

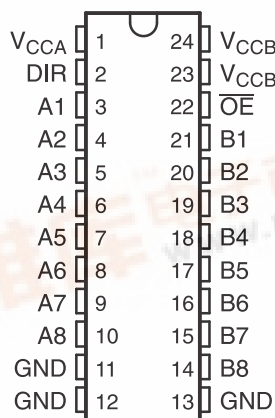
8-BIT DUAL-SUPPLY BUS TRANSCEIVER WITH CONFIGURABLE VOLTAGE TRANSLATION AND 3-STATE OUTPUTS

Check for Samples: [SN74LVC8T245-Q1](#)

FEATURES

- Qualified for Automotive Applications
- Control Inputs V_{IH}/V_{IL} Levels Are Referenced to V_{CCA} Voltage
- V_{CC} Isolation Feature – If Either V_{CC} Input Is at GND, All Are in the High-Impedance State
- Fully Configurable Dual-Rail Design Allows Each Port to Operate Over the Full 1.65-V to 5.5-V Power-Supply Range

PW PACKAGE
(TOP VIEW)



DESCRIPTION

This 8-bit non-inverting bus transceiver uses two separate configurable power-supply rails. The SN74LVC8T245-Q1 is optimized to operate with V_{CCA} and V_{CCB} set at 1.65 V to 5.5 V. The A port is designed to track V_{CCA} . V_{CCA} accepts any supply voltage from 1.65 V to 5.5 V. The B port is designed to track V_{CCB} . V_{CCB} accepts any supply voltage from 1.65 V to 5.5 V. This allows for universal low-voltage bidirectional translation between any of the 1.8-V, 2.5-V, 3.3-V, and 5.5-V voltage nodes.

The SN74LVC8T245-Q1 is designed for asynchronous communication between two data buses. The logic levels of the direction-control (DIR) input and the output-enable ($\overline{OE}$) input activate either the B-port outputs or the A-port outputs or place both output ports into the high-impedance mode. The device transmits data from the A bus to the B bus when the B-port outputs are activated, and from the B bus to the A bus when the A-port outputs are activated. The input circuitry on both A and B ports is always active and must have a logic HIGH or LOW level applied to prevent excess I_{CC} and I_{CCZ} .

The SN74LVC8T245-Q1 is designed so that the control pins (DIR and $\overline{OE}$) are supplied by V_{CCA} .

This device is fully specified for partial-power-down applications using I_{off} . The I_{off} circuitry disables the outputs, preventing damaging current backflow through the device when it is powered down.

The V_{CC} isolation feature ensures that if either V_{CC} input is at GND, all outputs are in the high-impedance state.

To ensure the high-impedance state during power up or power down, OE should be tied to V_{CC} through a pullup resistor; the minimum value of the resistor is determined by the current-sinking capability of the driver.

ORDERING INFORMATION⁽¹⁾

T_A	PACKAGE ⁽²⁾		ORDERABLE PART NUMBER	TOP-SIDE MARKING
–40°C to 125°C	TSSOP – PW	Reel of 2000	SN74LVC8T245QPWRQ1	NH245Q

- (1) For the most current package and ordering information, see the Package Option Addendum at the end of this document, or see the TI website at www.ti.com.
- (2) Package drawings, thermal data, and symbolization are available at www.ti.com/packaging.



Please be aware that an important notice concerning availability, standard warranty, and use in critical applications of Texas Instruments semiconductor products and disclaimers thereto appears at the end of this data sheet.

PRODUCTION DATA information is current as of publication date. Products conform to specifications per the terms of the Texas Instruments standard warranty. Production processing does not necessarily include testing of all parameters.

Copyright © 2010, Texas Instruments Incorporated

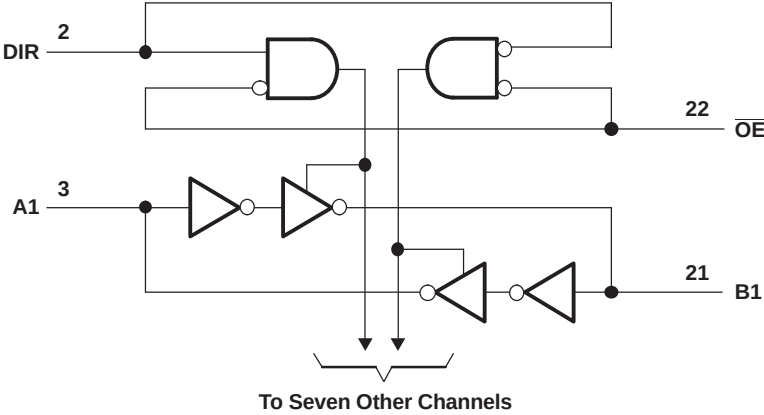


FUNCTION TABLE⁽¹⁾
(EACH 8-BIT SECTION)

CONTROL INPUTS		OUTPUT CIRCUITS		OPERATION
$\overline{OE}$	DIR	A PORT	B PORT	
L	L	Enabled	Hi-Z	B data to A bus
L	H	Hi-Z	Enabled	A data to B bus
H	X	Hi-Z	Hi-Z	Isolation

(1) Input circuits of the data I/Os are always active.

LOGIC DIAGRAM (POSITIVE LOGIC)



ABSOLUTE MAXIMUM RATINGS⁽¹⁾

over operating free-air temperature range (unless otherwise noted)

				MIN	MAX	UNIT
V_{CCA} V_{CCB}	Supply voltage range			-0.5	6.5	V
V_I	Input voltage range ⁽²⁾	I/O ports (A port)		-0.5	6.5	V
		I/O ports (B port)		-0.5	6.5	
		Control inputs		-0.5	6.5	
V_O	Voltage range applied to any output in the high-impedance or power-off state ⁽²⁾	A port		-0.5	6.5	V
		B port		-0.5	6.5	
V_O	Voltage range applied to any output in the high or low state ^{(2) (3)}	A port		-0.5	$V_{CCA} + 0.5$	V
		B port		-0.5	$V_{CCB} + 0.5$	
I_{IK}	Input clamp current	$V_I < 0$			-50	mA
I_{OK}	Output clamp current	$V_O < 0$			-50	mA
I_O	Continuous output current				± 50	mA
	Continuous current through each V_{CCA} , V_{CCB} , and GND				± 100	mA
θ_{JA}	Package thermal impedance ⁽⁴⁾	PW package			88	$^{\circ}\text{C}/\text{W}$
T_{stg}	Storage temperature range			-65	150	$^{\circ}\text{C}$

- (1) Stresses beyond those listed under "absolute maximum ratings" 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.
- (2) The input and output negative-voltage ratings may be exceeded if the input and output current ratings are observed.
- (3) The output positive-voltage rating may be exceeded up to 6.5 V maximum if the output current rating is observed.
- (4) The package thermal impedance is calculated in accordance with JESD 51-7.

RECOMMENDED OPERATING CONDITIONS (1) (2) (3) (4)

			V _{CCI}	V _{CCO}	MIN	MAX	UNIT
V _{CCA}	Supply voltage				1.65	5.5	V
V _{CCB}					1.65	5.5	
V _{IH}	High-level input voltage	Data inputs ⁽⁵⁾	1.65 V to 1.95 V		V _{CCI} × 0.65		V
			2.3 V to 2.7 V		1.7		
			3 V to 3.6 V		2		
			4.5 V to 5.5 V		V _{CCI} × 0.7		
V _{IL}	Low-level input voltage	Data inputs ⁽⁵⁾	1.65 V to 1.95 V		V _{CCI} × 0.35		V
			2.3 V to 2.7 V		0.7		
			3 V to 3.6 V		0.8		
			4.5 V to 5.5 V		V _{CCI} × 0.3		
V _{IH}	High-level input voltage	Control inputs (referenced to V _{CCA}) ⁽⁶⁾	1.65 V to 1.95 V		V _{CCA} × 0.65		V
			2.3 V to 2.7 V		1.7		
			3 V to 3.6 V		2		
			4.5 V to 5.5 V		V _{CCA} × 0.7		
V _{IL}	Low-level input voltage	Control inputs (referenced to V _{CCA}) ⁽⁶⁾	1.65 V to 1.95 V		V _{CCA} × 0.35		V
			2.3 V to 2.7 V		0.7		
			3 V to 3.6 V		0.8		
			4.5 V to 5.5 V		V _{CCA} × 0.3		
V _I	Input voltage	Control inputs			0	5.5	V
V _{I/O}	Input/output voltage	Active state			0	V _{CCO}	V
		3-State			0	5.5	V
I _{OH}	High-level output current			1.65 V to 1.95 V		−4	mA
				2.3 V to 2.7 V		−8	
				3 V to 3.6 V		−24	
				4.5 V to 5.5 V		−32	
I _{OL}	Low-level output current			1.65 V to 1.95 V		4	mA
				2.3 V to 2.7 V		8	
				3 V to 3.6 V		24	
				4.5 V to 5.5 V		32	
Δt/Δv	Input transition rise or fall rate	Data inputs	1.65 V to 1.95 V			20	ns/V
			2.3 V to 2.7 V			20	
			3 V to 3.6 V			10	
			4.5 V to 5.5 V			5	
T _A	Operating free-air temperature				−40	125	°C

(1) V_{CCI} is the V_{CC} associated with the data input port.

(2) V_{CCO} is the V_{CC} associated with the output port.

(3) All unused or driven (floating) data inputs (I/Os) of the device must be held at logic HIGH or LOW (preferably V_{CCI} or GND) to ensure proper device operation and minimize power. Refer to the TI application report, *Implications of Slow or Floating CMOS Inputs*, literature number SCBA004.

(4) All unused control inputs must be held at V_{CCA} or GND to ensure proper device operation and minimize power consumption.

(5) For V_{CCI} values not specified in the data sheet, V_{IH} min = V_{CCI} × 0.7 V, V_{IL} max = V_{CCI} × 0.3 V.

(6) For V_{CCA} values not specified in the data sheet, V_{IH} min = V_{CCA} × 0.7 V, V_{IL} max = V_{CCA} × 0.3 V.

ELECTRICAL CHARACTERISTICS^{(1) (2) (3)}

over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS	V _{CCA}	V _{CCB}	T _A = 25°C			T _A = -40°C to 125°C		UNIT
				MIN	TYP	MAX	MIN	MAX	
V _{OH}	I _{OH} = -100 μA, V _I = V _{IH}	1.65 V to 4.5 V	1.65 V to 4.5 V				V _{CCO} - 0.1		V
	I _{OH} = -4 mA, V _I = V _{IH}	1.65 V	1.65 V				1.2		
	I _{OH} = -8 mA, V _I = V _{IH}	2.3 V	2.3 V				1.9		
	I _{OH} = -24 mA, V _I = V _{IH}	3 V	3 V				2.4		
	I _{OH} = -32 mA, V _I = V _{IH}	4.5 V	4.5 V				3.8		
V _{OL}	I _{OL} = 100 μA, V _I = V _{IL}	1.65 V to 4.5 V	1.65 V to 4.5 V				0.1		V
	I _{OL} = 4 mA, V _I = V _{IL}	1.65 V	1.65 V				0.45		
	I _{OL} = 8 mA, V _I = V _{IL}	2.3 V	2.3 V				0.3		
	I _{OL} = 24 mA, V _I = V _{IL}	3 V	3 V				0.55		
	I _{OL} = 32 mA, V _I = V _{IL}	4.5 V	4.5 V				0.55		
I _I	DIR V _I = V _{CCA} or GND	1.65 V to 5.5 V	1.65 V to 5.5 V			±1		±2	μA
I _{off}	A or B port V _I or V _O = 0 to 5.5 V	0 V	0 to 5.5 V			±2		±11	μA
		0 to 5.5 V	0 V			±2		±11	
I _{OZ}	A or B port V _O = V _{CCO} or GND, OE = V _{IH}	1.65 V to 5.5 V	1.65 V to 5.5 V			±1		±6	μA
I _{CCA}	V _I = V _{CCI} or GND, I _O = 0	1.65 V to 5.5 V	1.65 V to 5.5 V					20	μA
		5 V	0 V					20	
		0 V	5 V					-10	
I _{CCB}	V _I = V _{CCI} or GND, I _O = 0	1.65 V to 5.5 V	1.65 V to 5.5 V					20	μA
		5 V	0 V					-10	
		0 V	5 V					20	
I _{CCA} + I _{CCB}	V _I = V _{CCI} or GND, I _O = 0	1.65 V to 5.5 V	1.65 V to 5.5 V					40	μA
ΔI _{CCA}	A port One A port at V _{CCA} - 0.6 V, DIR at V _{CCA} , B port = open	3 V to 5.5 V	3 V to 5.5 V					50	μA
	DIR DIR at V _{CCA} - 0.6 V, B port = open, A port at V _{CCA} or GND							50	
ΔI _{CCB}	B port One B port at V _{CCB} - 0.6 V, DIR at GND, A port = open	3 V to 5.5 V	3 V to 5.5 V					50	μA
C _i	Control inputs V _I = V _{CCA} or GND	3.3 V	3.3 V			4		5	pF
C _{io}	A or B port V _O = V _{CCA/B} or GND	3.3 V	3.3 V			8.5		10	pF

(1) V_{CCO} is the V_{CC} associated with the output port.(2) V_{CCI} is the V_{CC} associated with the input port.(3) All unused control inputs must be held at V_{CCA} or GND to ensure proper device operation and minimize power consumption.

SWITCHING CHARACTERISTICS

over recommended operating free-air temperature range, $V_{CCA} = 1.8\text{ V} \pm 0.15\text{ V}$ (unless otherwise noted) (see [Figure 1](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CCB} = 1.8\text{ V} \pm 0.15\text{ V}$		$V_{CCB} = 2.5\text{ V} \pm 0.2\text{ V}$		$V_{CCB} = 3.3\text{ V} \pm 0.3\text{ V}$		$V_{CCB} = 5\text{ V} \pm 0.5\text{ V}$		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A	B	1.7	25.9	1.3	13.2	1	11.4	0.8	11.1	ns
t_{PHL}											
t_{PLH}	B	A	0.9	28.8	0.8	27.6	0.7	27.4	0.7	27.4	ns
t_{PHL}											
t_{PHZ}	$\overline{OE}$	A	1.5	33.6	1.5	33.4	1.5	33.3	1.4	33.2	ns
t_{PLZ}											
t_{PHZ}	$\overline{OE}$	B	2.4	36.2	1.9	17.1	1.7	16	1.3	14.3	ns
t_{PLZ}											
t_{PZH}	$\overline{OE}$	A	0.4	28	0.4	27.8	0.4	27.7	0.4	27.7	ns
t_{PZL}											
t_{PZH}	$\overline{OE}$	B	1.8	40	1.5	20	1.2	16.6	0.9	14.8	ns
t_{PZL}											

SWITCHING CHARACTERISTICS

over recommended operating free-air temperature range, $V_{CCA} = 2.5\text{ V} \pm 0.2\text{ V}$ (unless otherwise noted) (see [Figure 1](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CCB} = 1.8\text{ V} \pm 0.15\text{ V}$		$V_{CCB} = 2.5\text{ V} \pm 0.2\text{ V}$		$V_{CCB} = 3.3\text{ V} \pm 0.3\text{ V}$		$V_{CCB} = 5\text{ V} \pm 0.5\text{ V}$		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A	B	1.5	25.4	1.2	13	0.8	10.2	0.6	8.8	ns
t_{PHL}											
t_{PLH}	B	A	1.2	13.3	1	13.1	1	12.9	0.9	12.8	ns
t_{PHL}											
t_{PHZ}	$\overline{OE}$	A	1.4	13	1.4	13	1.4	13	1.4	13	ns
t_{PLZ}											
t_{PHZ}	$\overline{OE}$	B	2.3	33.6	1.8	15	1.7	14.3	0.9	10.9	ns
t_{PLZ}											
t_{PZH}	$\overline{OE}$	A	1	17.2	1	17.3	1	17.2	1	17.3	ns
t_{PZL}											
t_{PZH}	$\overline{OE}$	B	1.7	32.2	1.5	18.1	1.2	14.1	1	11.2	ns
t_{PZL}											

SWITCHING CHARACTERISTICS

over recommended operating free-air temperature range, $V_{CCA} = 3.3 \text{ V} \pm 0.3 \text{ V}$ (unless otherwise noted) (see [Figure 1](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CCB} = 1.8 \text{ V} \pm 0.15 \text{ V}$		$V_{CCB} = 2.5 \text{ V} \pm 0.2 \text{ V}$		$V_{CCB} = 3.3 \text{ V} \pm 0.3 \text{ V}$		$V_{CCB} = 5 \text{ V} \pm 0.5 \text{ V}$		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A	B	1.5	25.2	1.1	12.8	0.8	10.3	0.5	10.4	ns
t_{PHL}											
t_{PLH}	B	A	0.8	11.2	0.8	10.2	0.7	10.1	0.6	10	ns
t_{PHL}											
t_{PHZ}	$\overline{OE}$	A	1.6	12.2	1.6	12.2	1.6	12.2	1.6	12.2	ns
t_{PLZ}											
t_{PHZ}	$\overline{OE}$	B	2.1	33	1.7	14.3	1.5	12.6	0.8	10.3	ns
t_{PLZ}											
t_{PZH}	$\overline{OE}$	A	0.8	14.1	0.8	13.6	0.8	13.2	0.8	13.6	ns
t_{PZL}											
t_{PZH}	$\overline{OE}$	B	1.8	31.7	1.4	18.4	1.1	12.9	0.9	10.9	ns
t_{PZL}											

SWITCHING CHARACTERISTICS

over recommended operating free-air temperature range, $V_{CCA} = 5 \text{ V} \pm 0.5 \text{ V}$ (unless otherwise noted) (see [Figure 1](#))

PARAMETER	FROM (INPUT)	TO (OUTPUT)	$V_{CC} = 1.8 \text{ V} \pm 0.15 \text{ V}$		$V_{CC} = 2.5 \text{ V} \pm 0.2 \text{ V}$		$V_{CC} = 3.3 \text{ V} \pm 0.3 \text{ V}$		$V_{CC} = 5 \text{ V} \pm 0.5 \text{ V}$		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	A	B	1.5	25.4	1	12.8	0.7	10	0.4	8.2	ns
t_{PHL}											
t_{PLH}	B	A	0.7	11	0.4	8.8	0.3	8.5	0.3	8.3	ns
t_{PHL}											
t_{PHZ}	$\overline{OE}$	A	0.3	9.4	0.3	9.4	0.3	9.4	0.3	9.4	ns
t_{PLZ}											
t_{PHZ}	$\overline{OE}$	B	2	32.7	1.6	13.7	1.4	12	0.7	9.7	ns
t_{PLZ}											
t_{PZH}	$\overline{OE}$	A	0.7	10.9	0.7	10.9	0.7	10.9	0.7	10.9	ns
t_{PZL}											
t_{PZH}	$\overline{OE}$	B	1.5	31.6	1.3	18.4	1	13.7	0.9	10.7	ns
t_{PZL}											

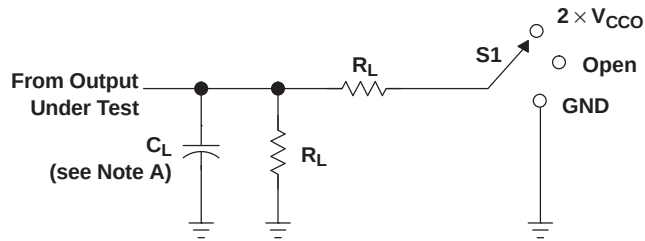
OPERATING CHARACTERISTICS

$T_A = 25^\circ\text{C}$

PARAMETER		TEST CONDITIONS	$V_{CCA} =$ $V_{CCB} = 1.8 \text{ V}$	$V_{CCA} =$ $V_{CCB} = 2.5 \text{ V}$	$V_{CCA} =$ $V_{CCB} = 3.3 \text{ V}$	$V_{CCA} =$ $V_{CCB} = 5 \text{ V}$	UNIT
			TYP	TYP	TYP	TYP	
C_{pdA} (1)	A-port input, B-port output	$C_L = 0$, $f = 10 \text{ MHz}$, $t_r = t_f = 1 \text{ ns}$	2	2	2	3	pF
	B-port input, A-port output		12	13	13	16	
C_{pdB} (1)	A-port input, B-port output		13	13	14	16	
	B-port input, A-port output		2	2	2	3	

(1) Power dissipation capacitance per transceiver

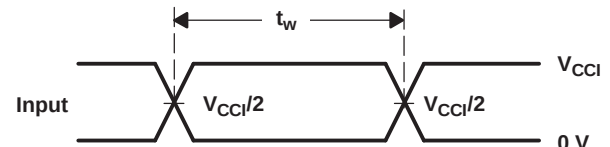
PARAMETER MEASUREMENT INFORMATION



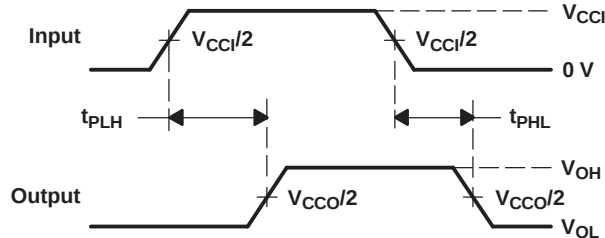
LOAD CIRCUIT

V_{CCO}	C_L	R_L	V_{TP}
$1.8\text{ V} \pm 0.15\text{ V}$	15 pF	2 k Ω	0.15 V
$2.5\text{ V} \pm 0.2\text{ V}$	15 pF	2 k Ω	0.15 V
$3.3\text{ V} \pm 0.3\text{ V}$	15 pF	2 k Ω	0.3 V
$5\text{ V} \pm 0.5\text{ V}$	15 pF	2 k Ω	0.3 V

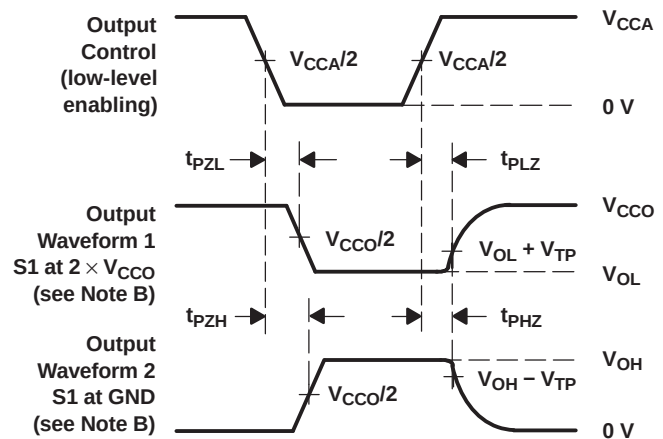
TEST	S1
t_{pd}	Open
t_{PLZ}/t_{PZL}	$2 \times V_{CCO}$
t_{PHZ}/t_{PZH}	GND



VOLTAGE WAVEFORMS
PULSE DURATION



VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES



VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES

- NOTES:
- C_L includes probe and jig capacitance.
 - Waveform 1 is for an output with internal conditions such that the output is low, except when disabled by the output control. Waveform 2 is for an output with internal conditions such that the output is high, except when disabled by the output control.
 - All input pulses are supplied by generators having the following characteristics: $PRR \leq 10\text{ MHz}$, $Z_O = 50\text{ }\Omega$, $dv/dt \geq 1\text{ V/ns}$.
 - The outputs are measured one at a time, with one transition per measurement.
 - t_{PLZ} and t_{PHZ} are the same as t_{dis} .
 - t_{PZL} and t_{PZH} are the same as t_{en} .
 - t_{PLH} and t_{PHL} are the same as t_{pd} .
 - V_{CCI} is the V_{CC} associated with the input port.
 - V_{CCO} is the V_{CC} associated with the output port.
 - All parameters and waveforms are not applicable to all devices.

Figure 1. Load Circuit and Voltage Waveforms



www.ti.com

PACKAG

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/ Ball Finish	MSL Peak
SN74LVC8T245QPWRQ1	ACTIVE	TSSOP	PW	24	2000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com> for more information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all RoHS compliant products that contain no more than 0.1% by weight of lead in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in applications that require high temperature soldering processes.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die attach between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (as applicable to the semiconductor material) and free of Beryllium (Be) and Hexavalent Chromium (Cr6) based flame retardants (as applicable to the semiconductor material) and all other hazardous substances listed in RoHS.

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

Important Information and Disclaimer: The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI disclaims any warranty as to the accuracy of such information. TI is not responsible for any errors or omissions in the information provided. TI continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on all materials or components. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release. TI does not warrant that the information contained herein is accurate, complete, or free of errors.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer.

OTHER QUALIFIED VERSIONS OF SN74LVC8T245-Q1 :

● Catalog: [SN74LVC8T245](#)

● Enhanced Product: [SN74LVC8T245-EP](#)

NOTE: Qualified Version Definitions:

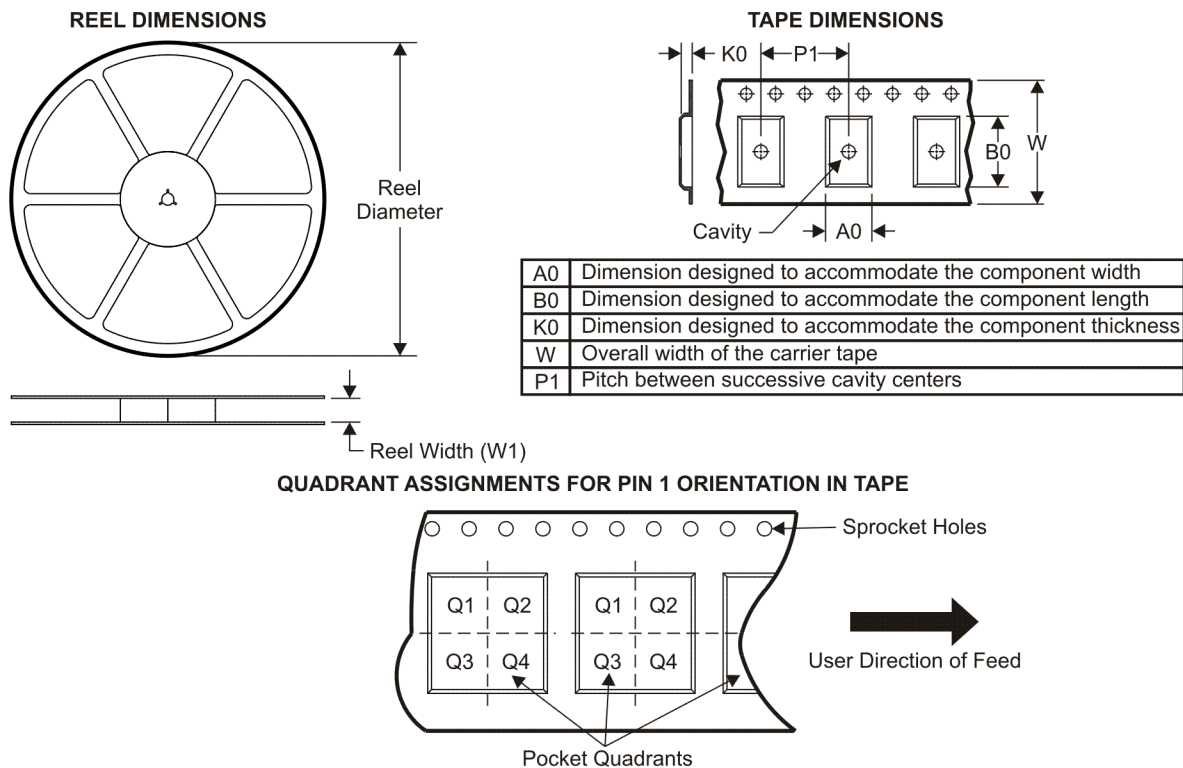
[查询"SN74LVC8T245-Q1"供应商](#)



PACKAG

-
- Catalog - TI's standard catalog product
 - Enhanced Product - Supports Defense, Aerospace and Medical Applications

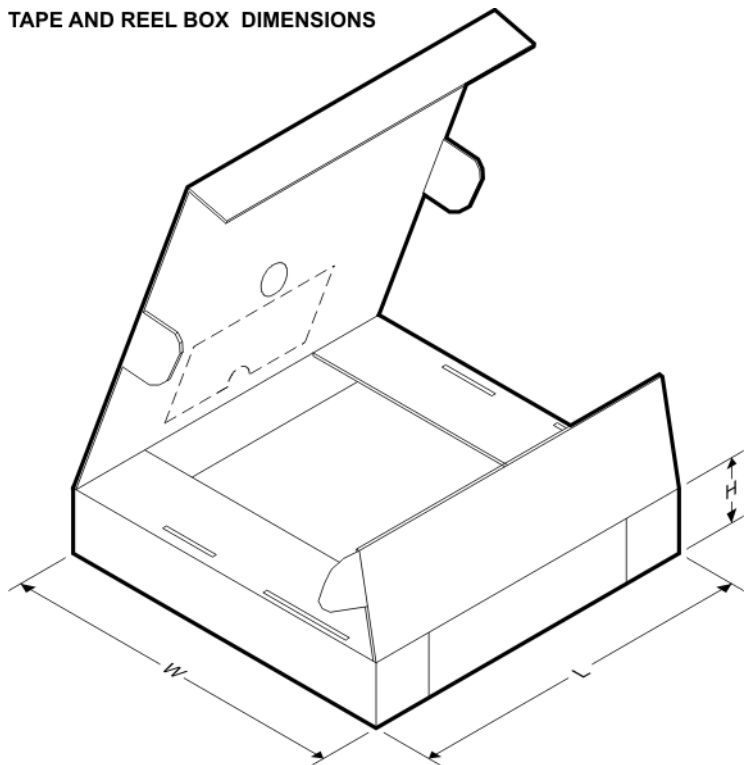
TAPE AND REEL INFORMATION



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74LVC8T245QPWRQ1	TSSOP	PW	24	2000	330.0	16.4	6.95	8.3	1.6	8.0	16.0	Q1

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74LVC8T245QPWRQ1	TSSOP	PW	24	2000	346.0	346.0	33.0

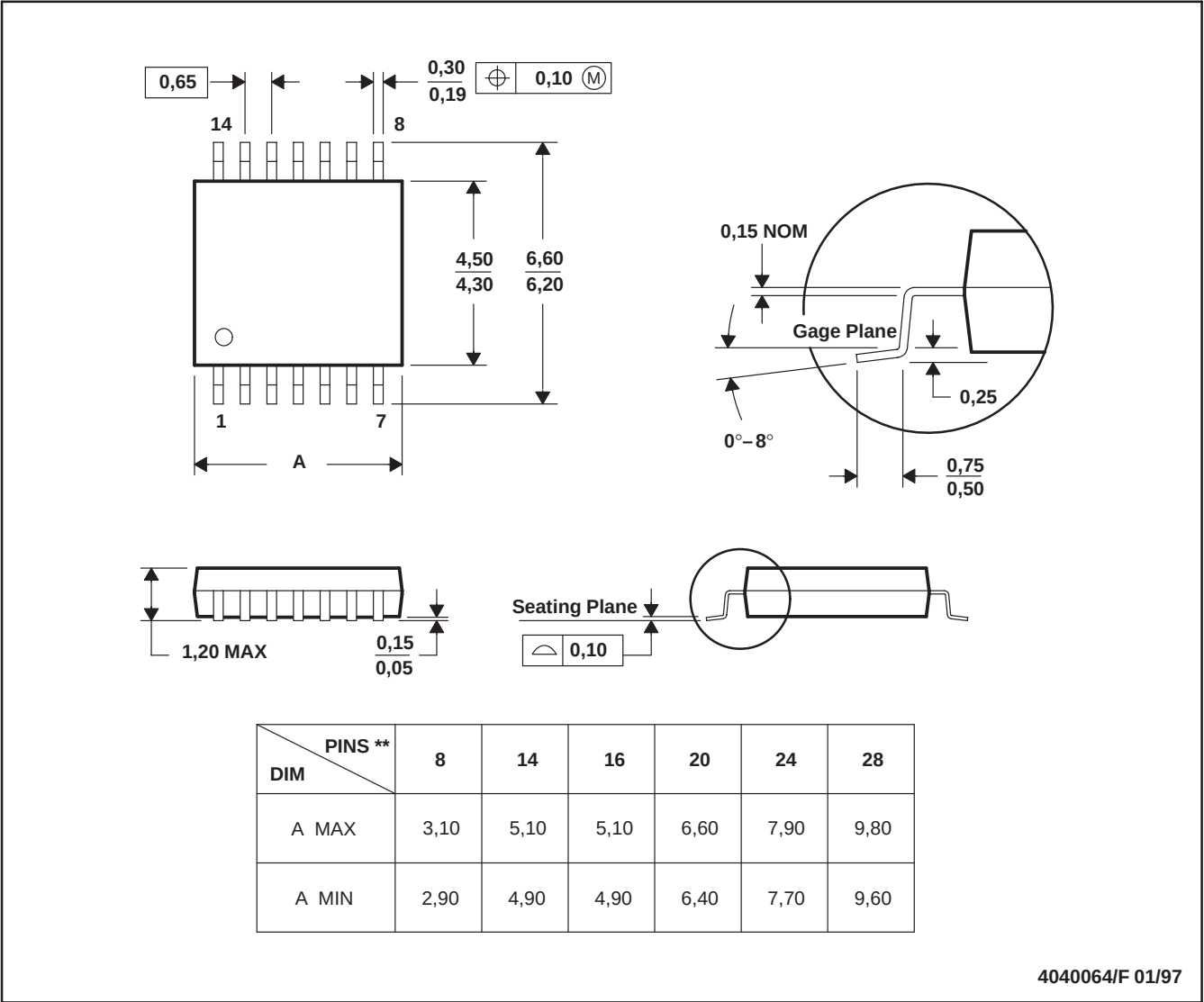
[查询"SN74LVC8T245-Q1"供应商](#)

MTSS001C – JANUARY 1995 – REVISED FEBRUARY 1999

PW (R-PDSO-G**)

PLASTIC SMALL-OUTLINE PACKAGE

14 PINS SHOWN



- NOTES: A. All linear dimensions are in millimeters.
B. This drawing is subject to change without notice.
C. Body dimensions do not include mold flash or protrusion not to exceed 0,15.
D. Falls within JEDEC MO-153

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
RF/IF and ZigBee® Solutions	www.ti.com/lprf

Applications

Audio	www.ti.com/audio
Automotive	www.ti.com/automotive
Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics & Defense	www.ti.com/space-avionics-defense
Video and Imaging	www.ti.com/video
Wireless	www.ti.com/wireless-apps