

SN74LVC2G126 Dual Bus Buffer Gate With 3-State Outputs

1 Features

- Available in the Texas Instruments NanoFree™ Package
- Supports 5-V V_{CC} Operation
- Inputs Accept Voltages to 5.5 V
- Max t_{pd} of 4ns at 3.3V
- Low Power Consumption, 10- μ A Max I_{CC}
- \pm 24-mA Output Drive at 3.3 V
- Typical V_{OLP} (Output Ground Bounce) < 0.8 V at $V_{CC} = 3.3$ V, $T_A = 25^\circ\text{C}$
- Typical V_{OHV} (Output VOH Undershoot) > 2 V at $V_{CC} = 3.3$ V, $T_A = 25^\circ\text{C}$
- I_{off} Supports Live Insertion, Partial-Power-Down Mode, and Back-Drive Protection
- Can Be Used as a Down Translator to Translate Inputs From a Max of 5.5 V Down to the V_{CC} Level
- Latch-Up Performance Exceeds 100 mA Per JESD 78, Class II
- ESD Protection Exceeds JESD 22
 - 2000-V Human-Body Model
 - 1000-V Charged-Device Model

2 Applications

- Cable Modem Termination Systems
- High-Speed Data Acquisition and Generation
- Military: Radars and Sonars
- Motor Controls: High-Voltage
- Power Line Communication Modems
- SSDs: Internal or External
- Video Broadcasting and Infrastructure: Scalable Platforms
- Video Broadcasting: IP-Based Multi-Format Transcoders
- Video Communication Systems

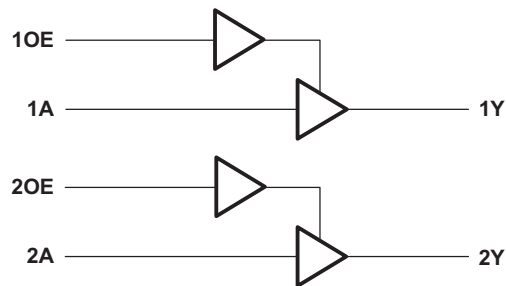
3 Description

These bus transceivers are designed for 1.65-V to 3.6-V V_{CC} operation. The SN74LVC2G126 device is a dual line driver with 3-state output. The output is disabled when the output-enable input is low.

Device Information

| PART NUMBER | PACKAGE ⁽¹⁾ | BODY SIZE (NOM) |
|-----------------|------------------------|-------------------|
| SN74LVC2G126DCT | SM8 (8) | 2.95 mm × 2.80 mm |
| SN74LVC2G126DCU | VSSOP (8) | 2.30 mm × 2.00 mm |
| SN74LVC2G126YZP | DSBGA (8) | 1.91 mm × 0.91 mm |

(1) For all available packages, see the orderable addendum at the end of the data sheet.



Simplified Schematic



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4 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

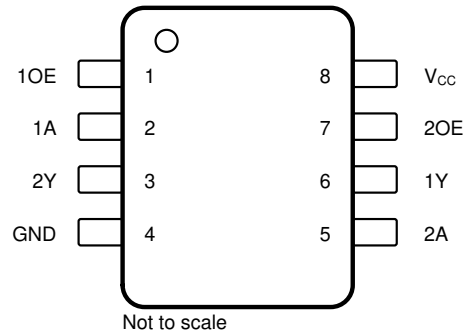
| Changes from Revision M (September 2016) to Revision N (September 2020) | Page |
|---|-------------|
| • Updated the numbering format for tables, figures, and cross-references throughout the document..... | 1 |

| Changes from Revision L (December 2014) to Revision M (September 2016) | Page |
|--|-------------|
| • Deleted Machine Model from <i>Features</i> | 1 |
| • Updated <i>Device Information</i> table..... | 1 |
| • Updated pinout images and <i>Pin Functions</i> table..... | 3 |
| • Added Operating junction temperature, T_j in <i>Absolute Maximum Ratings</i> | 4 |

| Changes from Revision K (November 2013) to Revision L (December 2014) | Page |
|---|-------------|
| • Added <i>Applications</i> , <i>Device Information</i> table, <i>ESD Ratings</i> table, <i>Typical Characteristics</i> , <i>Feature Description</i> section, <i>Device Functional Modes</i> , <i>Application and Implementation</i> section, <i>Power Supply Recommendations</i> section, <i>Layout</i> section, <i>Device and Documentation Support</i> section, and <i>Mechanical, Packaging, and Orderable Information</i> section..... | 1 |
| • Updated <i>Features</i> | 1 |

| Changes from Revision J (January 2007) to Revision K (November 2013) | Page |
|---|-------------|
| • Deleted <i>Ordering Information</i> table. | 1 |
| • Updated operating temperature range..... | 5 |

5 Pin Configuration and Functions



See mechanical drawings for dimensions.

Figure 5-1. DCT or DCU Package 8-Pin SM8 or VSSOP Top View

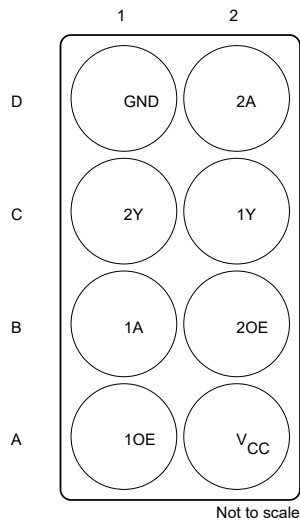


Figure 5-2. YZP Package 8-Pin DSBGA Bottom View

Pin Functions

| NAME | PIN | | TYPE | DESCRIPTION |
|-----------------|------------|-------|------|------------------|
| | SM8, VSSOP | DSBGA | | |
| 1A | 2 | B1 | I | 1A Input |
| 1OE | 1 | A1 | I | 1OE Enable/Input |
| 1Y | 6 | C2 | O | 1Y Output |
| 2A | 5 | D2 | I | 2A Input |
| 2OE | 7 | B2 | I | 2OE Enable/Input |
| 2Y | 3 | C1 | O | 2Y Output |
| GND | 4 | D1 | — | Ground Pin |
| V _{CC} | 8 | A2 | — | Power Pin |

6 Specifications

6.1 Absolute Maximum Ratings

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

| | | MIN | MAX | UNIT |
|------------------|---|--------------------|-----------------------|------|
| V _{CC} | Supply voltage | -0.5 | 6.5 | V |
| V _I | Input voltage ⁽²⁾ | -0.5 | 6.5 | V |
| V _O | Voltage range applied to any output in the high-impedance or power-off state ⁽²⁾ | -0.5 | 6.5 | V |
| V _O | Voltage range applied to any output in the high or low state ⁽²⁾ ⁽³⁾ | -0.5 | V _{CC} + 0.5 | V |
| 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 V _{CC} or GND | | ±100 | mA |
| T _J | Operating junction temperature | | 150 | °C |
| T _{stg} | Storage temperature | -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 [Section 6.3](#) 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 clamp-current ratings are observed.
- (3) The value of V_{CC} is provided in the [Section 6.3](#) table.

6.2 ESD Ratings

| | | VALUE | UNIT |
|--------------------|-------------------------|--|------|
| V _(ESD) | Electrostatic discharge | Human body model (HBM), per ANSI/ESDA/JEDEC JS-001 ⁽¹⁾ | 2000 |
| | | Charged device model (CDM), per JEDEC specification JESD22-C101 ⁽²⁾ | 1000 |

- (1) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.
- (2) JEDEC document JEP157 states that 250-V CDM allows safe manufacturing with a standard ESD control process.

6.3 Recommended Operating Conditions

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

| | | | MIN | MAX | UNIT |
|-----------------|------------------------------------|---|------------------------|------------------------|------|
| V _{CC} | Supply voltage | Operating | 1.65 | 5.5 | V |
| | | Data retention only | 1.5 | | |
| V _{IH} | High-level input voltage | V _{CC} = 1.65 V to 1.95 V | 0.65 × V _{CC} | | V |
| | | V _{CC} = 2.3 V to 2.7 V | 1.7 | | |
| | | V _{CC} = 3 V to 3.6 V | 2 | | |
| | | V _{CC} = 4.5 V to 5.5 V | 0.7 × V _{CC} | | |
| V _{IL} | Low-level input voltage | V _{CC} = 1.65 V to 1.95 V | | 0.35 × V _{CC} | V |
| | | V _{CC} = 2.3 V to 2.7 V | | 0.7 | |
| | | V _{CC} = 3 V to 3.6 V | | 0.8 | |
| | | V _{CC} = 4.5 V to 5.5 V | | 0.3 × V _{CC} | |
| V _I | Input voltage | | 0 | 5.5 | V |
| V _O | Output voltage | High or low state | 0 | V _{CC} | V |
| | | 3-state | 0 | 5.5 | |
| I _{OH} | High-level output current | V _{CC} = 1.65 V | | -4 | mA |
| | | V _{CC} = 2.3 V | | -8 | |
| | | V _{CC} = 3 V | | -16 | |
| | | V _{CC} = 4.5 V | | -24 | |
| I _{OL} | Low-level output current | V _{CC} = 1.65 V | | 4 | mA |
| | | V _{CC} = 2.3 V | | 8 | |
| | | V _{CC} = 3 V | | 16 | |
| | | V _{CC} = 4.5 V | | 24 | |
| Δt/Δv | Input transition rise or fall rate | V _{CC} = 1.8 V ± 0.15 V, 2.5 V ± 0.2 V | | 20 | ns/V |
| | | V _{CC} = 3.3 V ± 0.3 V | | 10 | |
| | | V _{CC} = 5 V ± 0.5 V | | 5 | |
| T _A | Operating free-air temperature | | -40 | 125 | °C |

(1) All unused inputs of the device must be held at V_{CC} or GND to ensure proper device operation. See *Implications of Slow or Floating CMOS Inputs*, SCBA004.

6.4 Thermal Information

| THERMAL METRIC ⁽¹⁾ | SN74LVC2G126 | | | UNIT | |
|-------------------------------|--|-------------|-------------|------|------|
| | DCT (SM8) | DCU (VSSOP) | YZP (DSBGA) | | |
| | 8 PINS | | | | |
| R _{θJA} | Junction-to-ambient thermal resistance | 220 | 227 | 102 | °C/W |

(1) For more information about traditional and new thermal metrics, see the *Semiconductor and IC Package Thermal Metrics* application report.

6.5 Electrical Characteristics

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

| PARAMETER | TEST CONDITIONS | V _{CC} | T _A = 25°C | | -40°C to +85°C | | -40°C to +125°C | | UNIT | |
|------------------|---------------------------|--|-----------------------|--------------------|-----------------------|-----|-----------------------|-----|------|-----|
| | | | MIN | TYP ⁽¹⁾ | MAX | MIN | MAX | MIN | | MAX |
| V _{OH} | I _{OH} = -100 μA | 1.65 V to 5.5 V | V _{CC} - 0.1 | | V _{CC} - 0.1 | | V _{CC} - 0.1 | | V | |
| | I _{OH} = -4 mA | 1.65 V | 1.2 | | 1.2 | | 1.2 | | | |
| | I _{OH} = -8 mA | 2.3 V | 1.9 | | 1.9 | | 1.9 | | | |
| | I _{OH} = -16 mA | 3 V | 2.4 | | 2.4 | | 2.4 | | | |
| | I _{OH} = -24 mA | | 2.3 | | 2.3 | | 2.3 | | | |
| | I _{OH} = -32 mA | 4.5 V | 3.8 | | 3.8 | | 3.8 | | | |
| V _{OL} | I _{OL} = 100 μA | 1.65 V to 5.5 V | | | 0.1 | | 0.1 | | V | |
| | I _{OL} = 4 mA | 1.65 V | | | 0.45 | | 0.45 | | | |
| | I _{OL} = 8 mA | 2.3 V | | | 0.3 | | 0.3 | | | |
| | I _{OL} = 16 mA | 3 V | | | 0.4 | | 0.4 | | | |
| | I _{OL} = 24 mA | | | | 0.55 | | 0.55 | | | |
| | I _{OL} = 32 mA | 4.5 V | | | 0.55 | | 0.55 | | | |
| I _I | A or OE inputs | V _I = 5.5 V or GND | 0 to 5.5 V | | ±5 | | ±5 | | μA | |
| I _{off} | | V _I or V _O = 5.5 V | 0 | | ±10 | | ±10 | | μA | |
| I _{OZ} | | V _O = 0 to 5.5 V | 3.6 V | | 10 | | 10 | | μA | |
| I _{CC} | | V _I = 5.5 V or GND | I _O = 0 | | 1.65 V to 5.5 V | | 10 | | μA | |
| ΔI _{CC} | | One input at V _{CC} - 0.6 V, Other inputs at V _{CC} or GND | | 3 V to 5.5 V | | 500 | | 500 | | μA |
| C _I | Data inputs | V _I = V _{CC} or GND | 3.3 V | | 3.5 | | | | pF | |
| | Control inputs | | | | 4 | | | | | |
| C _O | | V _O = V _{CC} or GND | 3.3 V | | 6.5 | | | | pF | |

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

6.6 Switching Characteristics, -40°C to +85°C

over recommended operating free-air temperature range (unless otherwise noted) (see Figure 7-1)

| PARAMETER | FROM (INPUT) | TO (OUTPUT) | -40°C to +85°C | | | | | | | | UNIT |
|------------------|--------------|-------------|----------------------------------|------|---------------------------------|-----|---------------------------------|-----|-------------------------------|-----|------|
| | | | V _{CC} = 1.8 V ± 0.15 V | | V _{CC} = 2.5 V ± 0.2 V | | V _{CC} = 3.3 V ± 0.3 V | | V _{CC} = 5 V ± 0.5 V | | |
| | | | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | |
| t _{pd} | A | Y | 3.5 | 9.8 | 1.7 | 4.9 | 1.4 | 4 | 1 | 3.2 | ns |
| t _{en} | OE | Y | 3.5 | 10 | 1.7 | 5 | 1.5 | 4.1 | 1 | 3.1 | ns |
| t _{dis} | OE | Y | 1.7 | 12.6 | 1 | 5.7 | 1 | 4.4 | 1 | 3.3 | ns |

6.7 Switching Characteristics, -40°C to +125°C

over recommended operating free-air temperature range (unless otherwise noted) (see Figure 7-1)

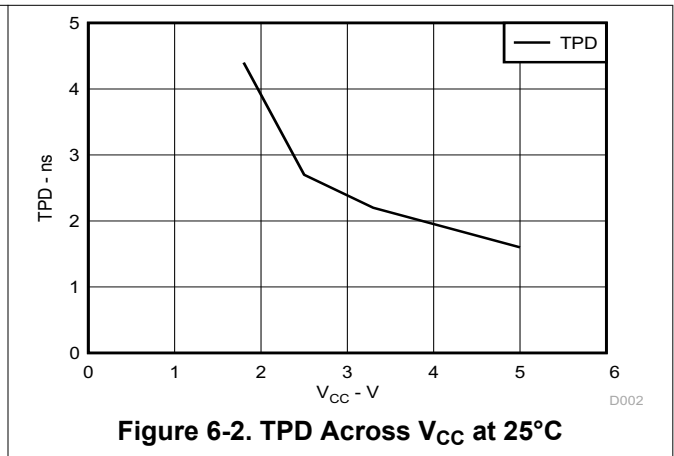
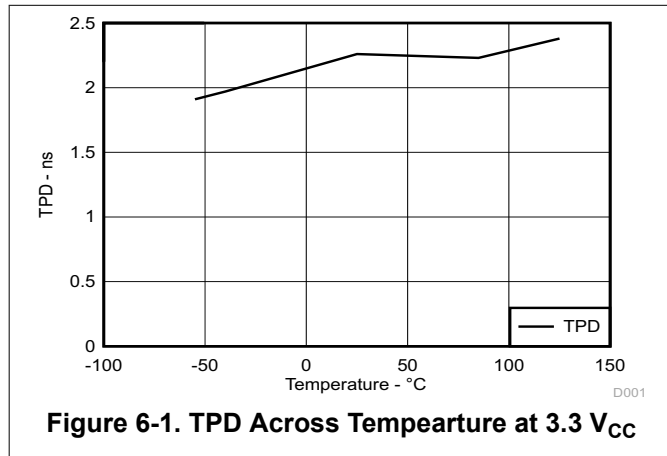
| PARAMETER | FROM (INPUT) | TO (OUTPUT) | -40°C to +125°C | | | | | | | | UNIT |
|------------------|--------------|-------------|----------------------------------|------|---------------------------------|-----|---------------------------------|-----|-------------------------------|-----|------|
| | | | V _{CC} = 1.8 V ± 0.15 V | | V _{CC} = 2.5 V ± 0.2 V | | V _{CC} = 3.3 V ± 0.3 V | | V _{CC} = 5 V ± 0.5 V | | |
| | | | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | |
| t _{pd} | A | Y | 3.5 | 10.8 | 1.7 | 5.9 | 1.4 | 5 | 1 | 3.7 | ns |
| t _{en} | OE | Y | 3.5 | 11 | 1.7 | 6 | 1.5 | 5.1 | 1 | 3.6 | ns |
| t _{dis} | OE | Y | 1.7 | 13.6 | 1 | 6.7 | 1 | 5.4 | 1 | 3.8 | ns |

6.8 Operating Characteristics

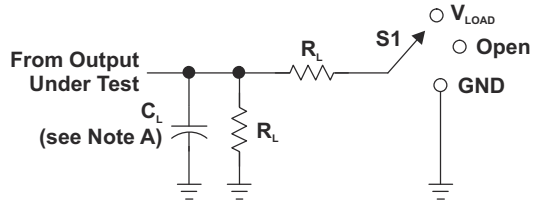
T_A = 25°

| PARAMETER | | TEST CONDITIONS | V _{CC} = 1.8 V | V _{CC} = 2.5 V | V _{CC} = 3.3 V | V _{CC} = 5 V | UNIT |
|-----------------|-------------------------------|------------------|-------------------------|-------------------------|-------------------------|-----------------------|------|
| | | | TYP | TYP | TYP | TYP | |
| C _{pd} | Power dissipation capacitance | Outputs enabled | 19 | 19 | 20 | 22 | pF |
| | | Outputs disabled | 2 | 2 | 2 | 3 | |

6.9 Typical Characteristics



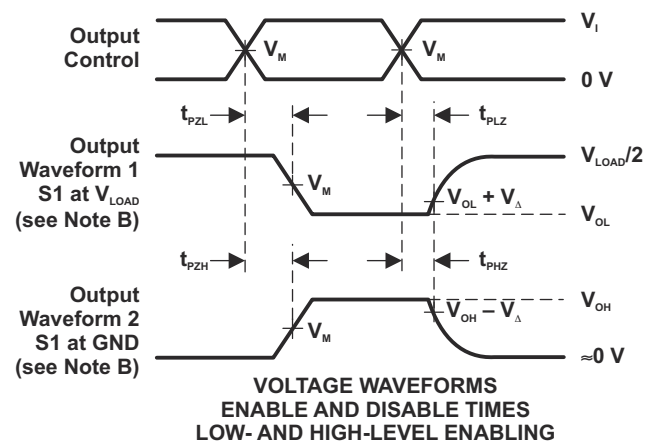
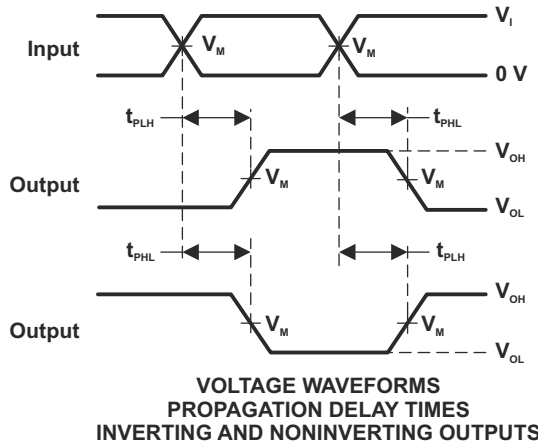
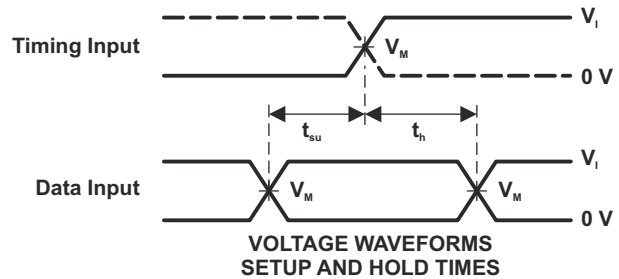
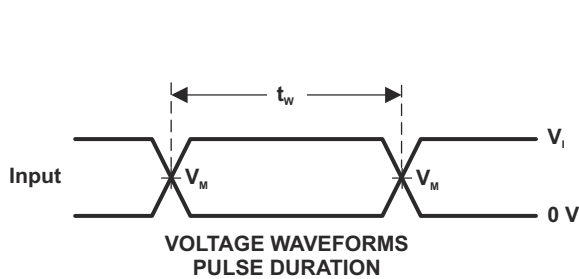
7 Parameter Measurement Information



LOAD CIRCUIT

| TEST | S1 |
|-------------------|------------|
| t_{PLH}/t_{PHL} | Open |
| t_{PLZ}/t_{PZL} | V_{LOAD} |
| t_{PHZ}/t_{PZH} | GND |

| V_{CC} | INPUTS | | V_M | V_{LOAD} | C_L | R_L | V_{Δ} |
|----------------------------------|----------|----------------------|------------|-------------------|-------|--------------|--------------|
| | V_I | t_r/t_f | | | | | |
| $1.8\text{ V} \pm 0.15\text{ V}$ | V_{CC} | $\leq 2\text{ ns}$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 30 pF | 1 k Ω | 0.15 V |
| $2.5\text{ V} \pm 0.2\text{ V}$ | V_{CC} | $\leq 2\text{ ns}$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 30 pF | 500 Ω | 0.15 V |
| $3.3\text{ V} \pm 0.3\text{ V}$ | 3 V | $\leq 2.5\text{ ns}$ | 1.5 V | 6 V | 50 pF | 500 Ω | 0.3 V |
| $5\text{ V} \pm 0.5\text{ V}$ | V_{CC} | $\leq 2.5\text{ ns}$ | $V_{CC}/2$ | $2 \times V_{CC}$ | 50 pF | 500 Ω | 0.3 V |



- NOTES:
- A. C_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 \leq 10 MHz, $Z_o = 50\ \Omega$.
 - 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_{pd} .
 - H. All parameters and waveforms are not applicable to all devices.

Figure 7-1. Load Circuit and Voltage Waveforms

8 Detailed Description

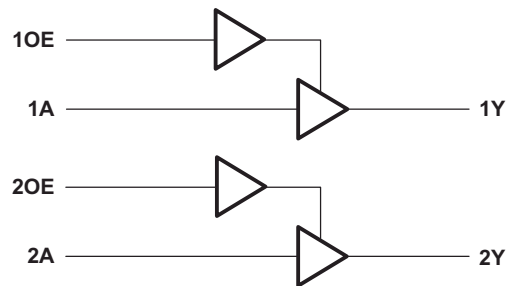
8.1 Overview

The SN74LVC2G126 device contains a dual buffer gate with output enable control and performs the Boolean function $Y = A$.

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.

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

8.2 Functional Block Diagram



8.3 Feature Description

- 1.65 V to 5.5 V operating voltage range
- Allows down voltage translation
 - 5 V to 3.3 V
 - 5 V or 3.3 V to 1.8V
- Inputs accept voltages to 5.5 V
 - 5-V tolerance on input pin
- I_{off} feature
 - Allows voltage on the inputs and outputs when V_{CC} is 0 V
 - Able to prevent leakage when V_{CC} is 0 V

8.4 Device Functional Modes

Table 8-1 lists the functional modes of SN74LVC2G126.

Table 8-1. Function Table

| INPUTS | | OUTPUT |
|--------|---|--------|
| OE | A | Y |
| H | H | H |
| H | L | L |
| L | X | Z |

9 Application and Implementation

Note

Information in the following applications sections is not part of the TI component specification, and TI does not warrant its accuracy or completeness. TI's customers are responsible for determining suitability of components for their purposes. Customers should validate and test their design implementation to confirm system functionality.

9.1 Application Information

The SN74LVC2G126 device is a high-drive CMOS device that can be used as an output enabled buffer with a high output drive, such as an LED application. It can produce 24 mA of drive current at 3.3 V, making it ideal for driving multiple outputs and good for high speed applications up to 100 MHz. The inputs are 5.5-V tolerant allowing it to translate down to V_{CC} .

9.2 Typical Application

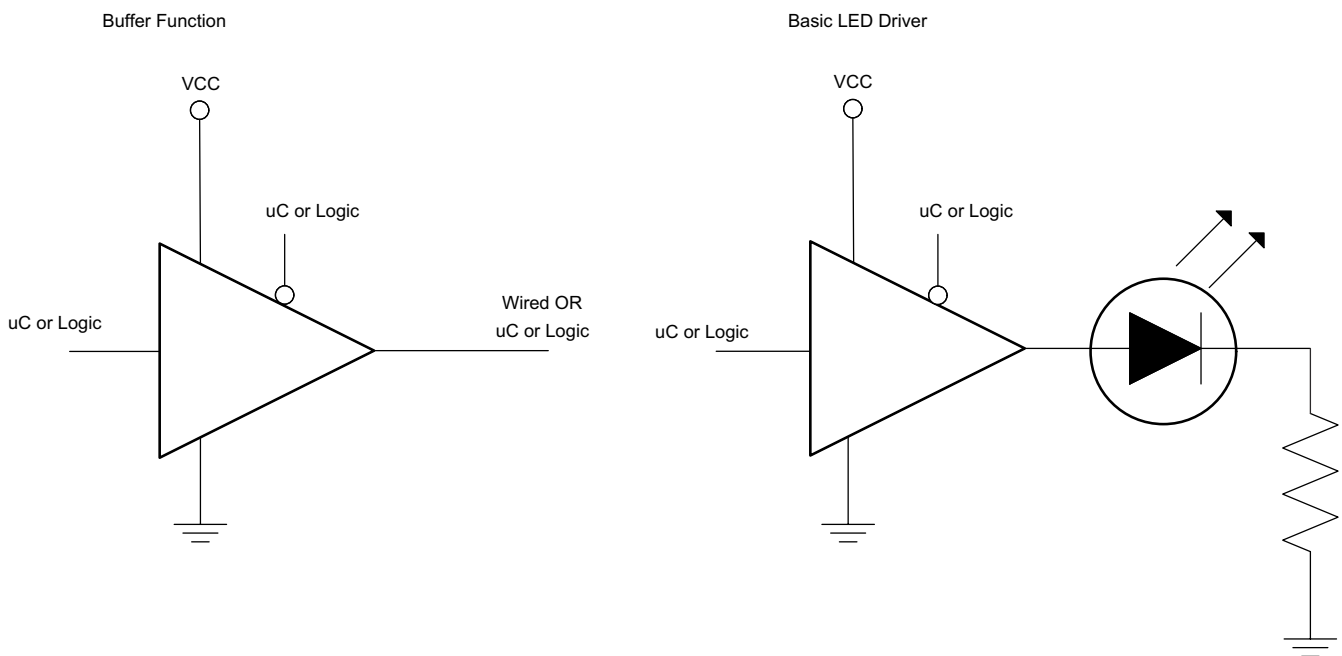


Figure 9-1. Application Schematic

9.2.1 Design Requirements

This device uses CMOS technology and has balanced output drive. Take care to avoid bus contention because it can drive currents that would exceed maximum limits. Outputs can be combined to produce higher drive but the high drive also creates faster edges into light loads so routing and load conditions should be considered to prevent ringing.

9.2.2 Detailed Design Procedure

- Recommended Input Conditions:
 - For rise time and fall time specifications, see $\Delta t/\Delta V$ in the [Section 6.3](#) table.
 - For specified high and low levels, see V_{IH} and V_{IL} in the [Section 6.3](#) table.
 - Inputs are overvoltage tolerant allowing them to go as high as 5.5 V at any valid V_{CC} .
- Recommended Output Conditions:
 - Load currents should not exceed 50 mA per output and 100 mA total for the part.

9.2.3 Application Curve

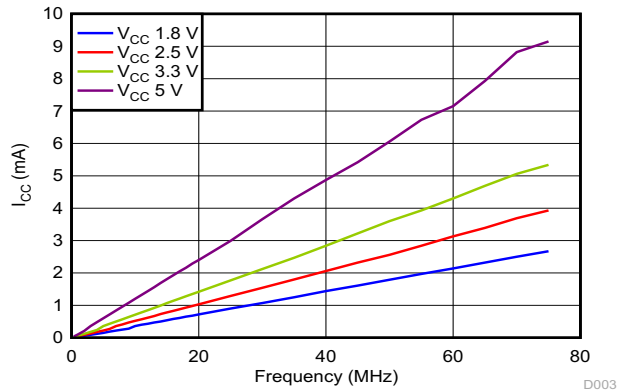


Figure 9-2. I_{CC} vs Frequency

10 Power Supply Recommendations

The power supply can be any voltage between the MIN and MAX supply voltage rating located in the [Section 6.3](#) table.

Each V_{CC} terminal should have a good bypass capacitor to prevent power disturbance. For devices with a single supply, a 0.1-μF capacitor is recommended. If there are multiple V_{CC} terminals then 0.01-μF or 0.022-μF capacitors are recommended for each power terminal. It is ok to parallel multiple bypass capacitors to reject different frequencies of noise. Multiple bypass capacitors may be paralleled to reject different frequencies of noise. Install the bypass capacitor as close to the power terminal as possible for the best results.

11 Layout

11.1 Layout Guidelines

When using multiple bit logic devices, inputs should not float. In many cases, functions or parts of functions of digital logic devices are unused. Some examples are when only two inputs of a triple-input AND gate are used, or when only 3 of the 4-buffer gates are used. Such input pins should not be left unconnected because the undefined voltages at the outside connections result in undefined operational states.

Specified in [Figure 11-1](#) are rules that must be observed under all circumstances. All unused inputs of digital logic devices must be connected to a high or low bias to prevent them from floating. The logic level that should be applied to any particular unused input depends on the function of the device. Generally they will be tied to GND or V_{CC} , whichever makes more sense or is more convenient. It is acceptable to float outputs unless the part is a transceiver. If the transceiver has an output enable pin, it will disable the outputs section of the part when asserted. This does not disable the input section of the I/Os so they also cannot float when disabled.

11.2 Layout Example

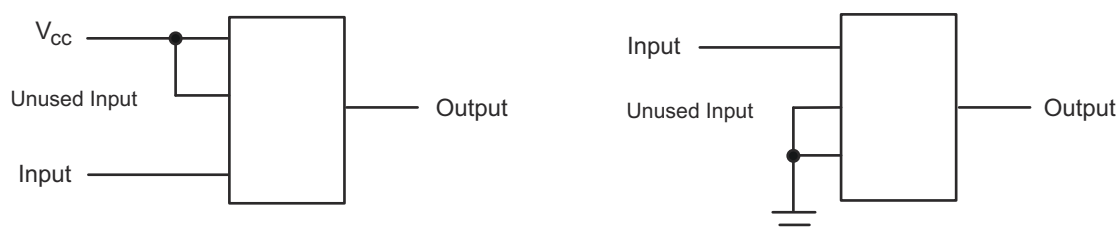


Figure 11-1. Layout Diagram

12 Device and Documentation Support

12.1 Receiving Notification of Documentation Updates

To receive notification of documentation updates, navigate to the device product folder on ti.com. Click on *Subscribe to updates* to register and receive a weekly digest of any product information that has changed. For change details, review the revision history included in any revised document.

12.2 Support Resources

[TI E2E™ support forums](#) are an engineer's go-to source for fast, verified answers and design help — straight from the experts. Search existing answers or ask your own question to get the quick design help you need.

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12.3 Trademarks

TI E2E™ is a trademark of Texas Instruments.

All other trademarks are the property of their respective owners.

12.4 Electrostatic Discharge Caution



This integrated circuit can be damaged by ESD. Texas Instruments recommends that all integrated circuits be handled with appropriate precautions. Failure to observe proper handling and installation procedures can cause damage.

ESD damage can range from subtle performance degradation to complete device failure. Precision integrated circuits may be more susceptible to damage because very small parametric changes could cause the device not to meet its published specifications.

12.5 Glossary

[TI Glossary](#) This glossary lists and explains terms, acronyms, and definitions.

13 Mechanical, Packaging, and Orderable Information

The following pages include mechanical packaging and orderable information. This information is the most current data available for the designated devices. This data is subject to change without notice and revision of this document. For browser based versions of this data sheet, refer to the left hand navigation.

PACKAGING INFORMATION

| Orderable Device | Status (1) | Package Type | Package Drawing | Pins | Package Qty | Eco Plan (2) | Lead finish/ Ball material (6) | MSL Peak Temp (3) | Op Temp (°C) | Device Marking (4/5) | Samples |
|------------------|---------------|--------------|-----------------|------|-------------|-----------------|--------------------------------------|----------------------|--------------|-------------------------|-------------------------|
| 74LVC2G126DCTRG4 | ACTIVE | SM8 | DCT | 8 | 3000 | RoHS & Green | NIPDAU | Level-1-260C-UNLIM | -40 to 125 | C26 Z | Samples |
| 74LVC2G126DCUTG4 | ACTIVE | VSSOP | DCU | 8 | 250 | RoHS & Green | NIPDAU | Level-1-260C-UNLIM | -40 to 125 | C26R | Samples |
| SN74LVC2G126DCTR | ACTIVE | SM8 | DCT | 8 | 3000 | RoHS & Green | NIPDAU SN | Level-1-260C-UNLIM | -40 to 125 | (2WL5, C26) Z | Samples |
| SN74LVC2G126DCUR | ACTIVE | VSSOP | DCU | 8 | 3000 | RoHS & Green | NIPDAU SN | Level-1-260C-UNLIM | -40 to 125 | (C26J, C26Q, C26R) | Samples |
| SN74LVC2G126DCUT | ACTIVE | VSSOP | DCU | 8 | 250 | RoHS & Green | NIPDAU SN | Level-1-260C-UNLIM | -40 to 125 | (C26J, C26Q, C26R) | Samples |
| SN74LVC2G126YZPR | ACTIVE | DSBGA | YZP | 8 | 3000 | RoHS & Green | SNAGCU | Level-1-260C-UNLIM | -40 to 125 | (CN7, CNN) | Samples |

(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) **RoHS:** TI defines "RoHS" to mean semiconductor products that are compliant with the current EU RoHS requirements for all 10 RoHS substances, including the requirement that RoHS substance do not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, "RoHS" products are suitable for use in specified lead-free processes. TI may reference these types of products as "Pb-Free".

RoHS Exempt: TI defines "RoHS Exempt" to mean products that contain lead but are compliant with EU RoHS pursuant to a specific EU RoHS exemption.

Green: TI defines "Green" to mean the content of Chlorine (Cl) and Bromine (Br) based flame retardants meet JS709B low halogen requirements of <=1000ppm threshold. Antimony trioxide based flame retardants must also meet the <=1000ppm threshold requirement.

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

(4) There may be additional marking, which relates to the logo, the lot trace code information, or the environmental category on the device.

(5) Multiple Device Markings will be inside parentheses. Only one Device Marking contained in parentheses and separated by a "~" will appear on a device. If a line is indented then it is a continuation of the previous line and the two combined represent the entire Device Marking for that device.

(6) Lead finish/Ball material - Orderable Devices may have multiple material finish options. Finish options are separated by a vertical ruled line. Lead finish/Ball material values may wrap to two lines if the finish value exceeds the maximum column width.

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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 on an annual basis.

OTHER QUALIFIED VERSIONS OF SN74LVC2G126 :

- Enhanced Product : [SN74LVC2G126-EP](#)

NOTE: Qualified Version Definitions:

- Enhanced Product - Supports Defense, Aerospace and Medical Applications

TAPE AND REEL INFORMATION

QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE


*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 |
|------------------|--------------|-----------------|------|------|--------------------|--------------------|---------|---------|---------|---------|--------|---------------|
| 74LVC2G126DCTRG4 | SM8 | DCT | 8 | 3000 | 180.0 | 13.0 | 3.35 | 4.5 | 1.55 | 4.0 | 12.0 | Q3 |
| 74LVC2G126DCUTG4 | VSSOP | DCU | 8 | 250 | 180.0 | 8.4 | 2.25 | 3.35 | 1.05 | 4.0 | 8.0 | Q3 |
| SN74LVC2G126DCTR | SM8 | DCT | 8 | 3000 | 180.0 | 12.4 | 3.15 | 4.35 | 1.55 | 4.0 | 12.0 | Q3 |
| SN74LVC2G126DCUR | VSSOP | DCU | 8 | 3000 | 178.0 | 9.0 | 2.25 | 3.35 | 1.05 | 4.0 | 8.0 | Q3 |
| SN74LVC2G126DCUT | VSSOP | DCU | 8 | 250 | 178.0 | 9.0 | 2.25 | 3.35 | 1.05 | 4.0 | 8.0 | Q3 |
| SN74LVC2G126DCUT | VSSOP | DCU | 8 | 250 | 178.0 | 9.5 | 2.25 | 3.35 | 1.05 | 4.0 | 8.0 | Q3 |
| SN74LVC2G126YZPR | DSBGA | YZP | 8 | 3000 | 178.0 | 9.2 | 1.02 | 2.02 | 0.63 | 4.0 | 8.0 | Q1 |

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

| Device | Package Type | Package Drawing | Pins | SPQ | Length (mm) | Width (mm) | Height (mm) |
|------------------|--------------|-----------------|------|------|-------------|------------|-------------|
| 74LVC2G126DCTRG4 | SM8 | DCT | 8 | 3000 | 182.0 | 182.0 | 20.0 |
| 74LVC2G126DCUTG4 | VSSOP | DCU | 8 | 250 | 202.0 | 201.0 | 28.0 |
| SN74LVC2G126DCTR | SM8 | DCT | 8 | 3000 | 190.0 | 190.0 | 30.0 |
| SN74LVC2G126DCUR | VSSOP | DCU | 8 | 3000 | 180.0 | 180.0 | 18.0 |
| SN74LVC2G126DCUT | VSSOP | DCU | 8 | 250 | 180.0 | 180.0 | 18.0 |
| SN74LVC2G126DCUT | VSSOP | DCU | 8 | 250 | 202.0 | 201.0 | 28.0 |
| SN74LVC2G126YZPR | DSBGA | YZP | 8 | 3000 | 220.0 | 220.0 | 35.0 |



4225266/A 09/2014

NOTES:

1. All linear dimensions are in millimeters. Any dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. Reference JEDEC registration MO-187 variation CA.

EXAMPLE BOARD LAYOUT

DCU0008A

VSSOP - 0.9 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 25X



4225266/A 09/2014

NOTES: (continued)

- 5. Publication IPC-7351 may have alternate designs.
- 6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

EXAMPLE STENCIL DESIGN

DCU0008A

VSSOP - 0.9 mm max height

SMALL OUTLINE PACKAGE



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE: 25X

4225266/A 09/2014

NOTES: (continued)

7. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
8. Board assembly site may have different recommendations for stencil design.



4220784/C 06/2021

NOTES:

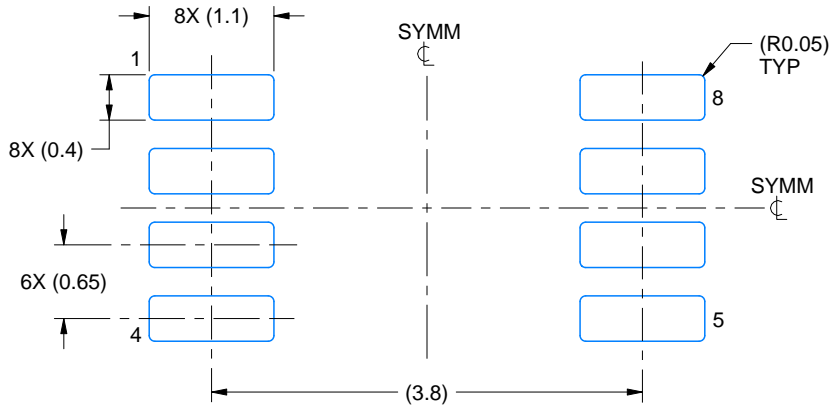
1. All linear dimensions are in millimeters. Dimensions in parenthesis are for reference only. Dimensioning and tolerancing per ASME Y14.5M.
2. This drawing is subject to change without notice.
3. This dimension does not include mold flash, protrusions, or gate burrs. Mold flash, protrusions, or gate burrs shall not exceed 0.15 mm per side.
4. This dimension does not include interlead flash. Interlead flash shall not exceed 0.25 mm per side.

EXAMPLE BOARD LAYOUT

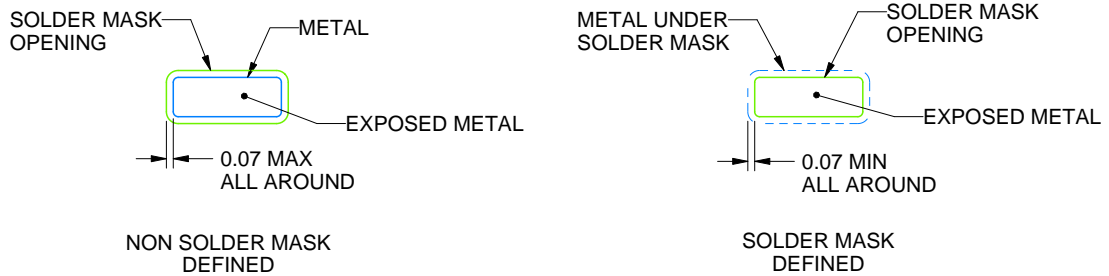
DCT0008A

SSOP - 1.3 mm max height

SMALL OUTLINE PACKAGE



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE:15X



SOLDER MASK DETAILS

4220784/C 06/2021

NOTES: (continued)

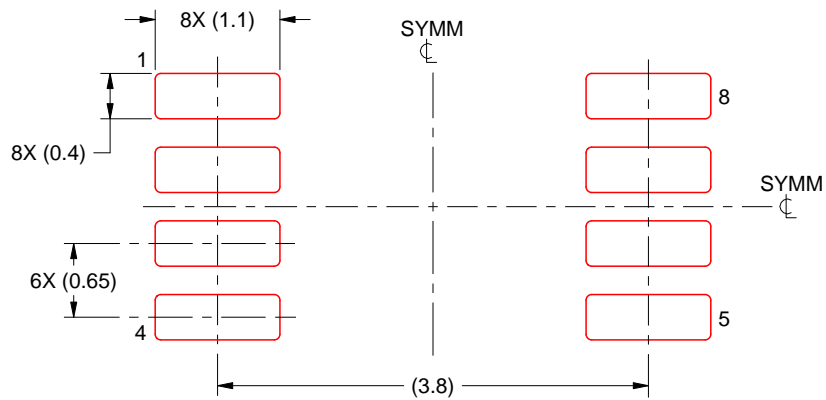
- 5. Publication IPC-7351 may have alternate designs.
- 6. Solder mask tolerances between and around signal pads can vary based on board fabrication site.

EXAMPLE STENCIL DESIGN

DCT0008A

SSOP - 1.3 mm max height

SMALL OUTLINE PACKAGE



SOLDER PASTE EXAMPLE
BASED ON 0.125 mm THICK STENCIL
SCALE:15X

4220784/C 06/2021

NOTES: (continued)

7. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release. IPC-7525 may have alternate design recommendations.
8. Board assembly site may have different recommendations for stencil design.

EXAMPLE BOARD LAYOUT

YZP0008

DSBGA - 0.5 mm max height

DIE SIZE BALL GRID ARRAY



LAND PATTERN EXAMPLE
SCALE:40X



SOLDER MASK DETAILS
NOT TO SCALE

4223082/A 07/2016

NOTES: (continued)

- Final dimensions may vary due to manufacturing tolerance considerations and also routing constraints. For more information, see Texas Instruments literature number SNVA009 (www.ti.com/lit/snva009).

EXAMPLE STENCIL DESIGN

YZP0008

DSBGA - 0.5 mm max height

DIE SIZE BALL GRID ARRAY



SOLDER PASTE EXAMPLE
BASED ON 0.1 mm THICK STENCIL
SCALE:40X

4223082/A 07/2016

NOTES: (continued)

4. Laser cutting apertures with trapezoidal walls and rounded corners may offer better paste release.

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