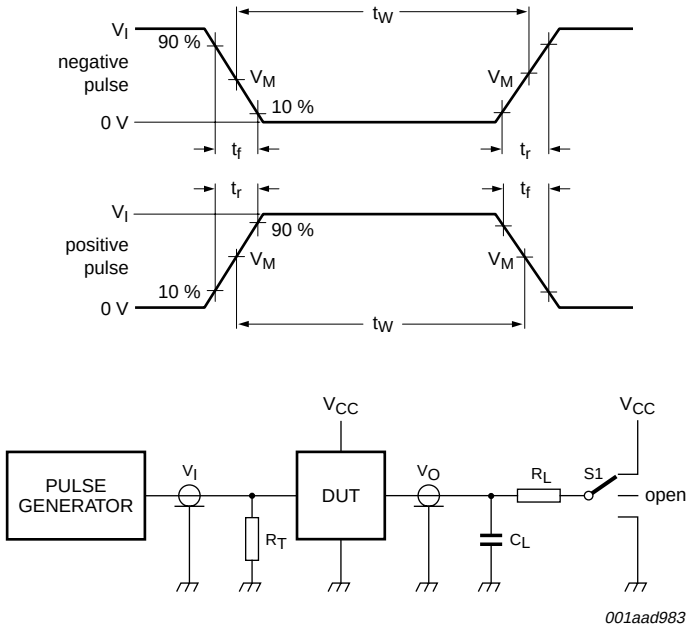
V_{OL} and V_{OH} are typical voltage output levels that occur with the output load.

Fig 9. Enable and disable times

Table 8. Measurement points

Type	Input	Output		
	V_M	V_M	V_X	V_Y
74AHC574	$0.5V_{CC}$	$0.5V_{CC}$	V_{OL} + 0.3 V	V_{OH} – 0.3 V
74AHCT574	1.5 V	$0.5V_{CC}$	V_{OL} + 0.3 V	V_{OH} – 0.3 V

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Test data is given in Table 9.

Definitions test circuit:

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

C_L = Load capacitance including jig and probe capacitance.

R_L = Load resistance.

S1 = Test selection switch.

Fig 10. Load circuitry for switching times

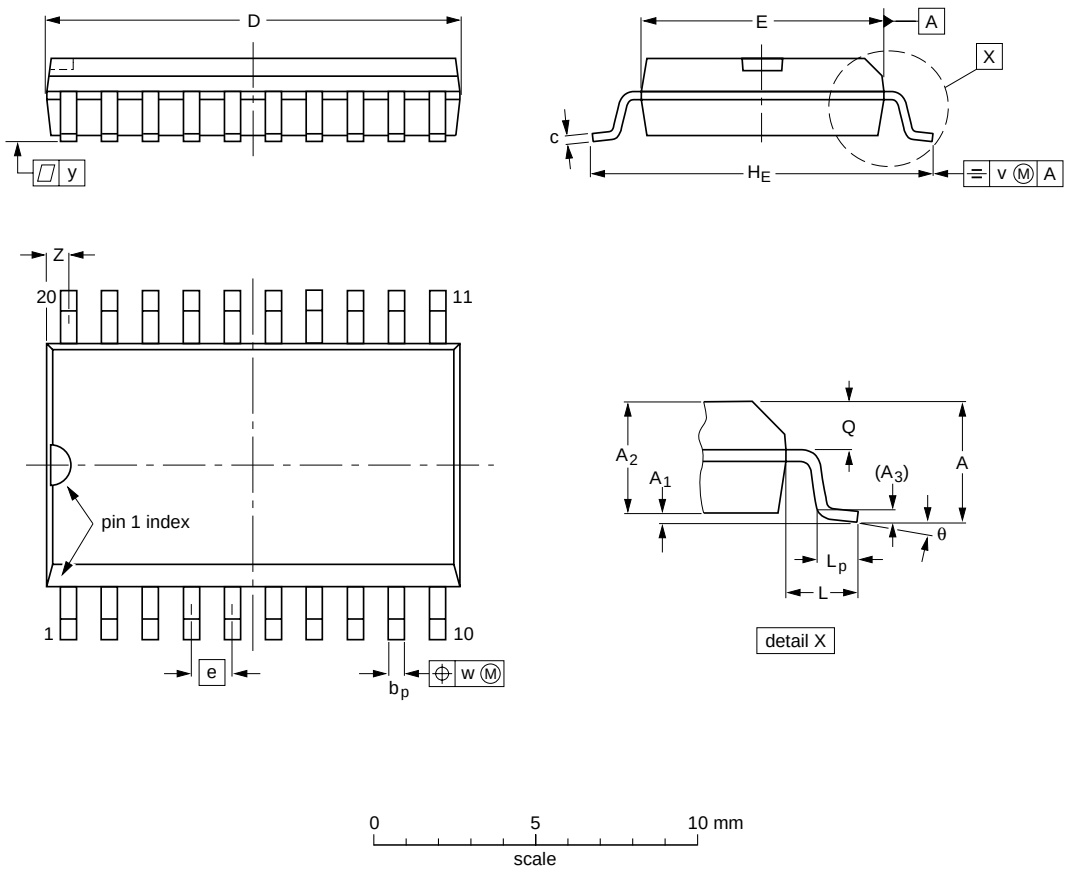
Table 9. Test data

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}
74AHC574	V_{CC}	3.0 ns	15 pF, 50 pF	1 kΩ	open	GND	V_{CC}
74AHCT574	3.0 V	3.0 ns	15 pF, 50 pF	1 kΩ	open	GND	V_{CC}

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11. Package outline

SO20: plastic small outline package; 20 leads; body width 7.5 mm **SOT163-1**



DIMENSIONS (inch dimensions are derived from the original mm dimensions)

UNIT	A max.	A_1	A_2	A_3	b_p	c	D (1)	E (1)	e	H_E	L	L_p	Q	v	w	y	Z (1)	θ
mm	2.65	0.3 0.1	2.45 2.25	0.25	0.49 0.36	0.32 0.23	13.0 12.6	7.6 7.4	1.27	10.65 10.00	1.4	1.1 0.4	1.1 1.0	0.25	0.25	0.1	0.9 0.4	8^o 0^o
inches	0.1	0.012 0.004	0.096 0.089	0.01	0.019 0.014	0.013 0.009	0.51 0.49	0.30 0.29	0.05	0.419 0.394	0.055	0.043 0.016	0.043 0.039	0.01	0.01	0.004	0.035 0.016	

Note

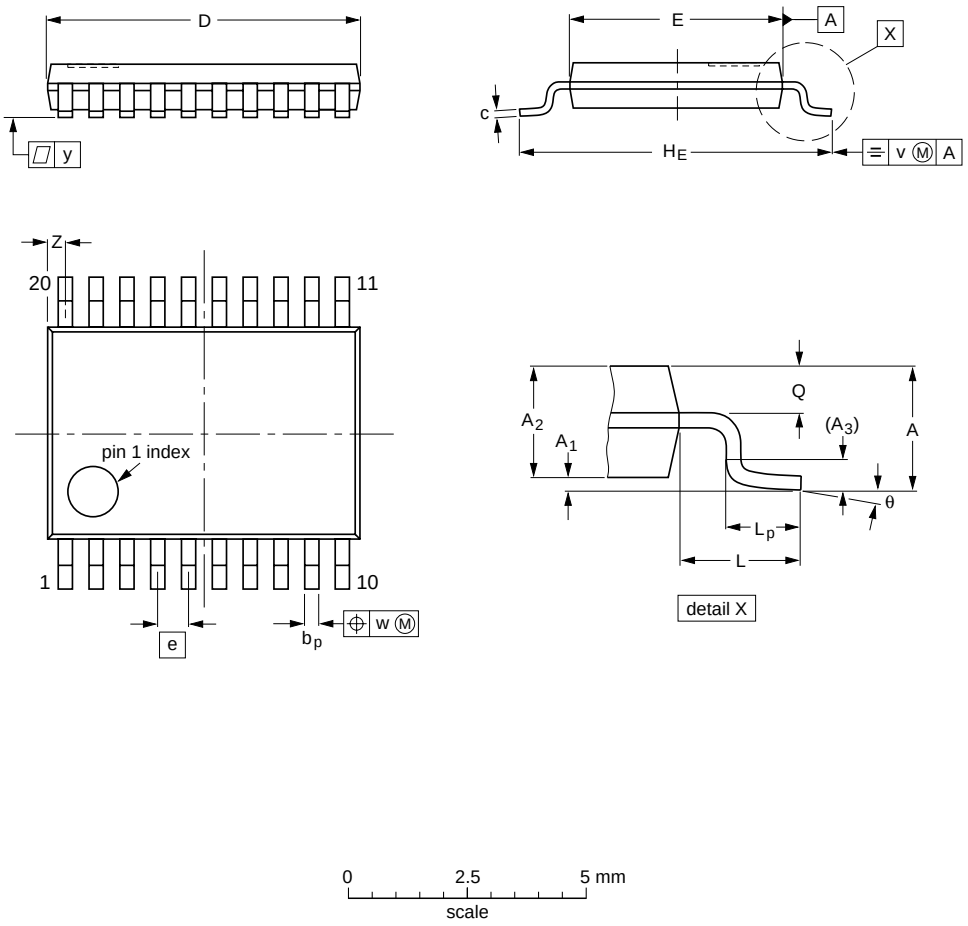
1. Plastic or metal protrusions of 0.15 mm (0.006 inch) maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT163-1	075E04	MS-013				~~99-12-27~~ 03-02-19

Fig 11. Package outline SOT163-1 (SO20)

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TSSOP20: plastic thin shrink small outline package; 20 leads; body width 4.4 mm **SOT360-1**



DIMENSIONS (mm are the original dimensions)

UNIT	A max.	A_1	A_2	A_3	b_p	c	D (1)	E (2)	e	H_E	L	L_p	Q	v	w	y	Z (1)	θ
mm	1.1	0.15 0.05	0.95 0.80	0.25	0.30 0.19	0.2 0.1	6.6 6.4	4.5 4.3	0.65	6.6 6.2	1	0.75 0.50	0.4 0.3	0.2	0.13	0.1	0.5 0.2	8^o 0^o

Notes

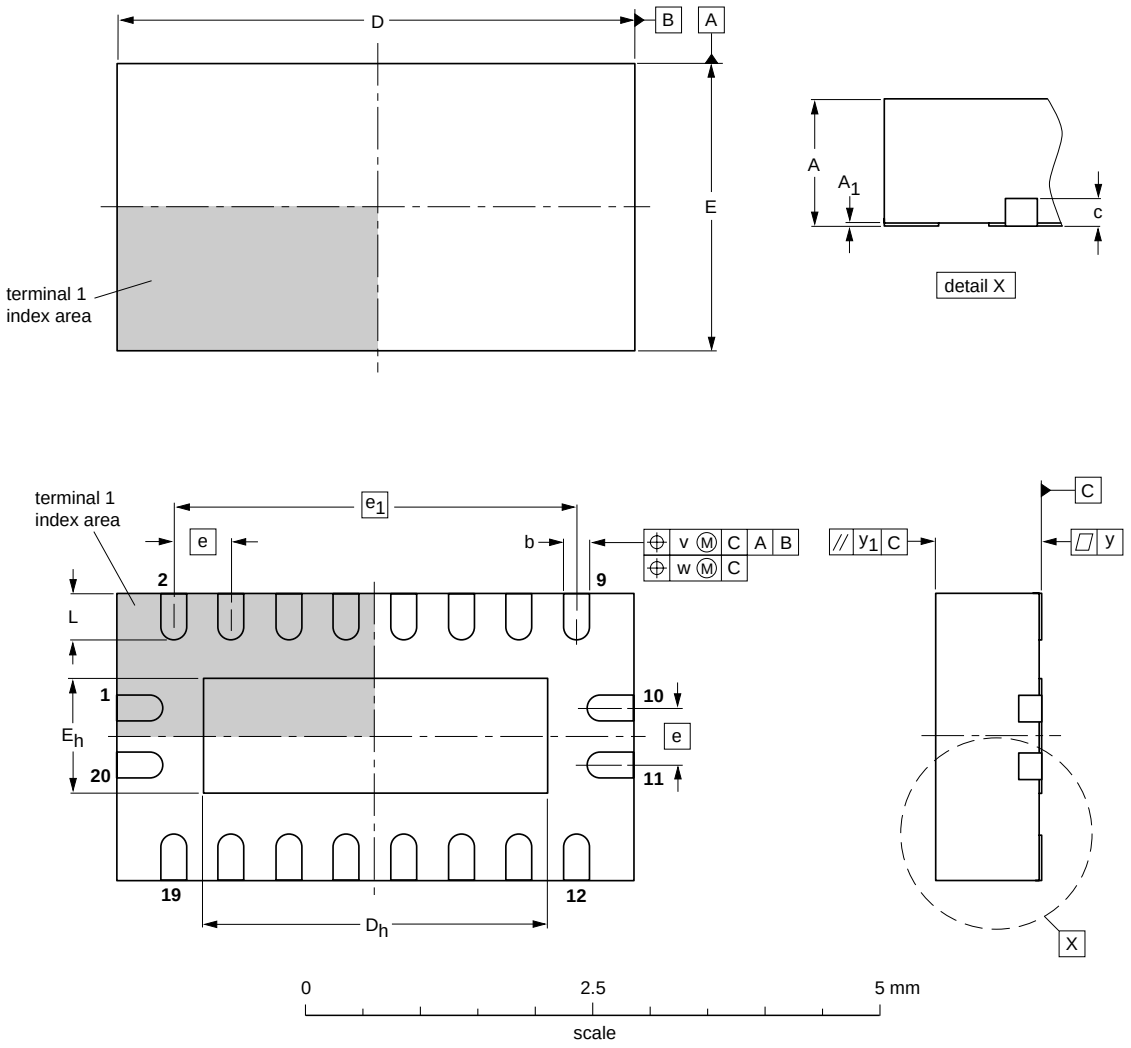
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.
2. Plastic interlead protrusions of 0.25 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT360-1		MO-153				~~99-12-27~~ 03-02-19

Fig 12. Package outline SOT360-1 (TSSOP20)

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DHVQFN20: plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 20 terminals; body 2.5 x 4.5 x 0.85 mm **SOT764-1**



DIMENSIONS (mm are the original dimensions)

UNIT	A(1) max.	A_1	b	c	D(1)	D_h	E(1)	E_h	e	e_1	L	v	w	y	y_1
mm	1	0.05 0.00	0.30 0.18	0.2	4.6 4.4	3.15 2.85	2.6 2.4	1.15 0.85	0.5	3.5	0.5 0.3	0.1	0.05	0.05	0.1

Note

1. Plastic or metal protrusions of 0.075 mm maximum per side are not included.

OUTLINE VERSION	REFERENCES				EUROPEAN PROJECTION	ISSUE DATE
	IEC	JEDEC	JEITA			
SOT764-1	- - -	MO-241	- - -			~~02-10-17~~ 03-01-27

Fig 13. Package outline SOT764-1 (DHVQFN20)

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12. Abbreviations

Table 10. Abbreviations

Acronym	Description
CDM	Charged-Device Model
CMOS	Complementary Metal Oxide Semiconductor
DUT	Device Under Test
ESD	ElectroStatic Discharge
HBM	Human Body Model
MM	Machine Model
TTL	Transistor-Transistor Logic

13. Revision history

Table 11. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74AHC_AHCT574_2	20080124	Product data sheet	-	74AHC_AHCT574_1
Modifications:	• The format of this data sheet has been redesigned to comply with the new identity guidelines of NXP Semiconductors. • Legal texts have been adapted to the new company name where appropriate. • Section 3: DHVQFN20 package added. • Section 7: derating values added for DHVQFN20 package. • Section 11: outline drawing added for DHVQFN20 package.			
74AHC_AHCT574_1	19990616	Product specification	-	-

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14. Legal information

14.1 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.

[1] 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 URL http://www.nexperia.com.

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