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Team Nexperia

### **INTEGRATED CIRCUITS**

# DATA SHEET

# 74ALVT16373

2.5V/3.3V 16-bit transparent D-type latch (3-State)

Product specification Supersedes data of 1998 Feb 13 IC23 Data Handbook





### 2.5V/3.3V 16-bit transparent D-type latch (3-State)

### 74ALVT16373

#### **FEATURES**

- 16-bit transparent latch
- 5V I/O compatibile
- 3-State buffers
- Output capability: +64mA/-32mA
- TTL input and output switching levels
- Input and output interface capability to systems at 5V supply
- Bus-hold data inputs eliminate the need for external pull-up resistors to hold unused inputs
- Live insertion/extraction permitted
- Power-up reset
- Power-up 3-State
- No bus current loading when output is tied to 5V bus
- Latch-up protection exceeds 500mA per JEDEC Std 17
- ESD protection exceeds 2000V per MIL STD 883 Method 3015 and 200V per Machine Model

#### **DESCRIPTION**

The 74ALVT16373 is a high-performance BiCMOS product designed for  $V_{CC}$  operation at 2.5V or 3.3V with I/O compatibility up to 5V.

This device is a 16-bit transparent D-type latch with non-inverting 3-State bus compatible outputs. The device can be used as two 8-bit latches or one 16-bit latch. When latch enable (LE) input is High, the Q outputs follow the data (D) inputs. When latch enable is taken Low, the Q outputs are latched at the levels of the D inputs one setup time prior to the High-to-Low transition.

### **QUICK REFERENCE DATA**

SYMBOL	PARAMETER	CONDITIONS	TYPI	UNIT	
STWBOL	PARAMETER	T <sub>amb</sub> = 25°C	2.5V	3.3V	UNIT
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation delay nDx to nQx	C <sub>L</sub> = 50pF	2.0 2.4	1.6 1.8	ns
C <sub>IN</sub>	Input capacitance	$V_I = 0V$ or $V_{CC}$	3	3	pF
C <sub>OUT</sub>	Output capacitance	Outputs disabled; V <sub>O</sub> = 0V or 3.0V	9	9	pF
I <sub>CCZ</sub>	Total supply current	Outputs disabled	40	70	μΑ

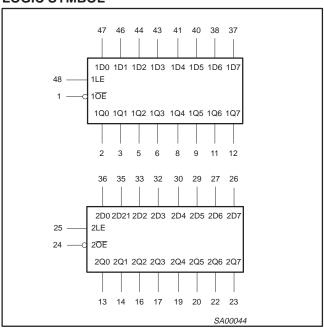
### ORDERING INFORMATION

PACKAGES	TEMPERATURE RANGE	OUTSIDE NORTH AMERICA	NORTH AMERICA	DWG NUMBER
48-Pin Plastic SSOP Type III	-40°C to +85°C	74ALVT16373 DL	AV16373 DL	SOT370-1
48-Pin Plastic TSSOP Type II	-40°C to +85°C	74ALVT16373 DGG	AV16373 DGG	SOT362-1

### 2.5V/3.3V 16-bit transparent D-type latch (3-State)

### 74ALVT16373

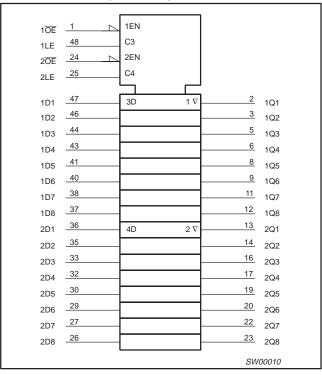
### **LOGIC SYMBOL**



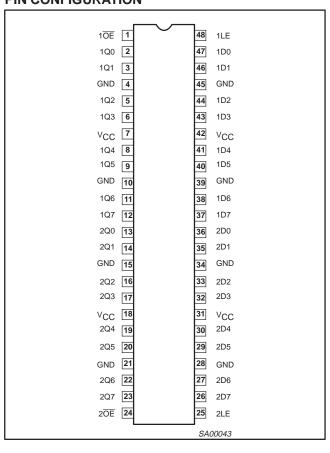
### **PIN DESCRIPTION**

PIN NUMBER	SYMBOL	FUNCTION
47, 46, 44, 43, 41, 40, 38, 37, 36, 35, 33, 32, 30, 29, 27, 26	1D0 – 1D7 2D0 – 2D7	Data inputs
2, 3, 5, 6, 8, 9, 11, 12, 13, 14, 16, 17, 19, 20, 22, 23	1Q0 – 1Q7 2Q0 – 2Q7	Data outputs
1, 24	1 <u>OE</u> , 2 <u>OE</u>	Output enable inputs (active-Low)
48, 25	1LE, 2LE	Enable inputs (active-High)
4, 10, 15, 21, 28, 34, 39, 45	GND	Ground (0V)
7, 18, 31, 42	V <sub>CC</sub>	Positive supply voltage

### LOGIC SYMBOL (IEEE/IEC)



### **PIN CONFIGURATION**

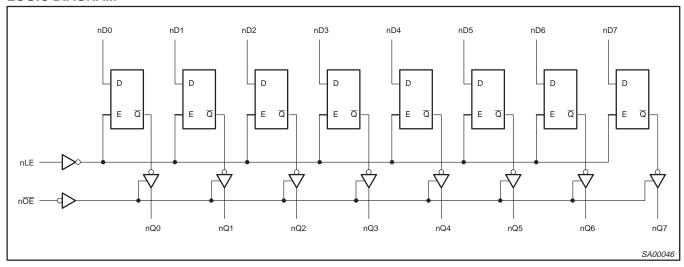


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# 2.5V/3.3V 16-bit transparent D-type latch (3-State)

74ALVT16373

### **LOGIC DIAGRAM**



### **FUNCTION TABLE**

1 011011	IADLL				
	INPUTS		INTERNAL	OUTPUTS	OPERATING MODE
nOE	nLE	nDx	REGISTER	nQ0 – nQ7	OFERATING MODE
L L	H H	L H	L H	L H	Enable and read register
L L	$\downarrow$	l h	L H	L H	Latch and read register
L	L	Х	NC	NC	Hold
H H	L H	X nDx	NC nDx	Z Z	Disable outputs

High voltage level
High voltage level one set-up time prior to the High-to-Low E transition

Low voltage level one set-up time prior to the High-to-Low E transition

NC= No change

X = Don't care Z = High imped  $\downarrow = High-to-Lov$ High impedance "off" state

High-to-Low E transition

### 2.5V/3.3V 16-bit transparent D-type latch (3-State)

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### ABSOLUTE MAXIMUM RATINGS1, 2

SYMBOL	PARAMETER	CONDITIONS	RATING	UNIT
V <sub>CC</sub>	DC supply voltage		-0.5 to +4.6	V
I <sub>IK</sub>	DC input diode current	V <sub>1</sub> < 0	-50	mA
V <sub>I</sub>	DC input voltage <sup>3</sup>		-0.5 to +7.0	V
I <sub>OK</sub>	DC output diode current	V <sub>O</sub> < 0	-50	mA
V <sub>OUT</sub>	DC output voltage <sup>3</sup>	Output in Off or High state	-0.5 to +7.0	V
	DC output ourrent	Output in Low state	128	A
lоит	DC output current	Output in High state	-64	mA
T <sub>stg</sub>	Storage temperature range		-65 to +150	°C

### RECOMMENDED OPERATING CONDITIONS

SYMBOL	SYMBOL PARAMETER		2.5V RANGE LIMITS		3.3V RANGE LIMITS		
STWIDOL	PARAMETER	MIN	MAX	MIN	MAX	UNIT	
V <sub>CC</sub>	DC supply voltage	2.3	2.7	3.0	3.6	V	
V <sub>I</sub>	Input voltage	0	5.5	0	5.5	V	
V <sub>IH</sub>	High-level input voltage	1.7		2.0		V	
$V_{IL}$	Input voltage		0.7		0.8	V	
I <sub>OH</sub>	High-level output current		-8		-32	mA	
la.	Low-level output current		8		32	mA	
l <sub>OL</sub>	Low-level output current; current duty cycle ≤ 50%; f ≥ 1kHz		24		64	ША	
Δt/Δν	Input transition rise or fall rate; Outputs enabled		10		10	ns/V	
T <sub>amb</sub>	Operating free-air temperature range	-40	+85	-40	+85	°C	

Stresses beyond those listed may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
 The performance capability of a high-performance integrated circuit in conjunction with its thermal environment can create junction

temperatures which are detrimental to reliability. The maximum junction temperature of this integrated circuit should not exceed 150°C.

3. The input and output negative voltage ratings may be exceeded if the input and output clamp current ratings are observed.

### 2.5V/3.3V 16-bit transparent D-type latch (3-State)

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### DC ELECTRICAL CHARACTERISTICS (3.3V $\pm$ 0.3V RANGE)

					LIMITS		
SYMBOL	PARAMETER	TEST CONDITIONS		Temp = -40°C to +85°C			UNIT
				MIN	TYP <sup>1</sup>	MAX	1
V <sub>IK</sub>	Input clamp voltage	$V_{CC} = 3.0V; I_{IK} = -18mA$			-0.85	-1.2	V
V	High-level output voltage	$V_{CC} = 3.0 \text{ to } 3.6 \text{V}; I_{OH} = -100 \mu\text{A}$		V <sub>CC</sub> -0.2	V <sub>CC</sub>		V
V <sub>OH</sub>	High-level output voltage	$V_{CC} = 3.0V; I_{OH} = -32mA$		2.0	2.3		1 °
		$V_{CC} = 3.0V; I_{OL} = 100\mu A$			0.07	0.2	
W	Low-level output voltage	V <sub>CC</sub> = 3.0V; I <sub>OL</sub> = 16mA			0.25	0.4	<sub>v</sub>
$V_{OL}$	Low-level output voltage	$V_{CC} = 3.0V; I_{OL} = 32mA$			0.3	0.5	1 °
		$V_{CC} = 3.0V; I_{OL} = 64mA$			0.4	0.55	
V <sub>RST</sub>	Power-up output low voltage <sup>6</sup>	$V_{CC} = 3.6V$ ; $I_{O} = 1$ mA; $V_{I} = V_{CC}$ or GND				0.55	V
		$V_{CC} = 3.6V$ ; $V_I = V_{CC}$ or GND	Control pins		0.1	±1	
	Input lookage ourrent	V <sub>CC</sub> = 0 or 3.6V; V <sub>I</sub> = 5.5V			0.1	10	1
Ι <sub>Ι</sub>	Input leakage current	$V_{CC} = 3.6V; V_{I} = V_{CC}$	Data pins <sup>4</sup>		0.5	1	μΑ
		V <sub>CC</sub> = 3.6V; V <sub>I</sub> = 0V	Data pins		0.1	-5	
I <sub>OFF</sub>	Off current	$V_{CC} = 0V$ ; $V_{I}$ or $V_{O} = 0$ to 4.5V			0.1	±100	μΑ
	Bus Hold current	$V_{CC} = 3V; V_I = 0.8V$		75	130		
$I_{HOLD}$	Data inputs <sup>7</sup>	V <sub>CC</sub> = 3V; V <sub>I</sub> = 2.0V		-75	-140		μΑ
	Data iriputs	$V_{CC} = 0V \text{ to } 3.6V; V_{CC} = 3.6V$		±500			
I <sub>EX</sub>	Current into an output in the High state when V <sub>O</sub> > V <sub>CC</sub>	V <sub>O</sub> = 5.5V; V <sub>CC</sub> = 3.0V			10	125	μА
I <sub>PU/PD</sub>	Power up/down 3-State output current <sup>3</sup>	$V_{CC} \le 1.2$ V; $V_O = 0.5$ V to $V_{CC}$ ; $V_I = GNDOE/OE = Don't care$	or V <sub>CC</sub> ;		1	±100	μА
I <sub>OZH</sub>	3-State output High current	$V_{CC} = 3.6V; V_{O} = 3.0V; V_{I} = V_{IL} \text{ or } V_{IH}$			0.5	5	μА
I <sub>OZL</sub>	3-State output Low current	$V_{CC} = 3.6V; V_{O} = 0.5V; V_{I} = V_{IL} \text{ or } V_{IH}$			0.5	<b>-</b> 5	μΑ
I <sub>CCH</sub>		$V_{CC} = 3.6V$ ; Outputs High, $V_I = GND$ or $V_{CC}$ , $I_{O} = 0$			0.04	0.1	
I <sub>CCL</sub>	Quiescent supply current	$V_{CC} = 3.6V$ ; Outputs Low, $V_I = GND$ or $V_{CC}$ , $I_{O} = 0$			3.5	5	mΑ
I <sub>CCZ</sub>	1	$V_{CC} = 3.6V$ ; Outputs Disabled; $V_I = GND$ or $V_{CC}$ , $I_{O} = 0^5$			0.05	0.1	1
Δl <sub>CC</sub>	Additional supply current per input pin <sup>2</sup>	$V_{CC}$ = 3V to 3.6V; One input at $V_{CC}$ -0.6V Other inputs at $V_{CC}$ or GND	V,		0.04	0.4	mA

### NOTES:

- 1. All typical values are at  $V_{CC}$  = 3.3V and  $T_{amb}$  = 25°C.
- This is the increase in supply current for each input at the specified voltage level other than V<sub>CC</sub> or GND
   This parameter is valid for any V<sub>CC</sub> between 0V and 1.2V with a transition time of up to 10msec. From V<sub>CC</sub> = 1.2V to V<sub>CC</sub> = 3.3V ± 0.3V a transition time of 100µsec is permitted. This parameter is valid for T<sub>amb</sub> = 25°C only.
- Unused pins at V<sub>CC</sub> or GND.
- 5.  $I_{CCZ}$  is measured with outputs pulled up to  $V_{CC}$  or pulled down to ground.
- 6. For valid test results, data must not be loaded into the flip-flops (or latches) after applying power.
- 7. This is the bus hold overdrive current required to force the input to the opposite logic state.

### AC CHARACTERISTICS (3.3V $\pm$ 0.3V RANGE)

GND = 0V;  $t_R = t_F = 2.5$ ns;  $C_L = 50$ pF;  $R_L = 500\Omega$ ;  $T_{amb} = -40$ °C to +85°C.

				LIMITS		
SYMBOL	PARAMETER	WAVEFORM	V <sub>C</sub>	$_{\text{C}}$ = 3.3V $\pm$ 0.	.3V	UNIT
			MIN	TYP <sup>1</sup>	MAX	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation delay nDx to nQx	2	0.5 0.5	1.6 1.8	2.5 2.9	ns
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation delay nLE to nQx	1	1.0 1.0	2.0 2.3	3.1 3.3	ns
t <sub>PZH</sub> t <sub>PZL</sub>	Output enable time to High and Low level	4 5	1.5 1.0	2.3 1.9	4.0 3.1	ns
t <sub>PHZ</sub> t <sub>PLZ</sub>	Output disable time from High and Low Level	4 5	1.5 1.5	2.9 2.3	4.5 3.7	ns

<sup>1.</sup> All typical values are at  $V_{CC} = 3.3V$  and  $T_{amb} = 25$ °C.

### 2.5V/3.3V 16-bit transparent D-type latch (3-State)

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### DC ELECTRICAL CHARACTERISTICS (2.5V $\pm$ 0.2V RANGE)

					LIMITS		
SYMBOL	MBOL PARAMETER TEST CONDITIONS		ONS		-40°C to	+85°C	UNIT
				MIN	TYP <sup>1</sup>	MAX	
V <sub>IK</sub>	Input clamp voltage	$V_{CC} = 2.3V; I_{IK} = -18mA$			-0.85	-1.2	V
V <sub>OH</sub>	High-level output voltage	$V_{CC} = 2.3 \text{ to } 3.6 \text{V}; I_{OH} = -100 \mu\text{A}$		V <sub>CC</sub> -0.2			V
VOH	I light-level output voltage	$V_{CC} = 2.3V; I_{OH} = -8mA$		1.8			l v
Vol	Low-level output voltage	$V_{CC} = 2.3V; I_{OL} = 100\mu A$			0.07	0.2	
VOL	Low level output voltage	$V_{CC} = 2.3V; I_{OL} = 24mA$			0.3	0.5	
V <sub>RST</sub>	Power-up output low voltage <sup>7</sup>	$V_{CC} = 2.7V$ ; $I_O = 1mA$ ; $V_I = V_{CC}$ or GND				0.55	V
		$V_{CC} = 2.7V$ ; $V_I = V_{CC}$ or GND	Control pins		0.1	±1	
I.	logut lookaga aurrant	V <sub>CC</sub> = 0 or 2.7V; V <sub>I</sub> = 5.5V			0.1	10	
H	Input leakage current	$V_{CC} = 2.7V; V_{I} = V_{CC}$	Data pins <sup>4</sup>		0.1	1	μΑ
		$V_{CC} = 2.7V; V_I = 0$	Data piris		0.1	-5	
I <sub>OFF</sub>	Off current	$V_{CC} = 0V$ ; $V_I$ or $V_O = 0$ to 4.5V			0.1	±100	μΑ
I <sub>HOLD</sub>	Bus Hold current	$V_{CC} = 2.3V; V_I = 0.7V$			90		μА
	Data inputs <sup>6</sup>	$V_{CC} = 2.3V; V_I = 1.7V$			-10		μΛ
I <sub>EX</sub>	Current into an output in the High state when V <sub>O</sub> > V <sub>CC</sub>	V <sub>O</sub> = 5.5V; V <sub>CC</sub> = 2.3V			10	125	μА
I <sub>PU/PD</sub>	Power up/down 3-State output current <sup>3</sup>	$V_{CC} \le 1.2V$ ; $V_O = 0.5V$ to $V_{CC}$ ; $V_I = GND$ of $OE/OE = Don't$ care	or V <sub>CC</sub> ;		1	100	μА
I <sub>OZH</sub>	3-State output High current	$V_{CC} = 2.7V$ ; $V_O = 2.3V$ ; $V_I = V_{IL}$ or $V_{IH}$			0.5	5	μΑ
I <sub>OZL</sub>	3-State output Low current	$V_{CC} = 2.7V; V_{O} = 0.5V; V_{I} = V_{IL} \text{ or } V_{IH}$			0.5	<b>-</b> 5	μΑ
I <sub>CCH</sub>		$V_{CC} = 2.7V$ ; Outputs High, $V_I = GND$ or $V_{CC}$ , $I_{O} = 0$			0.04	0.1	
I <sub>CCL</sub>	Quiescent supply current	$V_{CC} = 2.7V$ ; Outputs Low, $V_I = GND$ or $V_{CC}$ , $I_{O} = 0$			2.3	4.5	mA
I <sub>CCZ</sub>	1	$V_{CC}$ = 2.7V; Outputs Disabled; $V_I$ = GND or $V_{CC}$ , $I_O$ = $0^5$			0.04	0.1	
Δl <sub>CC</sub>	Additional supply current per input pin <sup>2</sup>	$V_{CC}$ = 2.3V to 2.7V; One input at $V_{CC}$ -0.6 Other inputs at $V_{CC}$ or GND	V,		0.04	0.4	mA

- 1. All typical values are at V<sub>CC</sub> = 2.5V and T<sub>amb</sub> = 25°C.

  2. This is the increase in supply current for each input at the specified voltage level other than V<sub>CC</sub> or GND

  3. This parameter is valid for any V<sub>CC</sub> between 0V and 1.2V with a transition time of up to 10msec. From V<sub>CC</sub> = 1.2V to V<sub>CC</sub> = 2.5V ± 0.2V a transition time of 100µsec is permitted. This parameter is valid for T<sub>amb</sub> = 25°C only.
- 4. Unused pins at V<sub>CC</sub> or GND.
   5. I<sub>CCZ</sub> is measured with outputs pulled up to V<sub>CC</sub> or pulled down to ground.
- 6. Not guaranteed.
- 7. For valid test results, data must not be loaded into the flip-flops (or latches) after applying power.

### AC CHARACTERISTICS (2.5V $\pm$ 0.2V RANGE)

GND = 0V;  $t_R$  =  $t_F$  = 2.5ns;  $C_L$  = 50pF;  $R_L$  = 500 $\Omega$ ;  $T_{amb}$  = -40°C to +85°C.

				LIMITS		
SYMBOL	PARAMETER	WAVEFORM	V <sub>C</sub>	$_{\text{C}}$ = 2.5V $\pm$ 0.	.2V	UNIT
			MIN	TYP <sup>1</sup>	MAX	1
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation delay nDx to nQx	2	1.0 1.0	2.0 2.4	3.2 4.2	ns
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation delay nLE to nQx	1	1.5 1.5	2.6 2.8	4.2 4.5	ns
t <sub>PZH</sub> t <sub>PZL</sub>	Output enable time to High and Low level	4 5	2.0 1.5	3.5 2.6	5.5 4.7	ns
t <sub>PHZ</sub> t <sub>PLZ</sub>	Output disable time from High and Low Level	4 5	1.5 1.0	2.7 2.0	4.5 3.5	ns

### NOTE:

<sup>1.</sup> All typical values are at  $V_{CC}$  = 2.5V and  $T_{amb}$  = 25°C.

### 2.5V/3.3V 16-bit transparent D-type latch (3-State)

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#### **AC SETUP REQUIREMENTS**

GND = 0V;  $t_R = t_F = 2.5 \text{ns}$ ;  $C_L = 50 \text{pF}$ ;  $R_L = 500 \Omega$ ;  $T_{amb} = -40 ^{\circ} \text{C}$  to  $+85 ^{\circ} \text{C}$ .

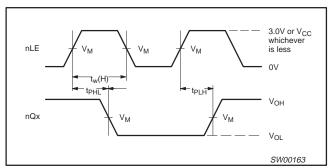
				LIM	ITS		
SYMBOL	PARAMETER	WAVEFORM	V <sub>CC</sub> = 2.	5V ±0.2V	V <sub>CC</sub> = 3.	3V ±0.3V	UNIT
			MIN	TYP	MIN	TYP	
t <sub>S</sub> (H) t <sub>S</sub> (L)	Setup time nDx to nLE	3	0 1.5	-0.7 0.2	0.5 0.8	-0.2 0.2	ns
t <sub>h</sub> (H) t <sub>h</sub> (L)	Hold time nDx to nLE	3	0.5 1.5	-0.2 0.7	0.8 1.0	0 0.2	ns
t <sub>W</sub> (H)	nLE pulse width High	1	1.5 1.5		1.5 1.5		ns

#### **AC WAVEFORMS**

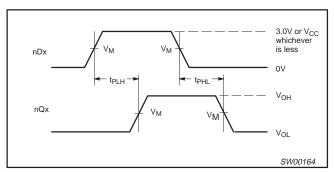
For all waveforms

 $V_M$  = 1.5V for  $V_{CC}$   $\geq$  3.0V;  $V_M$  =  $V_{CC}/2$  for  $V_{CC}$   $\leq$  2.7V

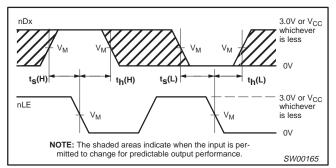
 $\begin{array}{l} V_{M} = 1.5 \text{V for V}_{CC} \geq 3.0 \text{V; } V_{M} = V_{CC}/2 \text{ for V}_{CC} \leq 2.7 \text{V} \\ V_{X} = V_{OL} + 0.3 \text{V for V}_{CC} \geq 3.0 \text{V; } V_{X} = V_{OL} + 0.15 \text{V for V}_{CC} \leq 2.7 \text{V} \\ V_{Y} = V_{OH} - 0.3 \text{V for V}_{CC} \geq 3.0 \text{V; } V_{Y} = V_{OH} - 0.15 \text{V for V}_{CC} \leq 2.7 \text{V} \\ \end{array}$ 



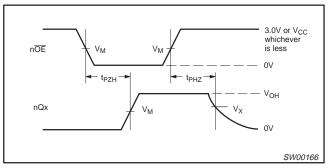
Waveform 1. Propagation Delay, Enable to Output, and Enable Pulse Width



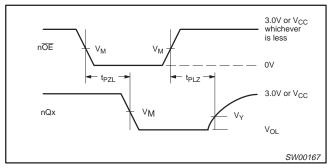
Waveform 2. Propagation Delay for Data to Outputs



Waveform 3. Data Setup and Hold Times



Waveform 4. 3-State Output Enable time to High Level and Output Disable Time from High Level

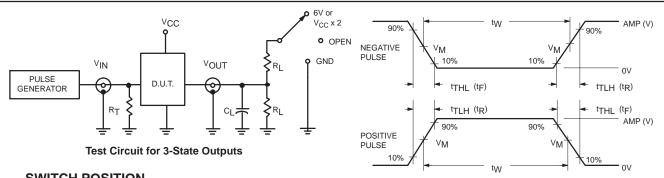


Waveform 5. 3-State Output Enable Time to Low Level and Output Disable Time from Low Level

## 2.5V/3.3V 16-bit transparent D-type latch (3-State)

74ALVT16373

### **TEST CIRCUIT AND WAVEFORMS**



### **SWITCH POSITION**

TEST	SWITCH
t <sub>PHZ</sub> /t <sub>PZH</sub>	GND
t <sub>PLZ</sub> /t <sub>PZL</sub>	6V or V <sub>CC</sub> x 2
t <sub>PLH</sub> /t <sub>PHL</sub>	open

### **DEFINITIONS**

R<sub>L</sub> = Load resistor; see AC CHARACTERISTICS for value.

 $C_L$  = Load capacitance includes jig and probe capacitance; see AC CHARACTERISTICS for value.

 $R_T$  = Termination resistance should be equal to  $Z_{OUT}$  of pulse generators.

FAMILY	INPUT PULSE REQUIREMENTS									
FAMILI	Amplitude	Rep. Rate	t <sub>W</sub>	t <sub>R</sub>	t <sub>F</sub>					
74ALVT16	3.0V or V <sub>CC</sub> whichever is less	≤10MHz	500ns	≤2.5ns	≤2.5ns					

 $V_{M}$  = 1.5V or  $V_{CC}$  / 2, whichever is less Input Pulse Definition

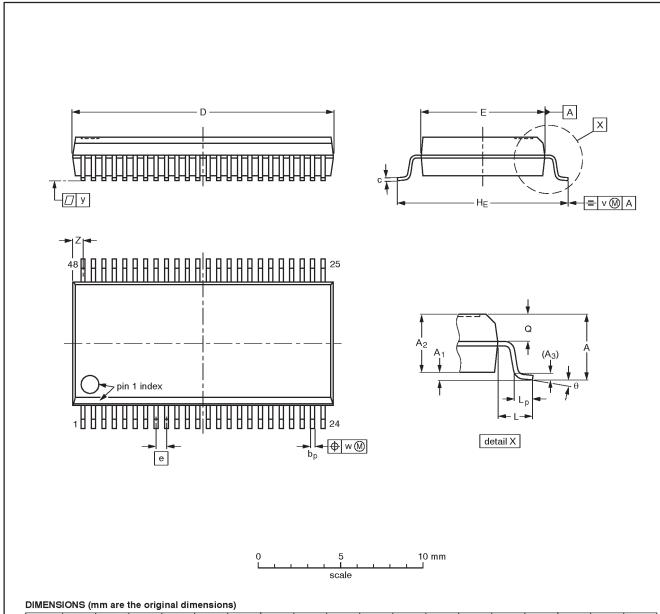
SW00162

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### SSOP48: plastic shrink small outline package; 48 leads; body width 7.5 mm

SOT370-1



UNIT	A max.	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	bp	С	D <sup>(1)</sup>	E <sup>(1)</sup>	е	HE	L	Lp	Q	v	w	у	Z <sup>(1)</sup>	θ
mm	2.8	0.4 0.2	2.35 2.20	0.25	0.3 0.2	0.22 0.13	16.00 15.75	7.6 7.4	0.635	10.4 10.1	1.4	1.0 0.6	1.2 1.0	0.25	0.18	0.1	0.85 0.40	8° 0°

#### Note

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

OUTLINE		REFER	ENCES	EUROPEAN	ISSUE DATE
VERSION	IEC	JEDEC	EIAJ	PROJECTION	ISSUE DATE
SOT370-1		MO-118AA			<del>-93-11-02-</del> 95-02-04

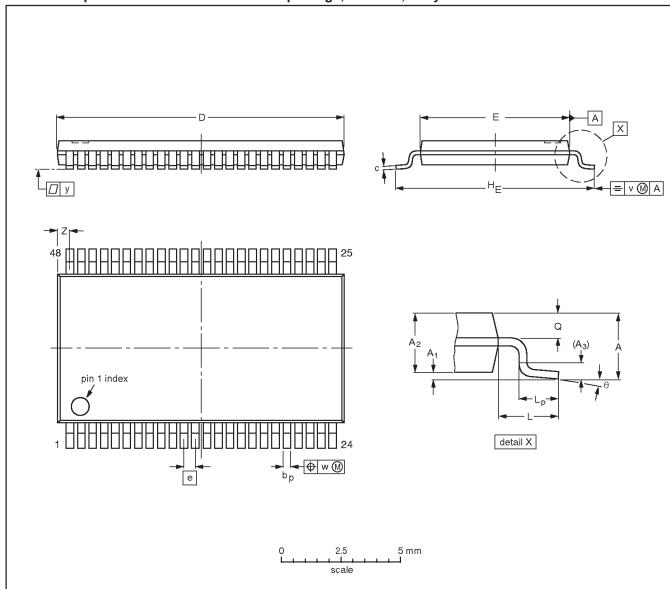
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## 2.5V/3.3V 16-bit transparent D-type latch (3-State)

74ALVT16373

### TSSOP48: plastic thin shrink small outline package; 48 leads; body width 6.1mm

SOT362-1



### DIMENSIONS (mm are the original dimensions).

UNIT	A max.	A <sub>1</sub>	A <sub>2</sub>	А3	bp	С	D <sup>(1)</sup>	E <sup>(2)</sup>	е	HE	L	Lp	Q	٧	w	у	z	θ
mm	1.2	0.15 0.05	1.05 0.85	0.25	0.28 0.17	0.2 0.1	12.6 12.4	6.2 6.0	0.5	8.3 7.9	1	0.8 0.4	0.50 0.35	0.25	0.08	0.1	0.8 0.4	8° 0°

#### 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 ISS					
VERSION	IEC	JEDEC	EIAJ			PROJECTION	ISSUE DATE
SOT362-1		MO-153ED					<del>-93-02-03</del> 95-02-10

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#### Data sheet status

Data sheet status	Product status	Definition [1]
Objective specification	Development	This data sheet contains the design target or goal specifications for product development. Specification may change in any manner without notice.
Preliminary specification	Qualification	This data sheet contains preliminary data, and supplementary data will be published at a later date. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.
Product specification	Production	This data sheet contains final specifications. Philips Semiconductors reserves the right to make changes at any time without notice in order to improve design and supply the best possible product.

<sup>[1]</sup> Please consult the most recently issued datasheet before initiating or completing a design.

#### **Definitions**

**Short-form specification** — The data in a short-form specification is extracted from a full data sheet with the same type number and title. For detailed information see the relevant data sheet or data handbook.

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