## 74HC259; 74HCT259

# 8-bit addressable latch Rev. 6 — 2 February 2016

Product data sheet

## **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 AO 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<sub>CC</sub>.

#### Features and benefits 2.

- 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
- Complies with JEDEC standard no. 7A
- Input levels:
  - ◆ For 74HC259: CMOS level
  - For 74HCT259: TTL level
- ESD protection:
  - HBM JESD22-A114F exceeds 2000 V
  - MM JESD22-A115-A exceeds 200 V
  - CDM JESD22E exceeds 1000 V
- Multiple package options
- Specified from -40 °C to +85 °C and from -40 °C to +125 °C

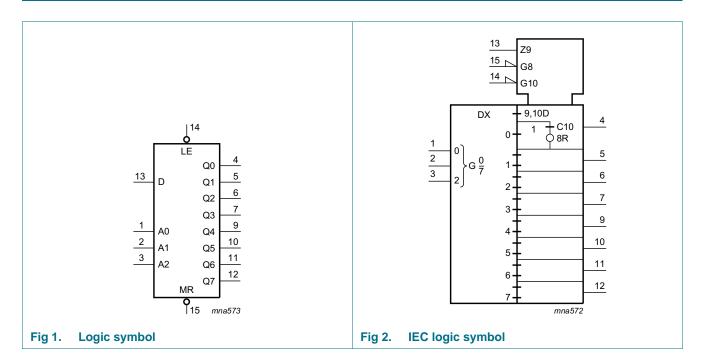


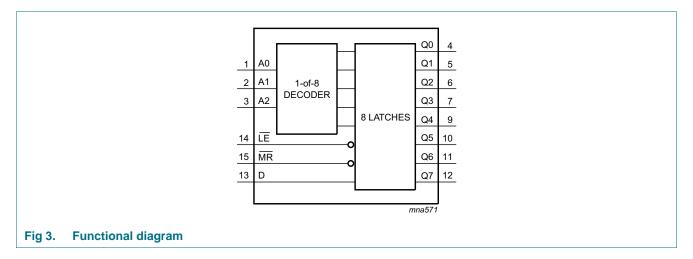
## 3. Ordering information

Table 1. Ordering information

Type number	Package						
	Temperature range	Name	Description	Version			
74HC259D	–40 °C to +125 °C	SO16	plastic small outline package; 16 leads;	SOT109-1			
74HCT259D			body width 3.9 mm				
74HC259DB	-40 °C to +125 °C	SSOP16	plastic shrink small outline package; 16 leads; body	SOT338-1			
74HCT259DB			width 5.3 mm				
74HC259PW	-40 °C to +125 °C	TSSOP16	plastic thin shrink small outline package; 16 leads;	SOT403-1			
74HCT259PW			body width 4.4 mm				
74HC259BQ	-40 °C to +125 °C	DHVQFN16	plastic dual in-line compatible thermal enhanced very	SOT763-1			
74HCT259BQ			thin quad flat package; no leads; 16 terminals; body $2.5 \times 3.5 \times 0.85$ mm				

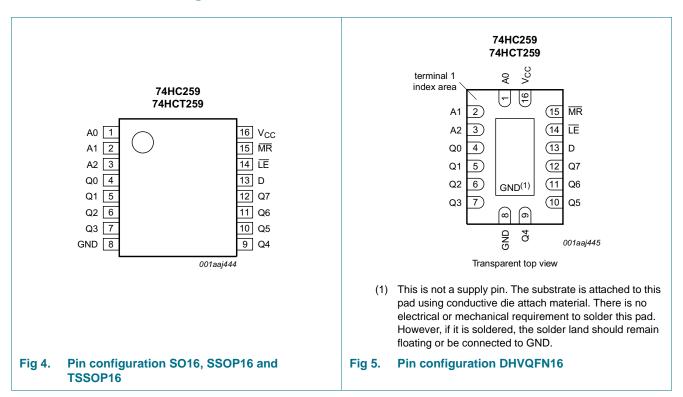
## 4. Functional diagram





## 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 <sub>CC</sub>	16	supply voltage

## 6. Functional description

Table 3. Function table[1]

Operating mode	Inpu	t					Outpu	t						
	MR	LE	D	A0	<b>A</b> 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 (when 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 <sub>1</sub>	$q_2$	$q_3$	$q_4$	<b>q</b> <sub>5</sub>	$q_6$	q <sub>7</sub>
Addressable latch	Н	L	d	L	L	L	Q = d	q <sub>1</sub>	$q_2$	$q_3$	$q_4$	<b>q</b> <sub>5</sub>	$q_6$	q <sub>7</sub>
	Н	L	d	Н	L	L	$q_0$	Q = d	$q_2$	$q_3$	$q_4$	<b>q</b> <sub>5</sub>	$q_6$	q <sub>7</sub>
	Н	L	d	L	Н	L	$q_0$	q <sub>1</sub>	Q = d	$q_3$	$q_4$	<b>q</b> <sub>5</sub>	$q_6$	q <sub>7</sub>
	Н	L	d	Н	Н	L	$q_0$	q <sub>1</sub>	$q_2$	Q = d	$q_4$	<b>q</b> <sub>5</sub>	$q_6$	q <sub>7</sub>
	Н	L	d	L	L	Н	$q_0$	q <sub>1</sub>	$q_2$	$q_3$	Q = d	<b>q</b> <sub>5</sub>	$q_6$	q <sub>7</sub>
	Н	L	d	Н	L	Н	$q_0$	q <sub>1</sub>	$q_2$	$q_3$	$q_4$	Q = d	$q_6$	q <sub>7</sub>
	Н	L	d	L	Н	Н	$q_0$	q <sub>1</sub>	$q_2$	$q_3$	$q_4$	<b>q</b> <sub>5</sub>	Q = d	q <sub>7</sub>
	Н	L	d	Н	Н	Н	$q_0$	q <sub>1</sub>	$q_2$	$q_3$	$q_4$	<b>q</b> <sub>5</sub>	$q_6$	Q = d

<sup>[1]</sup> H = HIGH voltage level;

L = LOW voltage level;

X = don't care;

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

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

Table 4. Operating mode select table [1]

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

[1] H = HIGH voltage level; L = LOW voltage level.

## 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 <sub>IK</sub>	input clamping current	$V_{I} < -0.5 \text{ V or } V_{I} > V_{CC} + 0.5 \text{ V}$	[1]	-	±20	mA
l <sub>OK</sub>	output clamping current	$V_{O} < -0.5 \text{ V or } V_{O} > V_{CC} + 0.5 \text{ V}$	[1]	-	±20	mA
lo	output current	$V_{O} = -0.5 \text{ V to } V_{CC} + 0.5 \text{ V}$		-	±25	mA
Icc	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	$T_{amb} = -40 ^{\circ}\text{C} \text{ to } +125 ^{\circ}\text{C}$				
		SO16 package	[2]	-	500	mW
		(T)SSOP16 package	[3]	-	500	mW
		DHVQFN16 package	<u>[4]</u>	-	500	mW

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

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

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

<sup>[4]</sup> Ptot derates linearly with 4.5 mW/K above 60 °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 <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	-	+125	-40	-	+125	°C
Δt/ΔV	input transition rise and fall rate	V <sub>CC</sub> = 2.0 V	-	-	625	-	-	-	ns/V
		V <sub>CC</sub> = 4.5 V	-	1.67	139	-	1.67	139	ns/V
l		$V_{CC} = 6.0 \text{ V}$	-	-	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 t	o +85 °C	–40 °C t	o +125 °C	Unit
			Min	Тур	Max	Min	Max	Min	Max	
74HC259	9									
V <sub>IH</sub>	HIGH-level	V <sub>CC</sub> = 2.0 V	1.5	1.2	-	1.5	-	1.5	-	V
	input voltage	V <sub>CC</sub> = 4.5 V	3.15	2.4	-	3.15	-	3.15	-	V
		$V_{CC} = 6.0 \text{ V}$	4.2	3.2	-	4.2	-	4.2	-	V
$V_{IL}$	LOW-level	V <sub>CC</sub> = 2.0 V	-	0.8	0.5	-	0.5	-	0.5	V
	input voltage	V <sub>CC</sub> = 4.5 V	-	2.1	1.35	-	1.35	-	1.35	V
		$V_{CC} = 6.0 \text{ V}$	-	2.8	1.8	-	1.8	-	1.8	V
V <sub>OH</sub>	HIGH-level	$V_I = V_{IH}$ or $V_{IL}$								
	output voltage	$I_{O} = -20 \mu A; V_{CC} = 2.0 V$	1.9	2.0	-	1.9	-	1.9	-	V
		$I_O = -20 \mu A; V_{CC} = 4.5 V$	4.4	4.5	-	4.4	-	4.4	-	V
		$I_O = -20 \mu A; V_{CC} = 6.0 V$	5.9	6.0	-	5.9	-	5.9	-	V
		$I_{O} = -4.0 \text{ mA}; V_{CC} = 4.5 \text{ V}$	3.98	4.32	-	3.84	-	3.7	-	V
		$I_{O} = -5.2 \text{ mA}; V_{CC} = 6.0 \text{ V}$	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
		$I_O = 20 \mu A; V_{CC} = 4.5 V$	-	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
		$I_O = 5.2 \text{ mA}; V_{CC} = 6.0 \text{ V}$	-	0.16	0.26	-	0.33	-	0.4	V
l <sub>l</sub>	input leakage current	$V_I = V_{CC}$ or GND; $V_{CC} = 6.0 \text{ V}$	-	-	±0.1	-	±1	-	±1	μΑ
I <sub>CC</sub>	supply current	$V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 6.0 \text{ V}$	-	-	8.0	-	80	-	160	μΑ

Table 7. Static characteristics ... continued

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

Symbol	Parameter	Conditions	25 °C			–40 °C t	o +85 °C	-40 °C to	Unit	
			Min	Тур	Max	Min	Max	Min	Max	
Cı	input capacitance		-	3.5	-	-	-	-	-	pF
74HCT2	59									
V <sub>IH</sub>	HIGH-level input voltage	V <sub>CC</sub> = 4.5 V to 5.5 V	2.0	1.6	-	2.0	-	2.0	-	V
$V_{IL}$	LOW-level input voltage	V <sub>CC</sub> = 4.5 V to 5.5 V	-	1.2	0.8	-	0.8	-	0.8	V
V <sub>OH</sub>	HIGH-level	$V_I = V_{IH}$ or $V_{IL}$ ; $V_{CC} = 4.5 \text{ V}$								
	output voltage	$I_{O} = -20 \mu A$	4.4	4.5	-	4.4	-	4.4	-	V
		$I_{O} = -4.0 \text{ mA}$	3.98	4.32	-	3.84	-	3.7	-	V
V <sub>OL</sub>	LOW-level	$V_I = V_{IH}$ or $V_{IL}$ ; $V_{CC} = 4.5 \text{ V}$								
	output voltage	$I_O = 20 \mu A; V_{CC} = 4.5 V$	-	0	0.1	-	0.1	-	0.1	V
		$I_O = 5.2 \text{ mA}; V_{CC} = 6.0 \text{ V}$	-	0.15	0.26	-	0.33	-	0.4	V
l <sub>1</sub>	input leakage current	$V_I = V_{CC}$ or GND; $V_{CC} = 5.5 \text{ V}$	-	-	±0.1	-	±1	-	±1	μΑ
I <sub>CC</sub>	supply current	$V_I = V_{CC}$ or GND; $I_O = 0$ A; $V_{CC} = 5.5 \text{ V}$	-	-	8.0	-	80	-	160	μΑ
Δl <sub>CC</sub>	additional supply current	$\begin{aligned} V_I &= V_{CC} - 2.1 \text{ V; } I_O = 0 \text{ A;} \\ \text{other inputs at } V_{CC} \text{ or GND;} \\ V_{CC} &= 4.5 \text{ V to } 5.5 \text{ V} \end{aligned}$								
		pin An, LE	-	150	540	-	675	-	735	μΑ
		pin D	-	120	432	-	540	-	588	μΑ
		pin MR	-	75	270	-	338	-	368	μΑ
Cı	input capacitance		-	3.5	-	-	-	-	-	pF

## 10. Dynamic characteristics

Table 8. Dynamic characteristics

Voltages are referenced to GND (ground = 0 V); for test circuit see Figure 12.

Symbol	Parameter	Conditions		25 °C		–40 °C t	o +85 °C	-40 °C to	o +125 °C	Unit
			Min	Typ[1]	Max	Min	Max	Min	Max	
74HC259	9									
t <sub>pd</sub>	propagation	D to Qn; see Figure 6								
	delay	V <sub>CC</sub> = 2.0 V	-	58	185	-	230	-	280	ns
		V <sub>CC</sub> = 4.5 V	-	21	37	-	46	-	56	ns
		$V_{CC} = 5.0 \text{ V}; C_L = 15 \text{ pF}$	-	18	-	-	-	-	-	ns
		V <sub>CC</sub> = 6.0 V	-	17	31	-	39	-	48	ns
		An to Qn; see Figure 7 [2]								
		V <sub>CC</sub> = 2.0 V	-	58	185	-	230	-	280	ns
		V <sub>CC</sub> = 4.5 V	-	21	37	-	46	-	56	ns
		$V_{CC} = 5.0 \text{ V}; C_L = 15 \text{ pF}$	-	17	-	-	-	-	-	ns
		V <sub>CC</sub> = 6.0 V	-	17	31	-	39	-	48	ns
		LE to Qn; see Figure 8 [2]								
		V <sub>CC</sub> = 2.0 V	-	55	170	-	215	-	255	ns
		V <sub>CC</sub> = 4.5 V	-	20	34	-	43	-	51	ns
		$V_{CC} = 5.0 \text{ V}; C_L = 15 \text{ pF}$	-	17	-	-	-	-	-	ns
		V <sub>CC</sub> = 6.0 V	-	16	29	-	37	-	43	ns
t <sub>PHL</sub>	HIGH to LOW	MR to Qn; see Figure 9								
	propagation	V <sub>CC</sub> = 2.0 V	-	50	155	-	195	-	235	ns
	delay	V <sub>CC</sub> = 4.5 V	-	18	31	-	39	-	47	ns
		$V_{CC} = 5.0 \text{ V}; C_L = 15 \text{ pF}$	-	15	-	-	-	-	-	ns
		V <sub>CC</sub> = 6.0 V	-	14	26	-	33	-	40	ns
t <sub>t</sub>	transition time	see Figure 8 [3]								
		V <sub>CC</sub> = 2.0 V	-	19	75	-	95	-	119	ns
		V <sub>CC</sub> = 4.5 V	-	7	15	-	19	-	22	ns
		V <sub>CC</sub> = 6.0 V	-	6	13	-	16	-	19	ns
t <sub>W</sub>	pulse width	LE HIGH or LOW; see Figure 8								
		V <sub>CC</sub> = 2.0 V	70	17	-	90	-	105	-	ns
		V <sub>CC</sub> = 4.5 V	14	6	-	18	-	21	-	ns
		V <sub>CC</sub> = 6.0 V	12	5	-	15	-	18	-	ns
		MR LOW; see Figure 9								<u> </u>
		V <sub>CC</sub> = 2.0 V	70	17	-	90	-	105	-	ns
		V <sub>CC</sub> = 4.5 V	14	6	-	18	-	21	-	ns
		V <sub>CC</sub> = 6.0 V	12	5	_	15	-	18	-	ns

 Table 8.
 Dynamic characteristics ...continued

Voltages are referenced to GND (ground = 0 V); for test circuit see <u>Figure 12</u>.

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 <sub>su</sub>	set-up time	D, An to LE; see <u>Figure 10</u> and <u>Figure 11</u>								
		$V_{CC} = 2.0 \text{ V}$	80	19	-	100	-	120	-	ns
		$V_{CC} = 4.5 \text{ V}$	16	7	-	20	-	24	-	ns
		$V_{CC} = 6.0 \text{ V}$	14	6	-	17	-	20	-	ns
t <sub>h</sub>	hold time	D to LE; see Figure 10 and Figure 11								
		V <sub>CC</sub> = 2.0 V	0	-19	-	0	-	0	-	ns
		V <sub>CC</sub> = 4.5 V	0	-6	-	0	-	0	-	ns
		V <sub>CC</sub> = 6.0 V	0	-5	-	0	-	0	-	ns
		An to LE; see Figure 10 and Figure 11								
		V <sub>CC</sub> = 2.0 V	2	-11	-	2	-	2	-	ns
		V <sub>CC</sub> = 4.5 V	2	-4	-	2	-	2	-	ns
		V <sub>CC</sub> = 6.0 V	2	-3	-	2	-	2	-	ns
C <sub>PD</sub>	power dissipation capacitance	$f_i = 1 \text{ MHz};$ [4] $V_I = \text{GND to } V_{CC}$	-	19	-	-	-	-	-	pF
74HCT2	59					I	I	I		
t <sub>pd</sub>	propagation	D to Qn; see Figure 6 [2]								
	delay	V <sub>CC</sub> = 4.5 V	-	23	39	-	49	-	59	ns
		$V_{CC} = 5.0 \text{ V}; C_L = 15 \text{ pF}$	-	20	-	-	-	-	-	ns
		An to Qn; see Figure 7 [2]								
		V <sub>CC</sub> = 4.5 V	-	25	41		51		62	ns
		$V_{CC} = 5.0 \text{ V}; C_L = 15 \text{ pF}$	-	20	-	-	-	-	-	ns
		LE to Qn; see Figure 8 [2]								
		V <sub>CC</sub> = 4.5 V	-	22	38	-	48	-	57	ns
		$V_{CC} = 5.0 \text{ V}; C_L = 15 \text{ pF}$	-	20	-	-	-	-	-	ns
t <sub>PHL</sub>	HIGH to LOW	MR to Qn; see Figure 9								
	propagation	V <sub>CC</sub> = 4.5 V	-	23	39	-	49	-	59	ns
	delay	$V_{CC} = 5.0 \text{ V}; C_L = 15 \text{ pF}$	-	20	-	-	-	-	-	ns
t <sub>t</sub>	transition time	see Figure 8 [3]								
		V <sub>CC</sub> = 4.5 V	-	7	15	-	19	-	22	ns
t <sub>W</sub>	pulse width	LE HIGH or LOW; see Figure 8								
		V <sub>CC</sub> = 4.5 V	19	11	-	24	-	29	-	ns
		MR LOW; see Figure 9								
		V <sub>CC</sub> = 4.5 V	18	10	-	23	-	27	-	ns

Table 8. Dynamic characteristics ... continued

Voltages are referenced to GND (ground = 0 V); for test circuit see Figure 12.

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 <sub>su</sub>	set-up time	D, An to LE; see Figure 10 and Figure 11								
		V <sub>CC</sub> = 4.5 V	17	10	-	21	-	26	-	ns
t <sub>h</sub>	hold time	D to LE; see Figure 10 and Figure 11								
		V <sub>CC</sub> = 4.5 V	0	-8	-	0	-	0	-	ns
		An to LE; see Figure 10 and Figure 11								
		V <sub>CC</sub> = 4.5 V	0	-4	-	0	-	0	-	ns
C <sub>PD</sub>	power dissipation capacitance	$ f_i = 1 \text{ MHz}; $ $V_I = \text{GND to } V_{CC} - 1.5 \text{ V} $	-	19	-	-	-	-	-	pF

- [1] Typical values are measured at nominal supply voltage ( $V_{CC} = 3.3 \text{ V}$  and  $V_{CC} = 5.0 \text{ V}$ ).
- [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  $\mu W$ ).

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

 $f_i$  = input frequency in MHz;

 $f_o$  = output frequency in MHz;

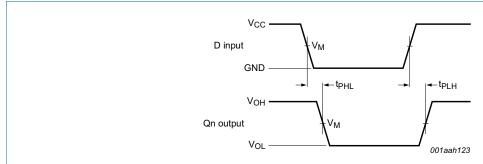
C<sub>L</sub> = output load capacitance in pF;

 $V_{CC}$  = supply voltage in V;

N = number of inputs switching;

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

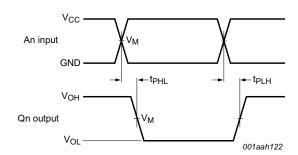
#### 11. Waveforms



Measurement points are given in Table 9.

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

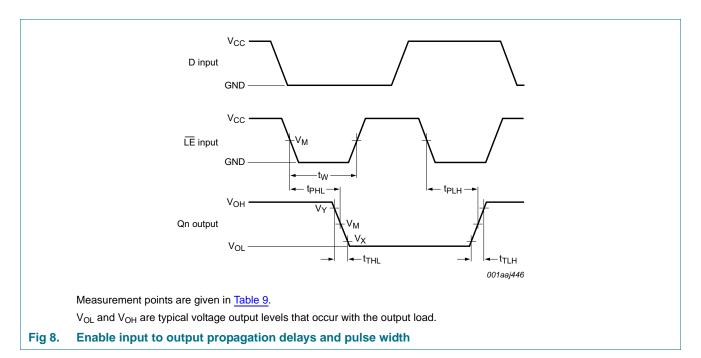
Fig 6. Data input to output propagation delays

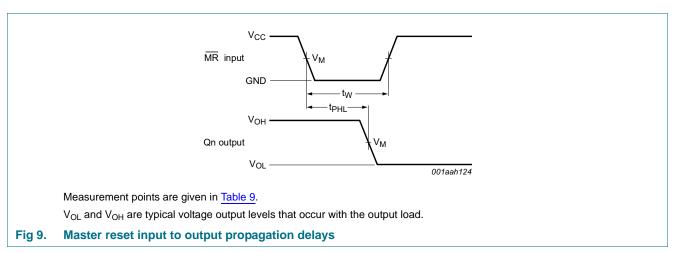


Measurement points are given in Table 9.

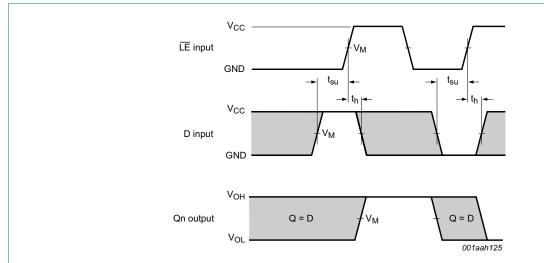
 $V_{OL}$  and  $V_{OH}$  are typical voltage output levels that occur with the output load.

Fig 7. Address input to output propagation delays





74HC\_HCT259

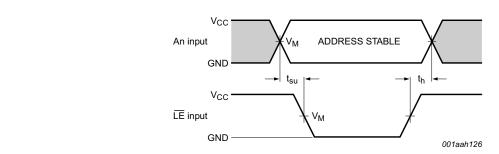


Measurement points are given in Table 9.

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 10. Data input to latch enable input set-up and hold times



Measurement points are given in Table 9.

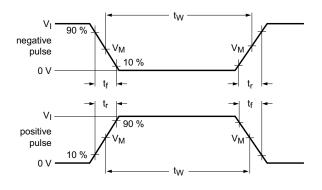
The shaded areas indicate when the input is permitted to change for predictable output performance.

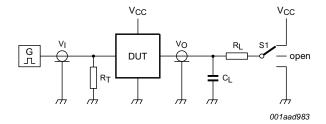
V<sub>OL</sub> and V<sub>OH</sub> are typical voltage output levels that occur with the output load.

Fig 11. Address input to latch enable input set-up and hold times

Table 9. Measurement points

Туре	Input	Output		
	V <sub>M</sub>	V <sub>M</sub>	V <sub>X</sub>	V <sub>Y</sub>
74HC259	0.5V <sub>CC</sub>	0.5V <sub>CC</sub>	0.1V <sub>CC</sub>	0.9V <sub>CC</sub>
74HCT259	1.3 V	1.3 V	0.1V <sub>CC</sub>	0.9V <sub>CC</sub>





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<sub>L</sub> = Load resistance.

S1 = Test selection switch

Fig 12. Test circuit for measuring switching times

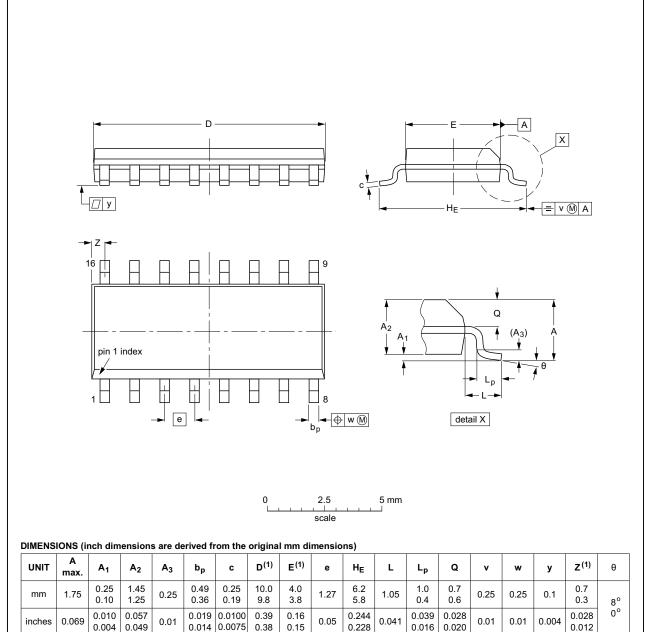
Table 10. Test data

Туре	Input		Load	S1 position	
	VI	t <sub>r</sub> , t <sub>f</sub>	C <sub>L</sub>	$R_L$	t <sub>PHL</sub> , t <sub>PLH</sub>
74HC259	V <sub>CC</sub>	6 ns	15 pF, 50 pF	1 kΩ	open
74HCT259	3 V	6 ns	15 pF, 50 pF	1 kΩ	open

## 12. Package outline

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

SOT109-1



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

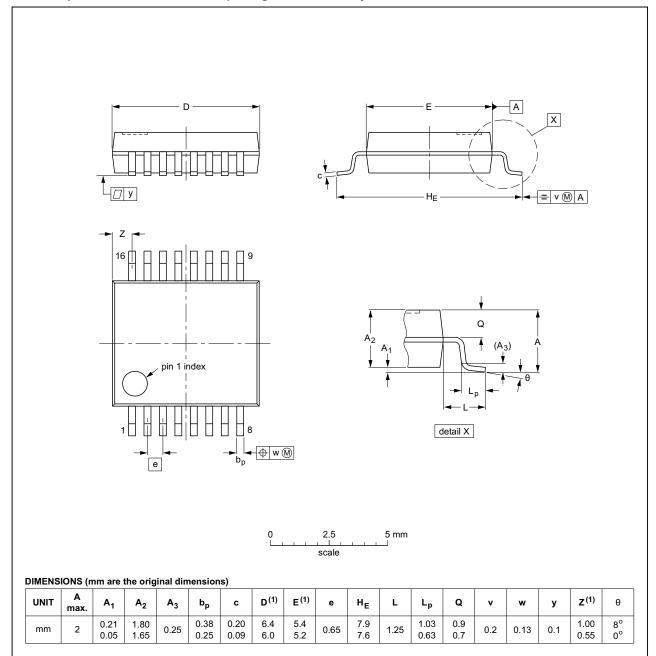
OUTLINE	REFERENCES				EUROPEAN	ISSUE DATE
VERSION	IEC	JEDEC	JEITA		PROJECTION	ISSUE DATE
SOT109-1	076E07	MS-012				<del>99-12-27</del> 03-02-19

Fig 13. Package outline SOT109-1 (SO16)

74HC\_HCT259

#### SSOP16: plastic shrink small outline package; 16 leads; body width 5.3 mm

SOT338-1



#### Note

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

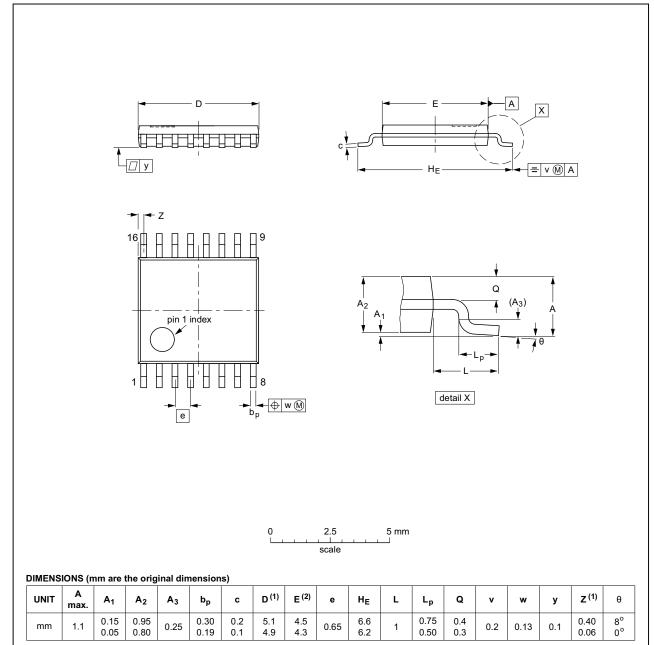
OUTLINE		REFERENCES				EUROPEAN	ISSUE DATE
VERSION	ION	IEC	JEDEC	JEITA		PROJECTION	ISSUE DATE
SOT3	38-1		MO-150				<del>99-12-27</del> 03-02-19

Fig 14. Package outline SOT338-1 (SSOP16)

74HC\_HCT259

#### 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		REFERENCES				EUROPEAN	ISSUE DATE
	VERSION	IEC	JEDEC	JEITA		PROJECTION	ISSUE DATE
	SOT403-1		MO-153				<del>99-12-27</del> 03-02-18

Fig 15. Package outline SOT403-1 (TSSOP16)

74HC\_HCT259

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

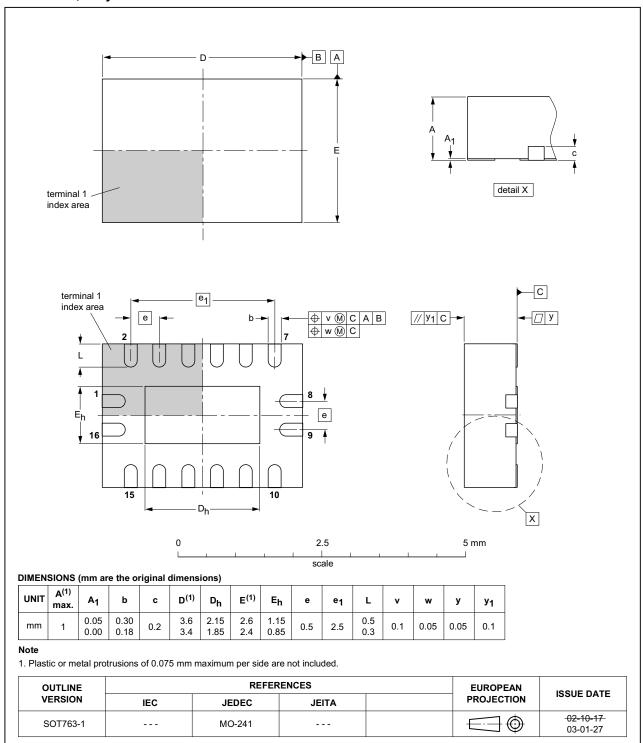


Fig 16. Package outline SOT763-1 (DHVQFN16)

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## 13. Abbreviations

#### Table 11. 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

## 14. Revision history

#### Table 12. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes		
74HC_HCT259 v.6	20160202	Product data sheet	-	74HC_HCT259 v.5		
Modifications:	Type numbers	s 74HC259N and 74HCT259N	(SOT38-4) removed	d.		
74HC_HCT259 v.5	20120807	Product data sheet	-	74HC_HCT259 v.4		
Modifications:	of NXP.	2.1.2.1				
	<ul> <li>Legal texts na</li> </ul>	ave been adapted to the new c	ompany name wner	e appropriate.		
74HC_HCT259 v.4	20090225	Product data sheet	-	74HC_HCT259 v.3		
Modifications:	Added type no	<ul> <li>Added type number 74HC259N and 74HCT259N (DIP16 package)</li> </ul>				
	Added type no	<ul> <li>Added type number 74HC259DB and 74HCT259DB (SSOP16 package)</li> </ul>				
74HC_HCT259 v.3	20090108	Product data sheet	-	74HC_HCT259_CNV v.2		
74HC_HCT259_CNV v.2	19970828	Product specification	-	-		

## 15. Legal information

#### 15.1 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 <a href="http://www.nexperia.com">http://www.nexperia.com</a>.

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