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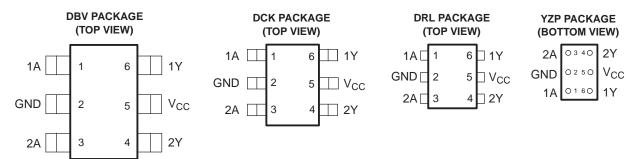
Jameco Part Number 1046457



FEATURES

- Available in the Texas Instruments NanoFree[™] Package
- Supports 5-V V_{CC} Operation
- Inputs Accept Voltages to 5.5 V •
- Max t_{nd} of 4.1 ns at 3.3 V
- Low Power Consumption, 10-µA Max Icc
- ±24-mA Output Drive at 3.3 V ٠
- Typical V_{OLP} (Output Ground Bounce) <0.8 V at V_{CC} = 3.3 V, T_{A} = 25°C

- Typical V_{OHV} (Output V_{OH} Undershoot) >2 V at V_{CC} = 3.3 V, T_A = 25°C
- Ioff Supports Partial-Power-Down Mode Operation
- Latch-Up Performance Exceeds 100 mA Per JESD 78, Class II
- ESD Protection Exceeds JESD 22
 - 2000-V Human-Body Model (A114-A)
 - 200-V Machine Model (A115-A)
 - 1000-V Charged-Device Model (C101)



See mechanical drawings for dimensions.

DESCRIPTION/ORDERING INFORMATION

This dual buffer gate is designed for 1.65-V to 5.5-V V_{CC} operation. The SN74LVC2G34 performs the Boolean function Y = A in positive logic.

NanoFree[™] package technology is a major breakthrough in IC packaging concepts, using the die as the package.

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.

T _A	PACKAGE ⁽¹⁾		ORDERABLE PART NUMBER	TOP-SIDE MARKING ⁽²⁾
	NanoFree™ – WCSP (DSBGA) 0.23-mm Large Bump – YZP (Pb-free)	Reel of 3000	SN74LVC2G34YZPR	C9_
	SOT (SOT-23) – DBV	Reel of 3000	SN74LVC2G34DBVR	C34
–40°C to 85°C	SOT (SOT-23) – DBV	Reel of 250	SN74LVC2G34DBVT	0.34_
		Reel of 3000	SN74LVC2G34DCKR	C9
	SOT (SC-70) – DCK	Reel of 250	SN74LVC2G34DCKT	
	SOT (SOT-533) – DRL	Reel of 4000	SN74LVC2G34DRLR	C9_

ORDERING INFORMATION

(1) Package drawings, standard packing quantities, thermal data, symbolization, and PCB design guidelines are available at www.ti.com/sc/package.

(2)DBV/DCK/DRL: The actual top-side marking has one additional character that designates the assembly/test site. YZP: The actual top-side marking has three preceding characters to denote year, month, and sequence code, and one following character to designate the assembly/test site. Pin 1 identifier indicates solder-bump composition (1 = SnPb, • = Pb-free).



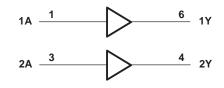
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FUNCTION TABLE (EACH GATE)

INPUT A	OUTPUT Y
Н	Н
L	L

LOGIC DIAGRAM (POSITIVE LOGIC)



Absolute Maximum Ratings⁽¹⁾

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

			MIN	MAX	UNIT	
V _{CC}	Supply voltage range		-0.5	6.5	V	
VI	Input voltage range ⁽²⁾	-0.5	6.5	V		
Vo	Voltage range applied to any output in the h	nigh-impedance or power-off state ⁽²⁾	-0.5	6.5	V	
Vo	Voltage range applied to any output in the h	-0.5	V _{CC} + 0.5	V		
I _{IK}	Input clamp current	V ₁ < 0		-50	mA	
I _{OK}	Output clamp current	V _O < 0		-50	mA	
I _O	Continuous output current			±50	mA	
	Continuous current through V_{CC} or GND			±100	mA	
		DBV package		165		
0	Declares the sum of improved (4)	DCK package		259	°C/W	
θ_{JA}	Package thermal impedance ⁽⁴⁾	DRL package		142		
		YZP package		123		
T _{stg}	Storage temperature range		-65	150	°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 negative-voltage and output voltage ratings may be exceeded if the input and output current ratings are observed.

(3) The value of V_{CC} is provided in the recommended operating conditions table.
 (4) The package thermal impedance is calculated in accordance with JESD 51-7.

Recommended Operating Conditions⁽¹⁾

			MIN	MAX	UNIT
V	Supply voltage	Operating	1.65	5.5	V
V _{CC}	Supply voltage	Data retention only	1.5		v
		V _{CC} = 1.65 V to 1.95 V	$0.65 \times V_{CC}$		
\ <i>\</i>		V_{CC} = 2.3 V to 2.7 V	1.7		V
VIH	High-level input voltage	$V_{CC} = 3 V$ to 3.6 V	2		v
		V_{CC} = 4.5 V to 5.5 V	$0.7 imes V_{CC}$		
		$V_{CC} = 1.65 \text{ V to } 1.95 \text{ V}$		$0.35 \times V_{CC}$	
VIL		V_{CC} = 2.3 V to 2.7 V		0.7	V
L Low-level input voltage	Low-level input voltage	$V_{CC} = 3 V \text{ to } 3.6 V$		0.8	v
		V_{CC} = 4.5 V to 5.5 V		$0.3 \times V_{CC}$	
VI	Input voltage		0	5.5	V
Vo	Output voltage		0	V _{CC}	V
	V _{CC} = 1.65 V		-4		
		V _{CC} = 2.3 V	-8		
I _{ОН}	High-level output current			-16	mA
		$V_{CC} = 3 V$		-24	
		$V_{CC} = 4.5 V$		-32	
		V _{CC} = 1.65 V		4	
		V _{CC} = 2.3 V		8	
I _{OL}	Low-level output current		16		mA
		$V_{CC} = 3 V$	24		
		$V_{CC} = 4.5 V$		32	
		V_{CC} = 1.8 V ± 0.15 V, 2.5 V ± 0.2 V		20	
Δt/Δv Inp	Input transition rise or fall rate	$V_{CC} = 3.3 \text{ V} \pm 0.3 \text{ V}$		ns/V	
		V_{CC} = 5 V ± 0.5 V		5	
T _A	Operating free-air temperature		-40	85	°C

(1) All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation. Refer to the TI application report, Implications of Slow or Floating CMOS Inputs, literature number SCBA004.

SN74LVC2G34 DUAL BUFFER GATE SCES359H-AUGUST 2001-REVISED FEBRUARY 2007

Electrical Characteristics

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

PARAMETER	TEST CONDITIONS	V _{cc}	MIN	TYP ⁽¹⁾	MAX	UNIT
	I _{OH} = -100 μA	1.65 V to 5.5 V	V _{CC} – 0.1			
	$I_{OH} = -4 \text{ mA}$	1.65 V	1.2			
N/	$I_{OH} = -8 \text{ mA}$	2.3 V	1.9			v
V _{OH}	I _{OH} = -16 mA	2.)/	2.4			V
	$I_{OH} = -24 \text{ mA}$	3 V	2.3			
	I _{OH} = -32 mA	4.5 V	3.8			
	I _{OL} = 100 μA	1.65 V to 5.5 V			0.1	
	I _{OL} = 4 mA	1.65 V		0.45		
M	I _{OL} = 8 mA	2.3 V	0.3			v
V _{OL}	I _{OL} = 16 mA	3 V			0.4 ^v	
	I _{OL} = 24 mA	3 V			0.55	
	I _{OL} = 32 mA	4.5 V			0.55	
I _I A inputs	V _I = 5.5 V or GND	0 to 5.5 V			±5	μΑ
l _{off}	$V_1 \text{ or } V_0 = 5.5 \text{ V}$	0			±10	μΑ
I _{CC}	$V_{I} = 5.5 \text{ V or GND}, I_{O} = 0$	1.65 V to 5.5 V			10	μΑ
ΔI_{CC}	One input at V_{CC} – 0.6 V, Other inputs at V_{CC} or GND	3 V to 5.5 V			500	μA
C_i $V_i = V_{CC}$ or GND		3.3 V		3.5		pF

(1) All typical values are at $V_{CC} = 3.3$ V, $T_A = 25^{\circ}C$.

Switching Characteristics

over recommended operating free-air temperature range (unless otherwise noted) (see Figure 1)

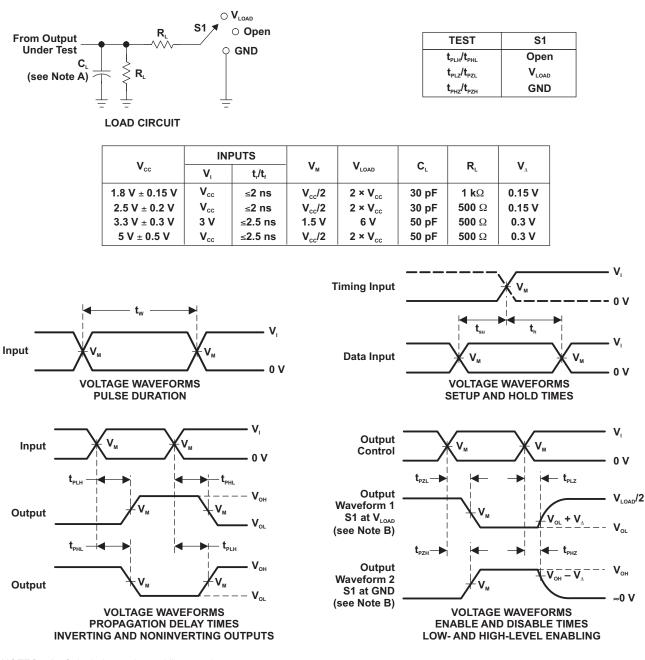
PARAMETER	FROM (INPUT)	TO (OUTPUT)	V _{CC} = ± 0.1		V _{CC} = ± 0.2		V _{CC} = ± 0.3		= V _{CC} ± 0.5		UNIT
	(INFUT)	(001701)	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t _{pd}	A	Y	3.2	8.6	1.5	4.4	1.4	4.1	1	3.2	ns

Operating Characteristics

 $T_A = 25^{\circ}C$

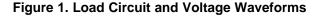
	PARAMETER	TEST CONDITIONS	V _{CC} = 1.8 V	V _{CC} = 2.5 V	V _{CC} = 3.3 V	$V_{CC} = 5 V$	UNIT
		1231 CONDITIONS	TYP	ТҮР	ТҮР	TYP	UNIT
(C _{pd} Power dissipation capacitance	f = 10 MHz	14	14	15	17	pF

PARAMETER MEASUREMENT INFORMATION



NOTES: A. $C_{\scriptscriptstyle L}$ includes probe and jig capacitance.

- B. 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.
 C. All input pulses are supplied by generators having the following characteristics: PRR ≤ 10 MHz, Z_o = 50 Ω.
- D. The outputs are measured one at a time, with one transition per measurement.
- E. t_{PLZ} and t_{PHZ} are the same as t_{dis} .
- F. t_{PZL} and t_{PZH} are the same as t_{en} .
- G. t_{PLH} and t_{PHL} are the same as t_{od} .
- H. All parameters and waveforms are not applicable to all devices.



PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	e Eco Plan ⁽²⁾	Lead/Ball Finish	MSL Peak Temp ⁽³⁾
SN74LVC2G34DBVR	ACTIVE	SOT-23	DBV	6	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74LVC2G34DBVRE4	ACTIVE	SOT-23	DBV	6	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74LVC2G34DBVRG4	ACTIVE	SOT-23	DBV	6	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74LVC2G34DCKR	ACTIVE	SC70	DCK	6	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74LVC2G34DCKRE4	ACTIVE	SC70	DCK	6	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74LVC2G34DCKRG4	ACTIVE	SC70	DCK	6	3000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74LVC2G34DRLR	ACTIVE	SOT-553	DRL	6	4000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74LVC2G34DRLRG4	ACTIVE	SOT-553	DRL	6	4000	Green (RoHS & no Sb/Br)	CU NIPDAU	Level-1-260C-UNLIM
SN74LVC2G34YZPR	ACTIVE	WCSP	YZP	6	3000	Green (RoHS & no Sb/Br)	SNAGCU	Level-1-260C-UNLIM

⁽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/productcontent for the latest availability 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 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free 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 adhesive used 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 (Br or Sb do not exceed 0.1% by weight in homogeneous material)

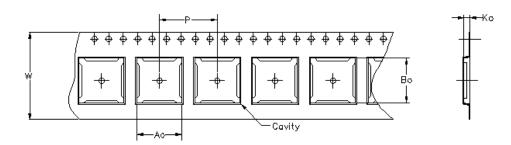
⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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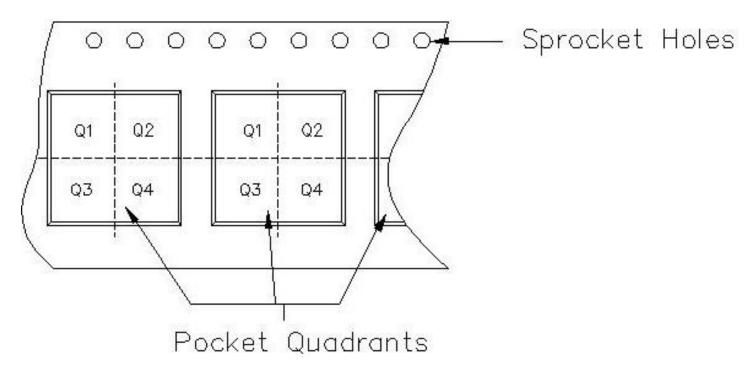


3-Sep-2007



Carrier tape design is defined largely by the component lentgh, width, and thickness.

Ao = Dimension designed to accommodate the component width.
Bo = Dimension designed to accommodate the component length.
Ko = Dimension designed to accommodate the component thickness.
W = Overall width of the carrier tape.
P = Pitch between successive cavity centers.



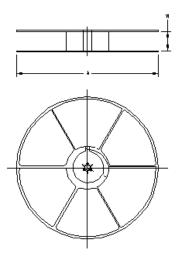
TAPE AND REEL INFORMATION

PACKAGE MATERIALS INFORMATION



3-Sep-2007

Device	Package	Pins	Site	Reel Diameter (mm)	Reel Width (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74LVC2G34DBVR	DBV	6	HNT	180	9	3.23	3.17	1.37	4	8	Q3
SN74LVC2G34DCKR	DCK	6	HNC	180	9	2.24	2.34	1.22	4	8	Q3
SN74LVC2G34DRLR	DRL	6	HNT	180	9	1.78	1.78	0.69	4	8	Q3
SN74LVC2G34YZPR	YZP	6	SCSAT	180	8	1.02	1.52	0.66	4	8	Q1



TAPE AND REEL BOX INFORMATION

Device	Package	Pins	Site	Length (mm)	Width (mm)	Height (mm)
SN74LVC2G34DBVR	DBV	6	HNT	202.0	201.0	28.0
SN74LVC2G34DCKR	DCK	6	HNC	205.0	200.0	33.0
SN74LVC2G34DRLR	DRL	6	HNT	202.0	201.0	28.0
SN74LVC2G34YZPR	YZP	6	SCSAT	220.0	220.0	34.0



PACKAGE MATERIALS INFORMATION

3-Sep-2007



DBV (R-PDSO-G6)

PLASTIC SMALL-OUTLINE PACKAGE



- 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. Mold flash and protrusion shall not exceed 0.15 per side.
- D. Leads 1,2,3 may be wider than leads 4,5,6 for package orientation.
- È. Falls within JEDEC MO-178 Variation AB, except minimum lead width.



DCK (R-PDSO-G6)

PLASTIC SMALL-OUTLINE PACKAGE



- 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. Mold flash and protrusion shall not exceed 0.15 per side.
 - D. Falls within JEDEC MO-203 variation AB.



DRL (R-PDSO-N6)

PLASTIC SMALL OUTLINE



NOTES:

A. All linear dimensions are in millimeters. Dimensioning and tolerancing per ASME Y14.5M-1994. B. This drawing is subject to change without notice.

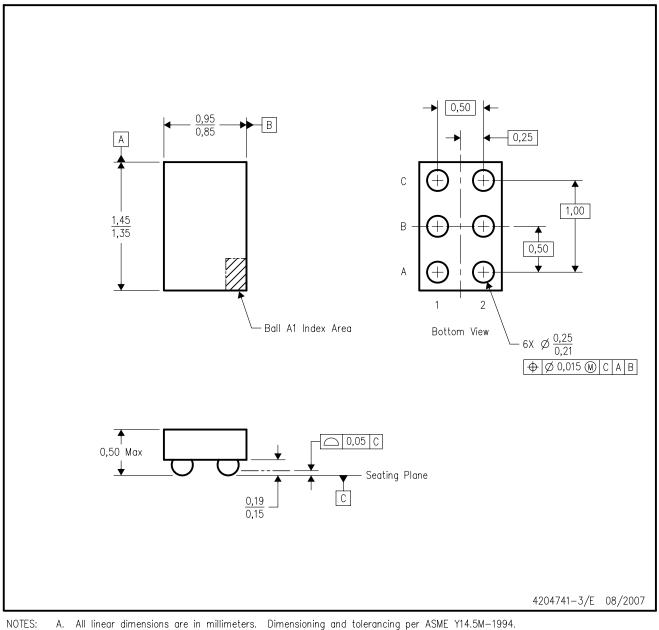
🖄 Body dimensions do not include mold flash, interlead flash, protrusions, or gate burrs. Mold flash, interlead flash, protrusions, or gate burrs shall not exceed 0,15 per end or side.

D. JEDEC package registration is pending.



YZP (R-XBGA-N6)

DIE-SIZE BALL GRID ARRAY



B. This drawing is subject to change without notice.

C. NanoFree™ package configuration.

D. This package is lead-free. Refer to the 6 YEP package (drawing 4204725) for tin-lead (SnPb).

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