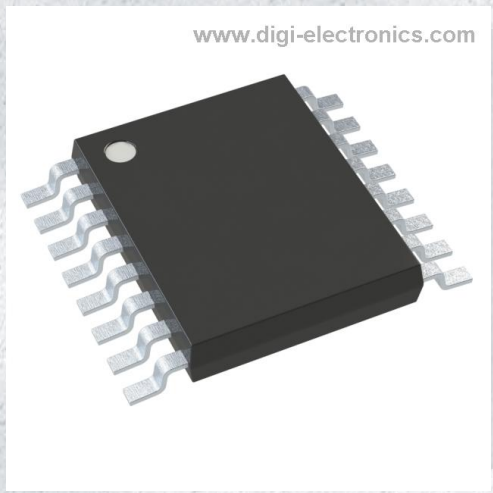
74HCT259PW,118 Datasheet



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DiGi Electronics Part Number	74HCT259PW,118-DG
Manufacturer	Nexperia USA Inc.
Manufacturer Product Number	74HCT259PW,118
Description	IC 8BIT ADDRESSBL LATCH 16TSSOP
Detailed Description	D-Type, Addressable 1 Channel 1:8 IC Standard 16 -TSSOP

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
74HCT259PW,118	Nexperia USA Inc.
Series:	Product Status:
74HCT	Active
Logic Type:	Circuit:
D-Type, Addressable	1:8
Output Type:	Voltage - Supply:
Standard	4.5V ~ 5.5V
Independent Circuits:	Delay Time - Propagation:
1	20ns
Current - Output High, Low:	Operating Temperature:
4mA, 4mA	-40°C ~ 125°C
Mounting Type:	Package / Case:
Surface Mount	16-TSSOP (0.173", 4.40mm Width)
Supplier Device Package:	Base Product Number:
16-TSSOP	74HCT259

Environmental & Export classification

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

74HC259; 74HCT259

8-bit addressable latch

Rev. 9 — 11 March 2024 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

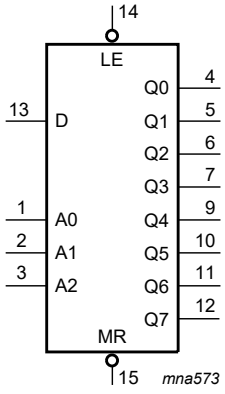


Fig. 1. Logic symbol

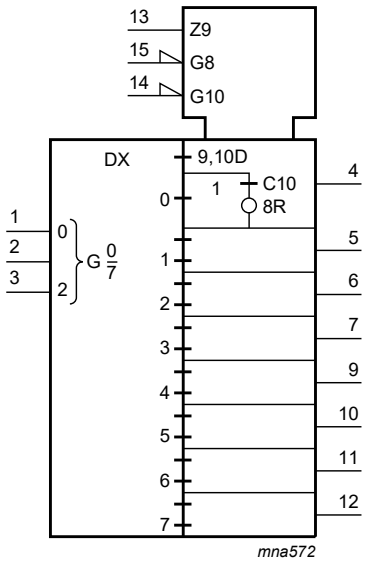


Fig. 2. IEC logic symbol

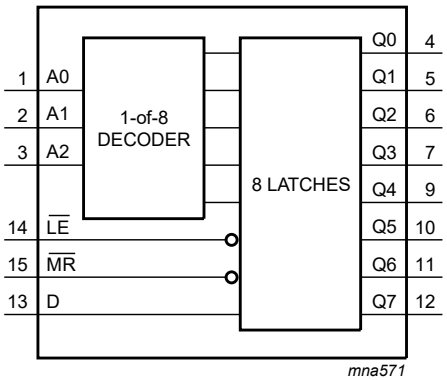
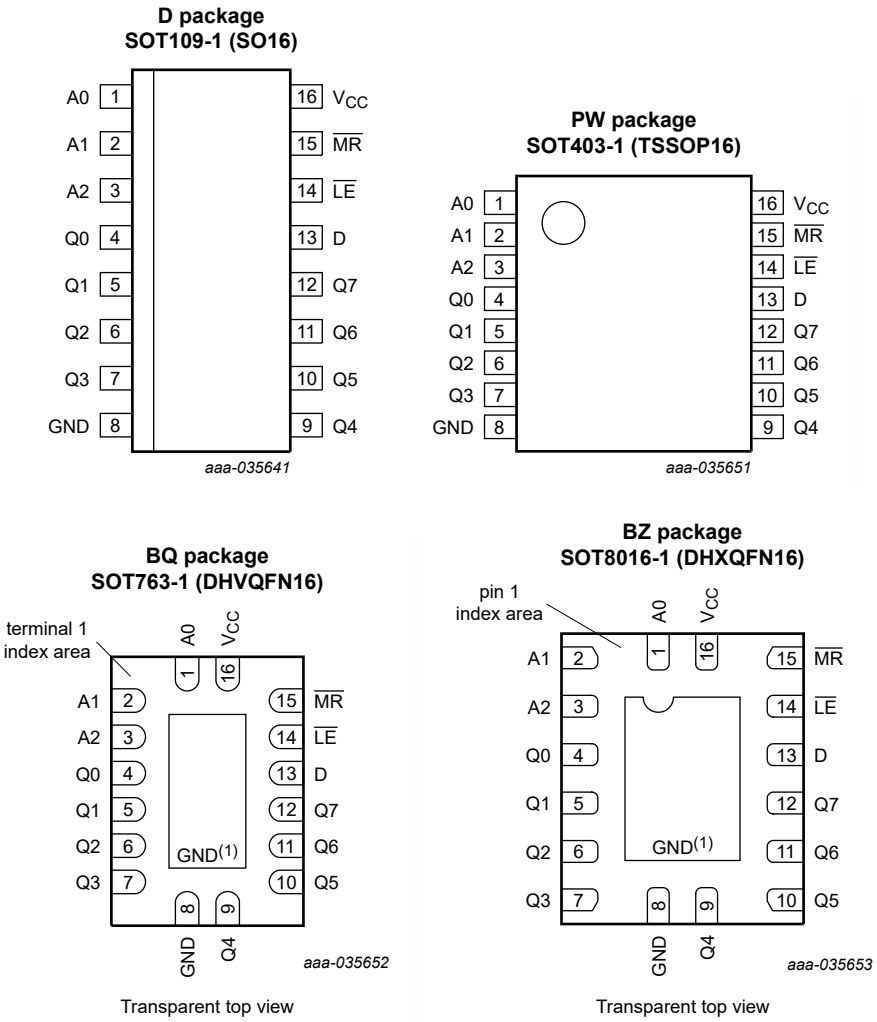


Fig. 3. Functional diagram

5. Pinning information

5.1. Pinning



Transparent top view

Transparent top view

(1) This is not a ground pin. There is no electrical or mechanical requirement to solder the pad. In case soldered, the solder land should remain floating or connected to GND.

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
$\overline{LE}$	14	latch enable input (active LOW)
$\overline{MR}$	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 or LOW data one set-up time prior to the LOW-to-HIGH $\overline{LE}$ 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						Output							
	$\overline{MR}$	$\overline{LE}$	D	A0	A1	A2	Q0	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Reset (clear)	L	H	X	X	X	X	L	L	L	L	L	L	L	L
Demultiplexer (active HIGH 8-channel) decoder (when D = H)	L	L	d	L	L	L	Q = d	L	L	L	L	L	L	L
	L	L	d	H	L	L	L	Q = d	L	L	L	L	L	L
	L	L	d	L	H	L	L	L	Q = d	L	L	L	L	L
	L	L	d	H	H	L	L	L	L	Q = d	L	L	L	L
	L	L	d	L	L	H	L	L	L	L	Q = d	L	L	L
	L	L	d	H	L	H	L	L	L	L	L	Q = d	L	L
	L	L	d	L	H	H	L	L	L	L	L	L	Q = d	L
	L	L	d	H	H	H	L	L	L	L	L	L	L	Q = d
Memory (no action)	H	H	X	X	X	X	q_0	q_1	q_2	q_3	q_4	q_5	q_6	q_7
Addressable latch	H	L	d	L	L	L	Q = d	q_1	q_2	q_3	q_4	q_5	q_6	q_7
	H	L	d	H	L	L	q_0	Q = d	q_2	q_3	q_4	q_5	q_6	q_7
	H	L	d	L	H	L	q_0	q_1	Q = d	q_3	q_4	q_5	q_6	q_7
	H	L	d	H	H	L	q_0	q_1	q_2	Q = d	q_4	q_5	q_6	q_7
	H	L	d	L	L	H	q_0	q_1	q_2	q_3	Q = d	q_5	q_6	q_7
	H	L	d	H	L	H	q_0	q_1	q_2	q_3	q_4	Q = d	q_6	q_7
	H	L	d	L	H	H	q_0	q_1	q_2	q_3	q_4	q_5	Q = d	q_7
	H	L	d	H	H	H	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.

$\overline{LE}$	$\overline{MR}$	Mode
L	H	Addressable latch mode
H	H	Memory mode
L	L	Demultiplexer mode
H	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	$V_I < -0.5$ V or $V_I > V_{CC} + 0.5$ 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		-	+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) [2] SOT403-1 (TSSOP16) [3] SOT763-1 (DHVQFN16) [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: P_{tot} derates linearly with 8.5 mW/K above 91 °C.
[4] For SOT763-1 (DHVQFN16) package: P_{tot} 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			74HCT259			Unit
			Min	Typ	Max	Min	Typ	Max	
V_{CC}	supply voltage		2.0	5.0	6.0	4.5	5.0	5.5	V
V_I	input voltage		0	-	V_{CC}	0	-	V_{CC}	V
V_O	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	Typ	Max	Min	Max	Min	Max	
74HC259										
V_{IH}	HIGH-level input voltage	V_{CC} = 2.0 V	1.5	1.2	-	1.5	-	1.5	-	V
		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

Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ	Max	Min	Max	Min	Max	
V_{IL}	LOW-level input voltage	V_{CC} = 2.0 V	-	0.8	0.5	-	0.5	-	0.5	V
		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 output voltage	V_I = V_{IH} or V_{IL}								
		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_O = -5.2 mA; V_{CC} = 6.0 V	5.48	5.81	-	5.34	-	5.2	-	V
V_{OL}	LOW-level output voltage	V_I = V_{IH} or V_{IL}								
		I_O = 20 μA; 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 μA; V_{CC} = 6.0 V	-	0	0.1	-	0.1	-	0.1	V
		I_O = 4.0 mA; V_{CC} = 4.5 V	-	0.15	0.26	-	0.33	-	0.4	V
		I_O = 5.2 mA; V_{CC} = 6.0 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 V	-	-	±0.1	-	±1	-	±1	μA
I_{CC}	supply current	V_I = V_{CC} or GND; I_O = 0 A; V_{CC} = 6.0 V	-	-	8.0	-	80	-	160	μA
C_I	input capacitance		-	3.5	-	-	-	-	-	pF
74HCT259										
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 output voltage	V_I = V_{IH} or V_{IL}; V_{CC} = 4.5 V								
		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 output voltage	V_I = V_{IH} or V_{IL}; V_{CC} = 4.5 V								
		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 V	-	-	±0.1	-	±1	-	±1	μA
I_{CC}	supply current	V_I = V_{CC} or GND; I_O = 0 A; V_{CC} = 5.5 V	-	-	8.0	-	80	-	160	μA
ΔI_{CC}	additional supply current	V_I = V_{CC} - 2.1 V; I_O = 0 A; other inputs at V_{CC} or GND; V_{CC} = 4.5 V to 5.5 V								
		pin An, $\overline{LE}$	-	150	540	-	675	-	735	μA
		pin D	-	120	432	-	540	-	588	μA
		pin $\overline{MR}$	-	75	270	-	338	-	368	μA
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.

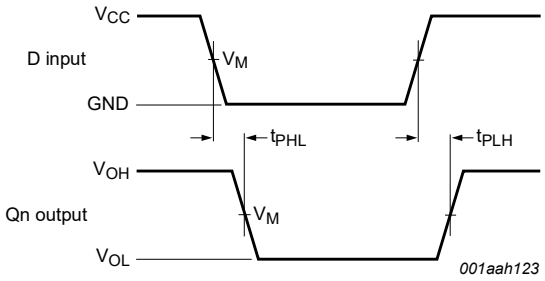
Symbol	Parameter	Conditions	25 °C			-40 °C to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ[1]	Max	Min	Max	Min	Max	
74HC259										
t_{pd}	propagation delay	D to Qn; see Fig. 4 [2]								
		V_{CC} = 2.0 V	-	58	185	-	230	-	280	ns
		V_{CC} = 4.5 V	-	21	37	-	46	-	56	ns
		V_{CC} = 5.0 V; C_L = 15 pF	-	18	-	-	-	-	-	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
		$\overline{LE}$ 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 propagation delay	$\overline{MR}$ to Qn; see Fig. 7								
		V_{CC} = 2.0 V	-	50	155	-	195	-	235	ns
		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 Fig. 6 [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	$\overline{LE}$ 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
		$\overline{MR}$ 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 $\overline{LE}$; 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 to +85 °C		-40 °C to +125 °C		Unit
			Min	Typ[1]	Max	Min	Max	Min	Max	
t_h	hold time	D to $\overline{LE}$; 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 $\overline{LE}$; 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 MHz; V_I = GND to V_{CC} [4]	-	19	-	-	-	-	-	pF
74HCT259										
t_{pd}	propagation delay	D to Qn; see Fig. 4 [2]								
		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
		$\overline{LE}$ 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 propagation delay	$\overline{MR}$ to Qn; see Fig. 7								
		V_{CC} = 4.5 V	-	23	39	-	49	-	59	ns
		V_{CC} = 5.0 V; C_L = 15 pF	-	20	-	-	-	-	-	ns
t_t	transition time	see Fig. 6 [3]								
		V_{CC} = 4.5 V	-	7	15	-	19	-	22	ns
t_W	pulse width	$\overline{LE}$ HIGH or LOW; see Fig. 6								
		V_{CC} = 4.5 V	19	11	-	24	-	29	-	ns
		$\overline{MR}$ LOW; see Fig. 7								
		V_{CC} = 4.5 V	18	10	-	23	-	27	-	ns
t_{su}	set-up time	D, An to $\overline{LE}$; see Fig. 8 and Fig. 9								
		V_{CC} = 4.5 V	17	10	-	21	-	26	-	ns
t_h	hold time	D to $\overline{LE}$; see Fig. 8 and Fig. 9								
		V_{CC} = 4.5 V	0	-8	-	0	-	0	-	ns
		An to $\overline{LE}$; 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; V_I = GND to V_{CC} - 1.5 V [4]	-	19	-	-	-	-	-	pF

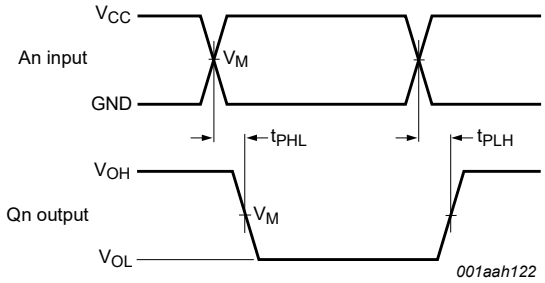
[1] Typical values are measured at nominal supply voltage (V_{CC} = 3.3 V and V_{CC} = 5.0 V).
[2] t_{pd} is the same as t_{PLH} and t_{PHL}.
[3] t_t is the same as t_{THL} and t_{TLH}.
[4] C_{PD} is used to determine the dynamic power dissipation (P_D in µW).
$P_D = C_{PD} \times V_{CC}^2 \times f_i \times N + \Sigma(C_L \times V_{CC}^2 \times f_o)$ 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;
$\Sigma(C_L \times V_{CC}^2 \times f_o)$ = sum of the outputs.

10.1. Waveforms and test circuit



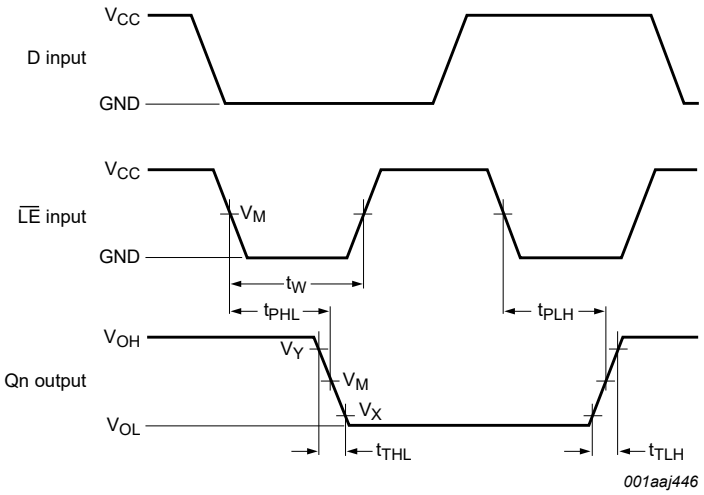
Measurement points are given in Table 9.
V_{OL} and V_{OH} are typical voltage output levels that occur with the output load.

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.

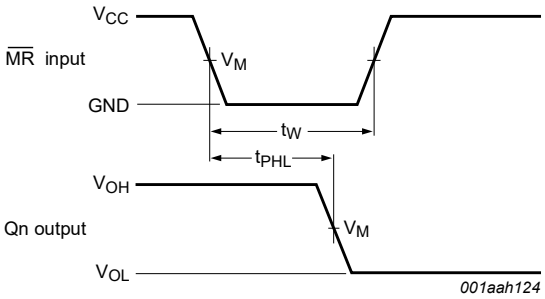
Fig. 5. Address input to output propagation delays



Measurement points are given in Table 9.

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

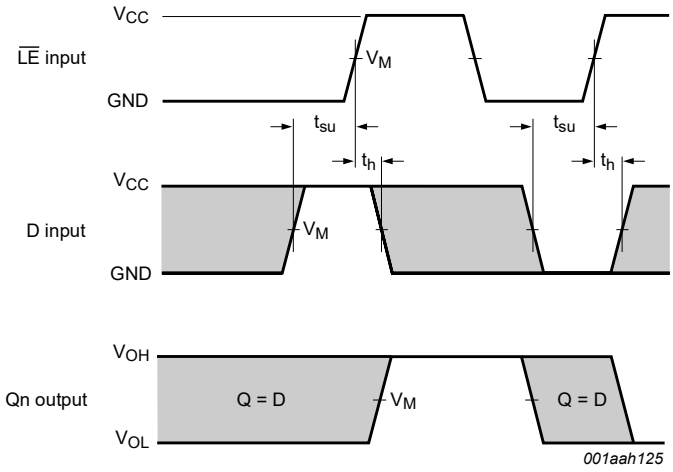
Fig. 6. Enable input to output propagation delays and pulse width



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. Master reset input to output propagation delays

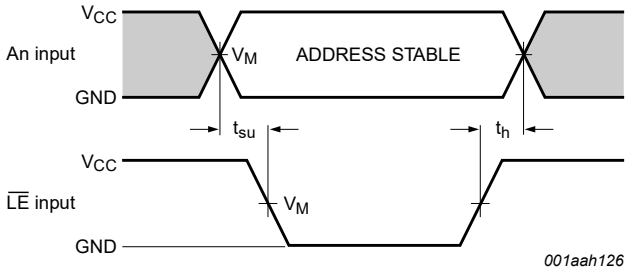


Measurement points are given in Table 9.

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



Measurement points are given in Table 9.

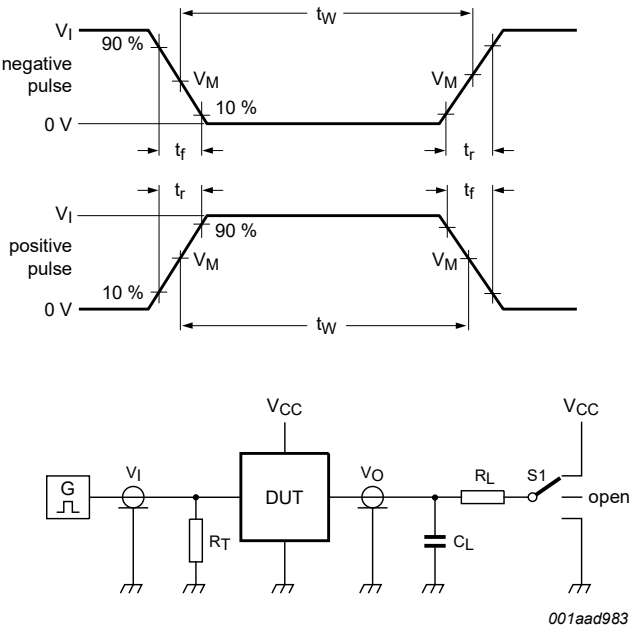
The shaded areas indicate when the input is permitted to change for predictable output performance.

V_{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

Type	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.

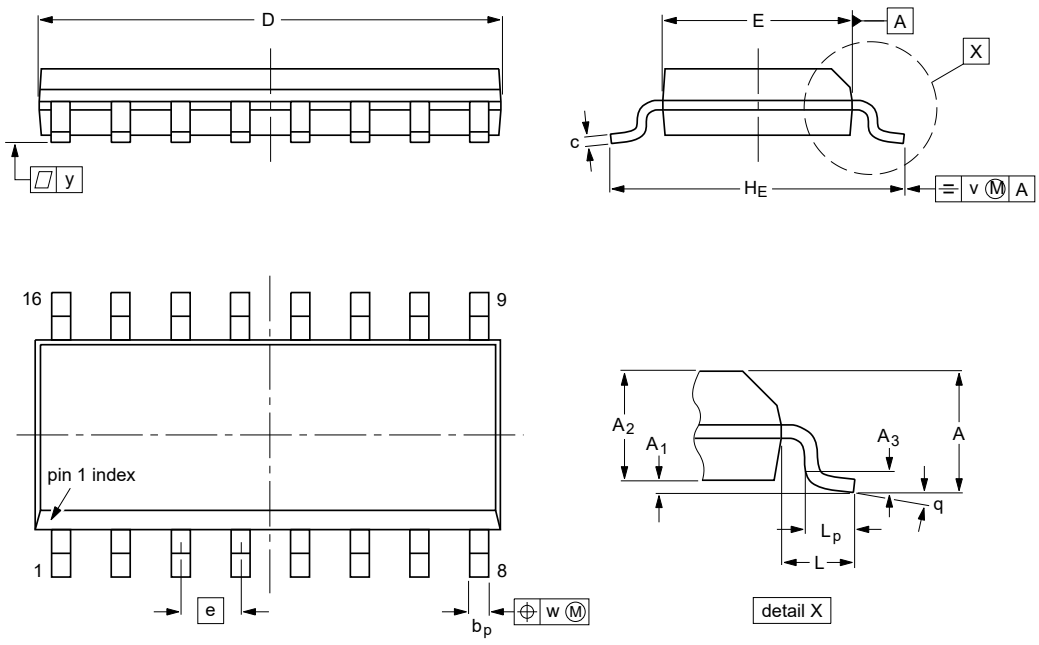
Fig. 10. Test circuit for measuring switching times

Table 10. Test data

Type	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

11. Package outline

SO16: plastic small outline package; 16 leads; body width 3.9 mm **SOT109-1**



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

Unit		A	A_1	A_2	A_3	b_p	c	$D^{(1)}$	$E^{(1)}$	e	H_E	L	L_p	v	w	y	θ
mm	max	1.75	0.25			0.51	0.25	10.0	4.0		6.2		1.27				8°
	nom				0.25					1.27		1.05		0.2	0.25	0.1	
	min		0.10	1.25		0.31	0.10	9.8	3.8		5.8		0.4				0°
inches	max	0.069	0.010			0.020	0.010	0.394	0.16		0.244		0.05				8°
	nom				0.01					0.05		0.041		0.008	0.01	0.004	
	min		0.004	0.049		0.012	0.004	0.386	0.15		0.228		0.016				0°

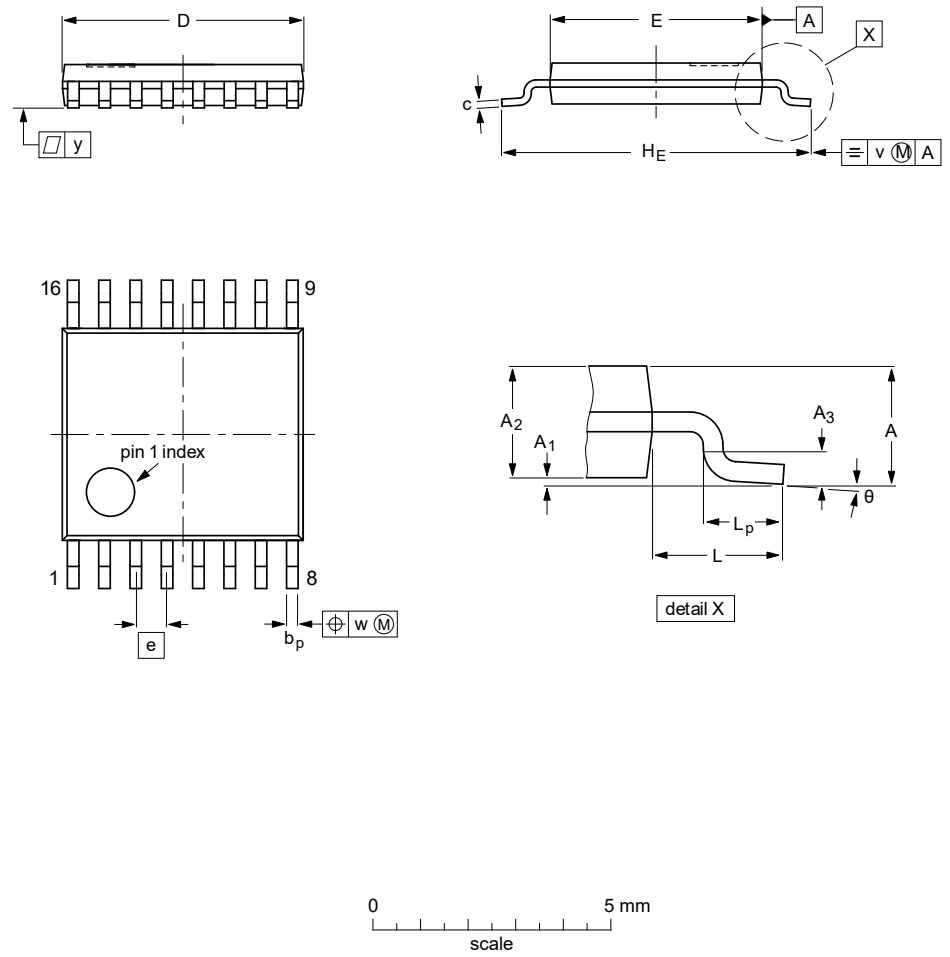
Note
1. Plastic or metal protrusions of 0.15 mm (0.006 inch) maximum per side are not included.

sot109-1_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOT109-1		MS-012				~~03-02-19~~ 23-10-27

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

TSSOP16: plastic thin shrink small outline package; 16 leads; body width 4.4 mm **SOT403-1**



Dimensions (mm are the original dimensions)

Unit		A	A_1	A_2	A_3	b_p	c	$D^{(1)}$	$E^{(2)}$	e	H_E	L	L_p	v	w	y	θ
mm	max	1.20	0.15	1.05		0.30	0.2	5.1	4.5		6.6		0.75				8°
	nom				0.25					0.65		1		0.2	0.1	0.1	
	min		0.05	0.80		0.19	0.09	4.9	4.3		6.2		0.45				0°

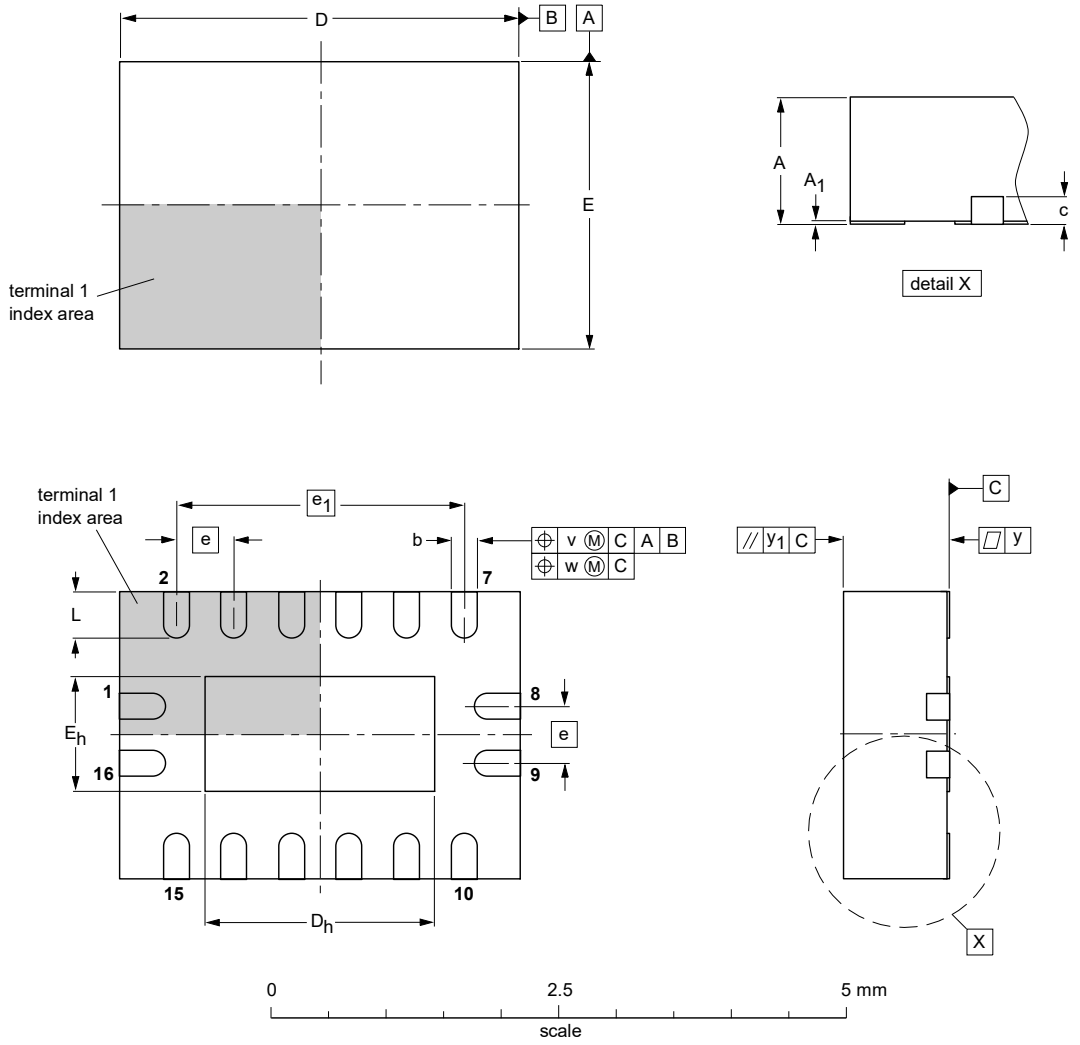
Note
1. Plastic or metal protrusions of 0.15 mm maximum per side are not included.
2. Plastic interlead protrusions of 0.25 mm maximum per side are not included.

sot403-1_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOT403-1		MO-153				~~03-02-18~~ 23-10-27

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**



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	3.6 3.4	2.15 1.85	2.6 2.4	1.15 0.85	0.5	2.5	0.5 0.3	0.1	0.05	0.05	0.1

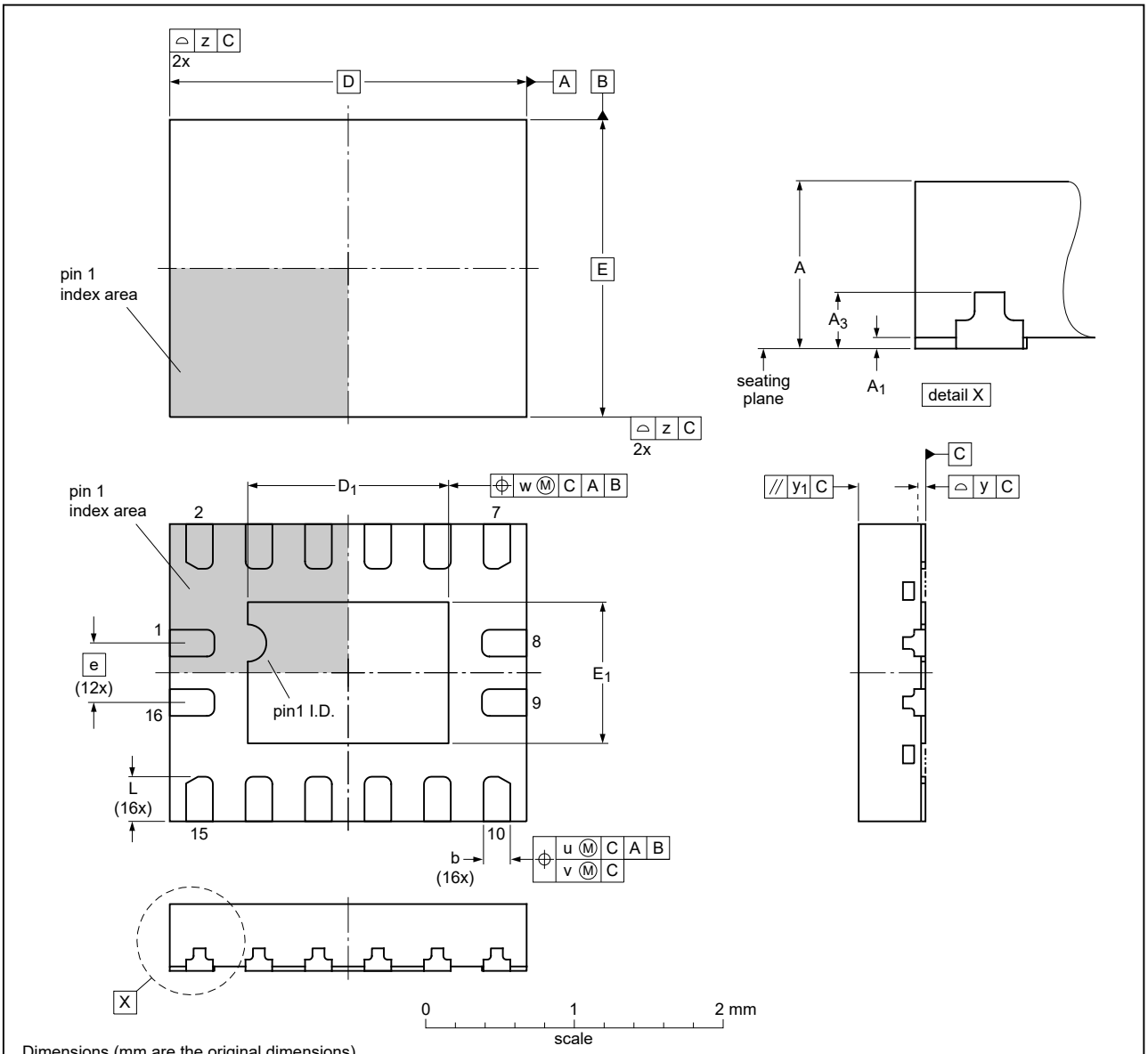
Note

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			
SOT763-1	- - -	MO-241	- - -			~~02-10-17~~ 03-01-27

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**



Dimensions (mm are the original dimensions)

Unit	A	A_1	A_3	b	D	D_1	E	E_1	e	k	L	u	v	w	y	y_1	z
max	0.48	0.05	0.15 (typ)	0.23	2.4	1.40	2.0	1.00	0.4	0.2	0.35	0.1	0.05	0.1	0.05	0.05	0.05
mm nom	0.45	0.02		0.18		1.35		0.95			0.30						
min	0.42	0.00		0.13		1.30		0.90			0.25						

sot8016-1_po

Outline version	References				European projection	Issue date
	IEC	JEDEC	JEITA			
SOT8016-1						~~20-09-18~~ 20-09-22

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

12. 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
TTL	Transistor-Transistor Logic

13. Revision history

Table 12. Revision history

Document ID	Release date	Data sheet status	Change notice	Supersedes
74HC_HCT259 v.9	20240311	Product data sheet	-	74HC_HCT259 v.8
Modifications:	• Fig. 11, Fig. 12: Aligned SO and TSSOP package outline drawings to JEDEC MS-012 and MO-153. • Section 2: ESD specification updated according to the latest JEDEC standard.			
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 P_{tot} 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.

[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 https://www.nexperia.com.

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