74HC259; 74HCT259

8-bit addressable latch

Rev. 8 — 5 December 2022

Product data sheet

1. General description

The 74HC259; 74HCT259 is an 8-bit addressable latch. The device features four modes of operation. In the addressable latch mode, data on the D input is written into the latch addressed by the inputs A0 to A3. The addressed latch will follow the data input, non-addressed latches will retain their previous states. In memory mode, all latches retain their previous states and are unaffected by the data or address inputs. In the 3-to-8 decoding or demultiplexing mode, the addressed output follows the D input and all other outputs are LOW. In the reset mode, all outputs are forced LOW and unaffected by the data or address inputs. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of V_{CC}.

2. Features and benefits

- Wide supply voltage range from 2.0 V to 6.0 V
- 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)
- · Combined demultiplexer and 8-bit latch
- Serial-to-parallel capability
- · Output from each storage bit available
- Random (addressable) data entry
- · Easily expandable
- Common reset input
- Useful as a 3-to-8 active HIGH decoder
- Input levels:
 - For 74HC259: CMOS level
 - For 74HCT259: 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
- Multiple package options
- Specified from -40 °C to +85 °C and from -40 °C to +125 °C

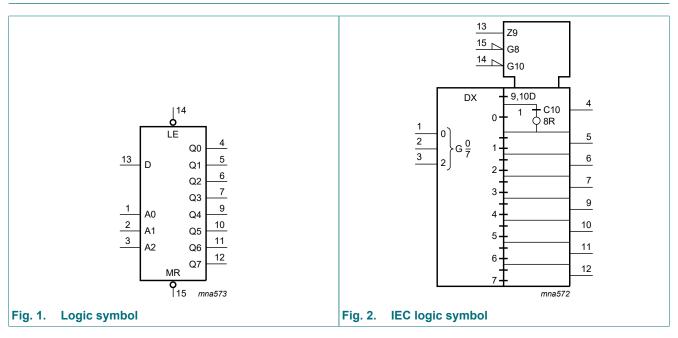


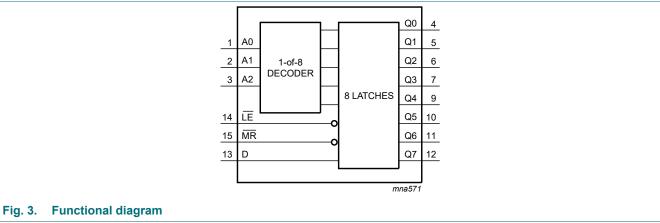
3. Ordering information

Table 1. Ordering information

Type number	Package			
	Temperature range	Name	Description	Version
74HC259D 74HCT259D	-40 °C to +125 °C	SO16	plastic small outline package; 16 leads; body width 3.9 mm	SOT109-1
74HC259PW 74HCT259PW	-40 °C to +125 °C	TSSOP16	plastic thin shrink small outline package; 16 leads; body width 4.4 mm	SOT403-1
74HC259BQ 74HCT259BQ	-40 °C to +125 °C	DHVQFN16	plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 16 terminals; body 2.5 × 3.5 × 0.85 mm	SOT763-1
74HC259BZ 74HCT259BZ	-40 °C to +125 °C	DHXQFN16	plastic, leadless dual in-line compatible thermal enhanced extreme thin quad flat package; no leads; 16 terminals; 0.4 mm pitch; body 2 mm × 2.4 mm × 0.48 mm	SOT8016-1

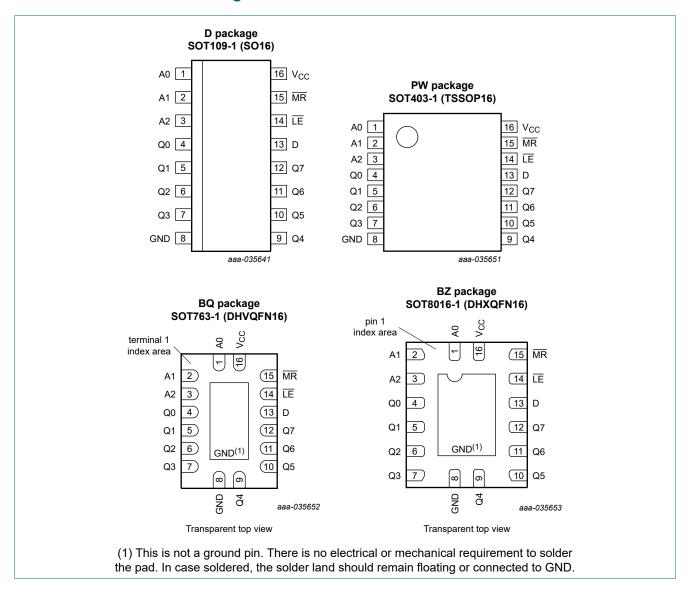
4. Functional diagram





5. Pinning information

5.1. Pinning



5.2. Pin description

Table 2. Pin description

Symbol	Pin	Description
A0, A1, A2	1, 2, 3	address input
Q0, Q1, Q2, Q3, Q4, Q5, Q6, Q7	4, 5, 6, 7, 9, 10, 11, 12	latch output
GND	8	ground (0 V)
D	13	data input
LE	14	latch enable input (active LOW)
MR	15	conditional reset input (active LOW)
V _{CC}	16	supply voltage

6. Functional description

Table 3. Function table

 $H = HIGH \ voltage \ level; \ L = LOW \ voltage \ level; \ X = don't \ care;$

 $d = HIGH \text{ or } LOW \text{ data one set-up time prior to the } LOW-to-HIGH \overline{LE} \text{ transition};$

q = lower case letter indicates the state of the referenced input one set-up time prior to the LOW-to-HIGH transition.

Operating mode	Input	1					Outpu	t						
	MR	LE	D	A0	A 1	A2	Q0	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Reset (clear)	L	Н	Х	Х	Х	Х	L	L	L	L	L	L	L	L
Demultiplexer	L	L	d	L	L	L	Q = d	L	L	L	L	L	L	L
(active HIGH 8-channel) decoder (when D = H)	L	L	d	Н	L	L	L	Q = d	L	L	L	L	L	L
accoder (which b = 11)	L	L	d	L	Н	L	L	L	Q = d	L	L	L	L	L
	L	L	d	Н	Н	L	L	L	L	Q = d	L	L	L	L
	L	L	d	L	L	Н	L	L	L	L	Q = d	L	L	L
	L	L	d	Н	L	Н	L	L	L	L	L	Q = d	L	L
	L	L	d	L	Н	Н	L	L	L	L	L	L	Q = d	L
	L	L	d	Н	Н	Н	L	L	L	L	L	L	L	Q = d
Memory (no action)	Н	Н	Х	Х	Х	Х	q_0	q_1	q_2	q_3	q_4	q ₅	q ₆	q ₇
Addressable latch	Н	L	d	L	L	L	Q = d	q ₁	q_2	q_3	q_4	q ₅	q ₆	q ₇
	Н	L	d	Н	L	L	q_0	Q = d	q_2	q_3	q_4	q ₅	q ₆	q ₇
	Н	L	d	L	Н	L	q_0	q ₁	Q = d	q_3	q ₄	q ₅	q ₆	q ₇
	Н	L	d	Н	Н	L	q_0	q_1	q_2	Q = d	q_4	q ₅	q ₆	q ₇
	Н	L	d	L	L	Н	q_0	q ₁	q_2	q_3	Q = d	q ₅	q ₆	q ₇
	Н	L	d	Н	L	Н	q_0	q ₁	q_2	q_3	q_4	Q = d	q ₆	q ₇
	Н	L	d	L	Н	Н	q_0	q ₁	q_2	q_3	q ₄	q ₅	Q = d	q ₇
	Н	L	d	Н	Н	Н	q_0	q_1	q_2	q_3	q_4	q ₅	q ₆	Q = d

Table 4. Operating mode select table

 $H = HIGH \ voltage \ level; \ L = LOW \ voltage \ level.$

LE	MR	Mode
L	Н	Addressable latch mode
Н	Н	Memory mode
L	L	Demultiplexer mode
Н	L	Reset mode

7. Limiting values

Table 5. 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
I _{IK}	input clamping current	$V_{I} < -0.5 \text{ V or } V_{I} > V_{CC} + 0.5 \text{ V}$	[1]	-	±20	mA
I _{OK}	output clamping current	V_{O} < -0.5 V or V_{O} > V_{CC} + 0.5 V	[1]	-	±20	mA
Io	output current	$V_{O} = -0.5 \text{ V to } V_{CC} + 0.5 \text{ V}$		-	±25	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	T _{amb} = -40 °C to +125 °C				
		SOT109-1 (SO16) SOT403-1 (TSSOP16) SOT763-1 (DHVQFN16)	[2] [3] [4]	-	500	mW
		SOT8016-1 (DHXQFN16)		-	250	mW

- [1] The input and output voltage ratings may be exceeded if the input and output current ratings are observed.
- [2] For SOT109-1 (SO16) package: P_{tot} derates linearly with 12.4 mW/K above 110 °C.
- [3] For SOT403-1 (TSSOP16) package: Ptot derates linearly with 8.5 mW/K above 91 °C.
- [4] For SOT763-1 (DHVQFN16) package: Ptot derates linearly with 11.2 mW/K above 106 °C.

8. Recommended operating conditions

Table 6. Recommended operating conditions

Voltages are referenced to GND (ground = 0 V)

Symbol	Parameter	Conditions		74HC259	•	7	'4HCT25	9	Unit
			Min	Тур	Max	Min	Тур	Max	
V _{CC}	supply voltage		2.0	5.0	6.0	4.5	5.0	5.5	V
VI	input voltage		0	-	V _{CC}	0	-	V _{CC}	V
Vo	output voltage		0	-	V _{CC}	0	-	V _{CC}	V
T _{amb}	ambient temperature		-40	-	+125	-40	-	+125	°C
Δt/ΔV	input transition rise and fall rate	V _{CC} = 2.0 V	-	-	625	-	-	-	ns/V
		V _{CC} = 4.5 V	-	1.67	139	-	1.67	139	ns/V
		V _{CC} = 6.0 V	-	-	83	-	-	-	ns/V

9. Static characteristics

Table 7. 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	Max	Min	Max	
74HC259	9									
V _{IH}	HIGH-level	V _{CC} = 2.0 V	1.5	1.2	-	1.5	-	1.5	-	V
	input voltage	V _{CC} = 4.5 V	3.15	2.4	-	3.15	-	3.15	-	V
		V _{CC} = 6.0 V	4.2	3.2	-	4.2	-	4.2	-	V

74HC_HCT259

Symbol	Parameter	Conditions		25 °C		-40 °C t	o +85 °C	-40 °C to	+125 °C	Unit
-			Min	Тур	Max	Min	Max	Min	Max	
V _{IL}	LOW-level	V _{CC} = 2.0 V	-	0.8	0.5	-	0.5	-	0.5	V
	input voltage	V _{CC} = 4.5 V	-	2.1	1.35	-	1.35	-	1.35	V
		V _{CC} = 6.0 V	-	2.8	1.8	-	1.8	-	1.8	V
V _{OH}	HIGH-level	$V_I = V_{IH}$ or V_{IL}								
	output voltage	I _O = -20 μA; V _{CC} = 2.0 V	1.9	2.0	-	1.9	_	1.9	-	V
		I _O = -20 μA; V _{CC} = 4.5 V	4.4	4.5	-	4.4	-	4.4	-	V
		I _O = -20 μA; V _{CC} = 6.0 V	5.9	6.0	-	5.9	-	5.9	-	V
		I_{O} = -4.0 mA; V_{CC} = 4.5 V	3.98	4.32	-	3.84	-	3.7	-	V
		$I_0 = -5.2 \text{ mA}; V_{CC} = 6.0 \text{ V}$	5.48	5.81	-	5.34	-	5.2	-	V
V _{OL}	LOW-level	$V_I = V_{IH}$ or V_{IL}								
	output voltage	$I_{O} = 20 \mu A; V_{CC} = 2.0 V$	-	0	0.1	-	0.1	-	0.1	V
		I _O = 20 μA; V _{CC} = 4.5 V	-	0	0.1	-	0.1	-	0.1	V
		$I_O = 20 \mu A; V_{CC} = 6.0 V$	-	0	0.1	-	0.1	-	0.1	V
		$I_O = 4.0 \text{ mA}; V_{CC} = 4.5 \text{ V}$	-	0.15	0.26	-	0.33	-	0.4	V
		$I_0 = 5.2 \text{ mA}; V_{CC} = 6.0 \text{ V}$	-	0.16	0.26	-	0.33	-	0.4	V
I _I	input leakage current	$V_I = V_{CC}$ or GND; $V_{CC} = 6.0 \text{ V}$	-	-	±0.1	-	±1	-	±1	μΑ
I _{CC}	supply current	$V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 6.0 \text{ V}$	-	-	8.0	-	80	-	160	μΑ
Cı	input capacitance		-	3.5	-	-	-	-	-	pF
74HCT2	59		'	'	'		1			
V _{IH}	HIGH-level input voltage	V _{CC} = 4.5 V to 5.5 V	2.0	1.6	-	2.0	-	2.0	-	V
V _{IL}	LOW-level input voltage	V _{CC} = 4.5 V to 5.5 V	-	1.2	0.8	-	0.8	-	0.8	V
V _{OH}	HIGH-level	$V_I = V_{IH}$ or V_{IL} ; $V_{CC} = 4.5 \text{ V}$								
	output voltage	I _O = -20 μA	4.4	4.5	-	4.4	-	4.4	-	V
		I _O = -4.0 mA	3.98	4.32	-	3.84	-	3.7	-	V
V _{OL}	LOW-level	$V_I = V_{IH}$ or V_{IL} ; $V_{CC} = 4.5 \text{ V}$								
	output voltage	I _O = 20 μA; V _{CC} = 4.5 V	-	0	0.1	-	0.1	-	0.1	V
		I _O = 5.2 mA; V _{CC} = 6.0 V	-	0.15	0.26	-	0.33	-	0.4	V
I _I	input leakage current	$V_I = V_{CC}$ or GND; $V_{CC} = 5.5 \text{ V}$	-	-	±0.1	-	±1	-	±1	μΑ
I _{CC}	supply current	$V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 5.5 \text{ V}$	-	-	8.0	-	80	-	160	μΑ
ΔI _{CC}	additional supply current	$V_I = V_{CC} - 2.1 \text{ V}; I_O = 0 \text{ A};$ other inputs at V_{CC} or GND; $V_{CC} = 4.5 \text{ V}$ to 5.5 V								
		pin An, LE	-	150	540	-	675	-	735	μΑ
		pin D	-	120	432	-	540	-	588	μΑ
		pin MR	-	75	270	-	338	-	368	μΑ
C _I	input capacitance		-	3.5	-	-	-	-	-	pF

10. Dynamic characteristics

Table 8. Dynamic characteristics

Voltages are referenced to GND (ground = 0 V); for test circuit see Fig. 10.

Symbol	Parameter	Conditions		25 °C		-40 °C t	o +85 °C	-40 °C to	+125 °C	Unit
			Min	Typ[1]	Max	Min	Max	Min	Max	
74HC25	9					I		I	-	
t _{pd}	propagation	D to Qn; see Fig. 4 [2]								
	delay	V _{CC} = 2.0 V	-	58	185	-	230	-	280	ns
		V _{CC} = 4.5 V	-	21	37	-	46	-	56	ns
		V _{CC} = 5.0 V; C _L = 15 pF	-	18	-	-	-	-	-	ns
		V _{CC} = 6.0 V	-	17	31	-	39	-	48	ns
		An to Qn; see Fig. 5 [2]								
		V _{CC} = 2.0 V	-	58	185	-	230	-	280	ns
		V _{CC} = 4.5 V	-	21	37	-	46	-	56	ns
		V _{CC} = 5.0 V; C _L = 15 pF	-	17	-	-	-	-	-	ns
		V _{CC} = 6.0 V	-	17	31	-	39	-	48	ns
		LE to Qn; see Fig. 6 [2]								
		V _{CC} = 2.0 V	-	55	170	-	215	-	255	ns
		V _{CC} = 4.5 V	-	20	34	-	43	-	51	ns
		V _{CC} = 5.0 V; C _L = 15 pF	-	17	-	-	-	-	-	ns
		V _{CC} = 6.0 V	-	16	29	-	37	-	43	ns
t _{PHL}	HIGH to LOW	MR to Qn; see Fig. 7								
	propagation	V _{CC} = 2.0 V	-	50	155	-	195	-	235	ns
	delay	V _{CC} = 4.5 V	-	18	31	-	39	-	47	ns
		V _{CC} = 5.0 V; C _L = 15 pF	-	15	-	-	-	-	-	ns
		V _{CC} = 6.0 V	-	14	26	-	33	-	40	ns
t _t	transition time	see <u>Fig. 6</u> [3]								
		V _{CC} = 2.0 V	-	19	75	-	95	-	119	ns
		V _{CC} = 4.5 V	-	7	15	-	19	-	22	ns
		V _{CC} = 6.0 V	-	6	13	-	16	-	19	ns
t _W	pulse width	LE HIGH or LOW; see Fig. 6								
		V _{CC} = 2.0 V	70	17	-	90	-	105	-	ns
		V _{CC} = 4.5 V	14	6	-	18	-	21	-	ns
		V _{CC} = 6.0 V	12	5	-	15	-	18	-	ns
		MR LOW; see Fig. 7								
		V _{CC} = 2.0 V	70	17	-	90	-	105	-	ns
		V _{CC} = 4.5 V	14	6	-	18	-	21	-	ns
		V _{CC} = 6.0 V	12	5	-	15	-	18	-	ns
t _{su}	set-up time	D, An to LE; see Fig. 8 and Fig. 9								
		V _{CC} = 2.0 V	80	19	-	100	-	120	-	ns
		V _{CC} = 4.5 V	16	7	-	20	-	24	-	ns
		V _{CC} = 6.0 V	14	6	-	17	-	20	-	ns

Symbol	Parameter	Conditions		25 °C		-40 °C t	o +85 °C	-40 °C to	+125 °C	Unit
			Min	Typ[1]	Max	Min	Max	Min	Max	
t _h	hold time	D to LE; see Fig. 8 and Fig. 9								
		V _{CC} = 2.0 V	0	-19	-	0	-	0	-	ns
		V _{CC} = 4.5 V	0	-6	-	0	-	0	-	ns
		V _{CC} = 6.0 V	0	-5	-	0	-	0	-	ns
		An to LE; see Fig. 8 and Fig. 9								
		V _{CC} = 2.0 V	2	-11	-	2	-	2	-	ns
		V _{CC} = 4.5 V	2	-4	-	2	-	2	-	ns
		V _{CC} = 6.0 V	2	-3	-	2	-	2	-	ns
C _{PD}	power dissipation capacitance	$f_i = 1 \text{ MHz}$; $V_i = \text{GND to } V_{CC}$ [4]	-	19	-	-	-	-	-	pF
74HCT2	59					I	1	I		
t _{pd}	propagation	D to Qn; see Fig. 4 [2]								
	delay	V _{CC} = 4.5 V	-	23	39	-	49	-	59	ns
		V _{CC} = 5.0 V; C _L = 15 pF	-	20	-	-	-	-	-	ns
		An to Qn; see Fig. 5 [2]								
		V _{CC} = 4.5 V	-	25	41		51		62	ns
		V _{CC} = 5.0 V; C _L = 15 pF	-	20	-	-	-	-	-	ns
		LE to Qn; see Fig. 6 [2]								
		V _{CC} = 4.5 V	-	22	38	-	48	-	57	ns
		V _{CC} = 5.0 V; C _L = 15 pF	_	20	-	-	-	-	-	ns
t _{PHL}	HIGH to LOW	MR to Qn; see Fig. 7								
	propagation	V _{CC} = 4.5 V	-	23	39	-	49	-	59	ns
	delay	V _{CC} = 5.0 V; C _L = 15 pF	-	20	-	-	-	-	-	ns
t _t	transition time	see <u>Fig. 6</u> [3]								
		V _{CC} = 4.5 V	-	7	15	-	19	-	22	ns
t _W	pulse width	LE HIGH or LOW; see Fig. 6								
		V _{CC} = 4.5 V	19	11	-	24	-	29	-	ns
		MR LOW; see Fig. 7								
		V _{CC} = 4.5 V	18	10	-	23	-	27	-	ns
t _{su}	set-up time	D, An to LE; see <u>Fig. 8</u> and <u>Fig. 9</u>								
		V _{CC} = 4.5 V	17	10	-	21	-	26	-	ns
t _h	hold time	D to LE; see Fig. 8 and Fig. 9								
		V _{CC} = 4.5 V	0	-8	-	0	-	0	-	ns
		An to LE; see Fig. 8 and Fig. 9								
		V _{CC} = 4.5 V	0	-4	-	0	-	0	-	ns

Symbol	Parameter	Conditions		25 °C		-40 °C to	+85 °C	-40 °C to	+125 °C	Unit
			Min	Typ[1]	Max	Min	Max	Min	Max	
C _{PD}	power dissipation capacitance	f_i = 1 MHz; [4] V _I = GND to V _{CC} - 1.5 V	-	19	-	-	-	-	-	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} .
- [3] t_t is the same as t_{THL} and t_{TLH} .
- [4] C_{PD} is used to determine the dynamic power dissipation (P_D in μ W).

$$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma (C_L \times V_{CC}^2 \times f_o)$$
 where:

 f_i = input frequency in MHz;

f_o = output frequency in MHz;

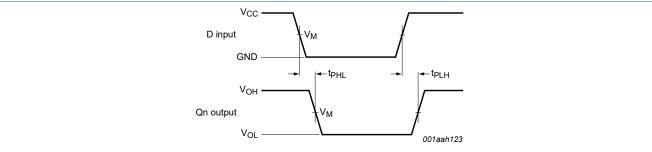
C_L = output load capacitance in pF;

V_{CC} = supply voltage in V;

N = number of inputs switching;

 $\Sigma(C_L \times V_{CC}^2 \times f_0)$ = sum of the outputs.

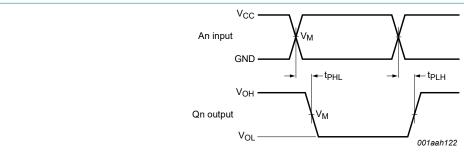
10.1. Waveforms and test circuit



Measurement points are given in Table 9.

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

Fig. 4. Data input to output propagation delays



Measurement points are given in Table 9.

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

Fig. 5. Address input to output propagation delays

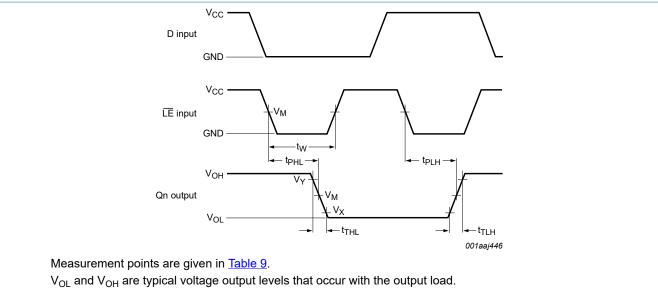
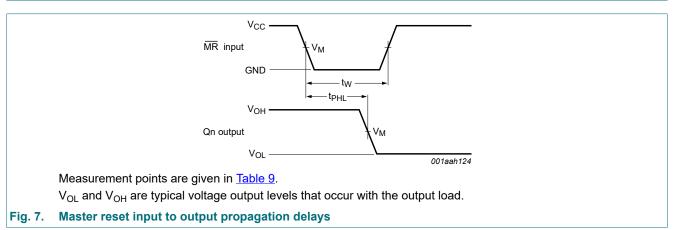
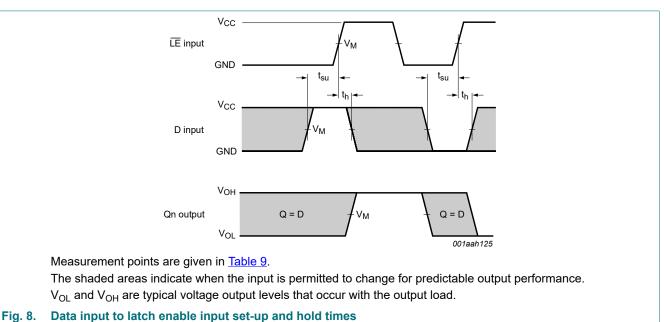
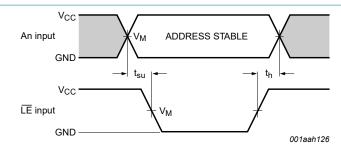


Fig. 6. Enable input to output propagation delays and pulse width





74HC_HCT259



Measurement points are given in Table 9.

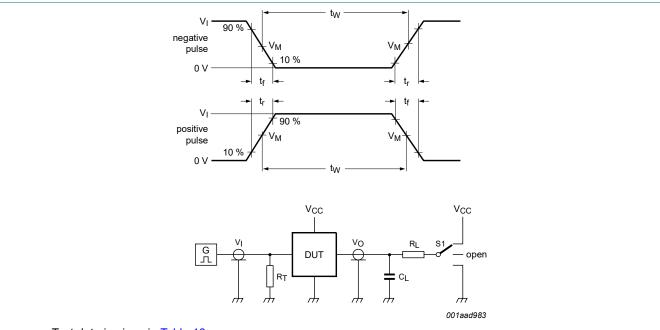
The shaded areas indicate when the input is permitted to change for predictable output performance.

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

Fig. 9. Address input to latch enable input set-up and hold times

Table 9. Measurement points

Туре	Input	Output		
	V_{M}	V _M	V _X	V_{Y}
74HC259	0.5 × V _{CC}	0.5 × V _{CC}	0.1 × V _{CC}	0.9 × V _{CC}
74HCT259	1.3 V	1.3 V	0.1 × V _{CC}	0.9 × V _{CC}



Test data is given in Table 10.

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. Test circuit for measuring switching times

Table 10. Test data

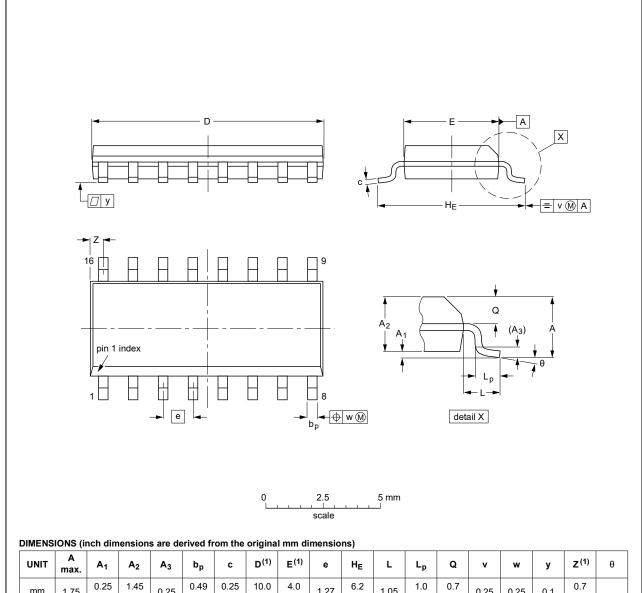
Туре	Input		Load	S1 position	
	V _I	t _r , t _f	C _L	R_L	t _{PHL} , t _{PLH}
74HC259	V _{CC}	6 ns	15 pF, 50 pF	1 kΩ	open
74HCT259	3 V	6 ns	15 pF, 50 pF	1 kΩ	open

74HC_HCT259

11. Package outline

SO16: plastic small outline package; 16 leads; body width 3.9 mm

SOT109-1



UNIT	A max.	A ₁	A ₂	A ₃	bp	С	D ⁽¹⁾	E ⁽¹⁾	е	HE	L	Lp	Q	v	w	у	Z ⁽¹⁾	θ
mm	1.75	0.25 0.10	1.45 1.25	0.25	0.49 0.36	0.25 0.19	10.0 9.8	4.0 3.8	1.27	6.2 5.8	1.05	1.0 0.4	0.7 0.6	0.25	0.25	0.1	0.7 0.3	8°
inches	0.069	0.010 0.004	0.057 0.049	0.01		0.0100 0.0075	0.39 0.38	0.16 0.15	0.05	0.244 0.228	0.041	0.039 0.016	0.028 0.020	0.01	0.01	0.004	0.028 0.012	0°

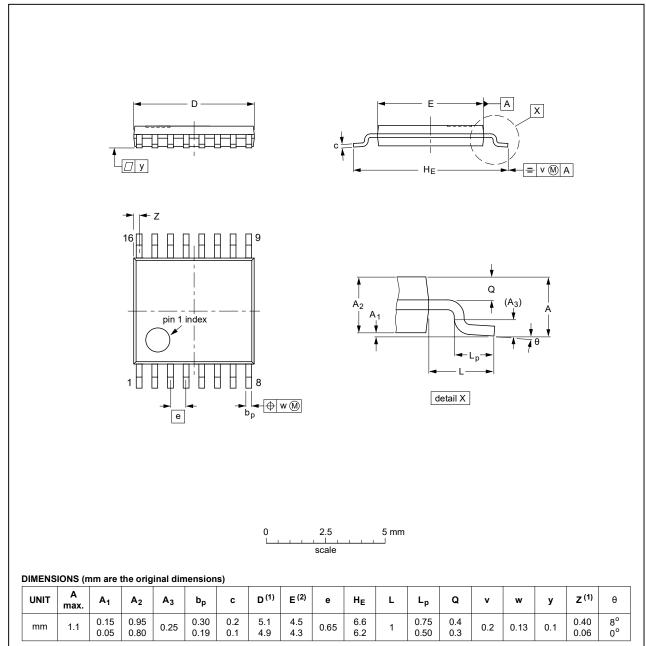
1. Plastic or metal protrusions of 0.15 mm (0.006 inch) maximum per side are not included.

OUTLINE		REFER	EUROPEAN	ISSUE DATE		
VERSION	IEC	JEDEC	JEITA		PROJECTION	ISSUE DATE
SOT109-1	076E07	MS-012				99-12-27 03-02-19

Fig. 11. Package outline SOT109-1 (SO16)

TSSOP16: plastic thin shrink small outline package; 16 leads; body width 4.4 mm

SOT403-1



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		REFER	EUROPEAN	ISSUE DATE		
VERSION	IEC	JEDEC	JEITA		PROJECTION	ISSUE DATE
SOT403-1		MO-153				99-12-27 03-02-18

Fig. 12. Package outline SOT403-1 (TSSOP16)

DHVQFN16: plastic dual in-line compatible thermal enhanced very thin quad flat package; no leads; 16 terminals; body 2.5 x 3.5 x 0.85 mm SOT763-1

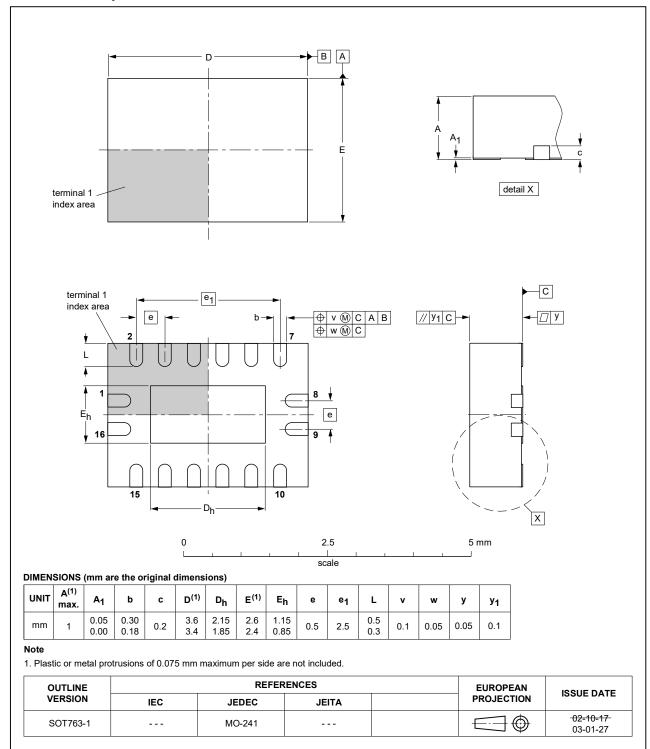


Fig. 13. Package outline SOT763-1 (DHVQFN16)

DHXQFN16: plastic, leadless dual in-line compatible thermal enhanced extreme thin quad flat package; no leads; 16 terminals; 0.4 mm pitch; body 2 mm x 2.4 mm x 0.48 mm SOT8016-1 □ z C 2x D Е pin 1 index area seating plane detail X _ z C 2x ⊕ w M C A B // y₁ C pin 1 index area e (12x) pin1 I.D. 16 (16x)10 u M C A B v M C (16x) 2 mm scale Dimensions (mm are the original dimensions) Unit A_1 A_3 D D_1 Е E_1 е L b k u z У У1 0.48 0.05 0.23 1.40 1.00 0.35 max 0.15 1.35 2.4 2.0 0.05 0.05 0.05 nom 0.45 0.02 0.18 0.95 0.4 0.30 0.1 0.05 0.1 (typ) min 0.42 0.00 0.13 1.30 0.90 0.2 0.25 sot8016-1_po References Outline European Issue date projection version IEC **JEDEC** JEITA

Fig. 14. Package outline SOT8016-1 (DHXQFN16)

20-09-18

20-09-22

 \bigcirc

SOT8016-1

12. Abbreviations

Table 11. Abbreviations

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

13. Revision history

Table 12. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes					
74HC_HCT259 v.8	20221205	Product data sheet	-	74HC_HCT259 v.7					
Modifications:	Type numbers 74HC259BZ and 74HCT259BZ (SOT8016-1/DHXQFN16) added.								
74HC_HCT259 v.7	20200902	Product data sheet	-	74HC_HCT259 v.6					
Modifications:	 The format of this data sheet has been redesigned to comply with the identity guidelines of Nexperia. Legal texts have been adapted to the new company name where appropriate. Type number 74HC259DB and 74HCT259DB (SOT338-1/SSOP16) removed. Section 2 updated. Table 5: Derating values for Ptot total power dissipation have been updated. 								
74HC_HCT259 v.6	20160202	Product data sheet	-	74HC_HCT259 v.5					
Modifications:	Type numbers	74HC259N and 74HCT259N	(SOT38-4) removed	•					
74HC_HCT259 v.5	20120807	Product data sheet	-	74HC_HCT259 v.4					
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. 								
74HC_HCT259 v.4	20090225	Product data sheet	-	74HC_HCT259 v.3					
Modifications:	• •	 Added type number 74HC259N and 74HCT259N (DIP16 package) Added type number 74HC259DB and 74HCT259DB (SSOP16 package) 							
74HC_HCT259 v.3	20090108	Product data sheet	-	74HC_HCT259_CNV v.2					
74HC_HCT259_CNV v.2	19970828	Product specification	-	-					

14. 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".
- 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 https://www.nexperia.com.

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 — Nexperia products are not designed, authorized or warranted to be suitable for use in life support, life-critical or safety-critical systems or 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 http://www.nexperia.com/profile/terms, 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.

Non-automotive qualified products — Unless this data sheet expressly states that this specific Nexperia product is automotive qualified, the product is not suitable for automotive use. It is neither qualified nor tested in accordance with automotive testing or application requirements. Nexperia accepts no liability for inclusion and/or use of non-automotive qualified products in automotive equipment or applications.

In the event that customer uses the product for design-in and use in automotive applications to automotive specifications and standards, customer (a) shall use the product without Nexperia's warranty of the product for such automotive applications, use and specifications, and (b) whenever customer uses the product for automotive applications beyond Nexperia's specifications such use shall be solely at customer's own risk, and (c) customer fully indemnifies Nexperia for any liability, damages or failed product claims resulting from customer design and use of the product for automotive applications beyond Nexperia's standard warranty and Nexperia's product specifications.

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.

74HC_HCT259

All information provided in this document is subject to legal disclaimers.

© Nexperia B.V. 2022. All rights reserved

Contents

1.	General description	1
2.	Features and benefits	1
3.	Ordering information	2
4.	Functional diagram	2
5.	Pinning information	3
5.1	. Pinning	3
5.2	. Pin description	3
6.	Functional description	4
7.	Limiting values	5
8.	Recommended operating conditions	5
	Static characteristics	
10.	Dynamic characteristics	7
10.	Waveforms and test circuit	9
11.	Package outline1	2
12.	Abbreviations1	6
13.	Revision history1	6
44		
14.	Legal information1	7

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 December 2022

[©] Nexperia B.V. 2022. All rights reserved

单击下面可查看定价,库存,交付和生命周期等信息

>>Nexperia(安世)