SN74LVC2G66-Q1 Automotive Dual Bilateral Analog Switch

1 Features

- Functional safety-capable
  - Documentation available to aid functional safety system design
- Qualified for automotive applications
- AEC-Q100 qualified with the following results:
  - Device temperature grade 1: –40°C to +125°C ambient operating temperature range
  - Device HBM ESD classification level H2
  - Device CDM ESD classification level C3B
- 1.65 V to 5.5 V V_{CC} operation
- Inputs accept voltages to 5.5 V
- High on-off output voltage ratio
- High degree of linearity
- High speed, typically 0.5 ns (V_{CC} = 3 V, C_L = 50 pF)
- Rail-to-rail input output
- Low on-state resistance, typically ≠6 Ω (V_{CC} = 4.5 V)

2 Applications

- Wireless devices
- Audio and video signal routing
- Portable computing
- Wearable devices
- Signal gating, chopping, modulation or demodulation (modem)
- Signal multiplexing for analog-to-digital and digital-to-analog conversion systems

3 Description

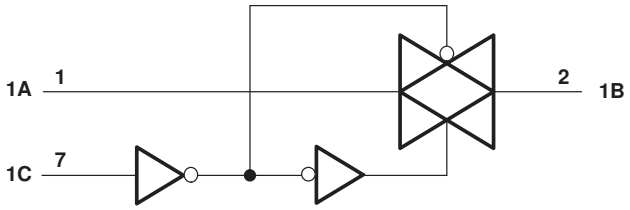
The design of this dual bilateral analog switch is for 1.65 V to 5.5 V V_{CC} operation. The SN74LVC2G66-Q1 can handle both analog and digital signals. The device permits signals with amplitudes of up to 5.5 V (peak) to be transmitted in either direction. Each switch section has its own enable-input control (C). A high-level voltage applied to C turns on the associated switch section.

Applications include signal gating, chopping, modulation or demodulation (modem), and signal multiplexing for analog-to-digital and digital-to-analog conversion systems.

Device Information(1)

PART NUMBER	PACKAGE	BODY SIZE (NOM)
SN74LVC2G66-Q1	VSSOP (8)	2.30 mm × 2.00 mm

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



One of Two Switches

Logic Diagram, Each Switch (Positive Logic)

Table of Contents

4 Revision History

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

Changes from Revision A (July 2012) to Revision B (October 2021)	Page
• Updated the numbering format for tables, figures, and cross-references throughout the document	1
• Added functional safety text to the data sheet	1
• Added the *Detailed Description* sections	14
• Added the *Application and Implementation* sections	15
• Added the *Power Supply Reccommendations* section	16
• Added the *Layout* sections	17
• Added the *Device and Documentation* sections	18

5 Ordering Information

T_A	PACKAGE(1)		ORDERABLE PART NUMBER	TOP-SIDE MARKING(2)
–40°C to 125°C	VSSOP – DCU	Reel of 3000	SN74LVC2G66QDCURQ1	CAY_

(1) Package drawings, thermal data, and symbolization are available at www.ti.com/packaging.
(2) DCU: The actual top-side marking has one additional character that designates the assembly/test site.

6 Pin Configuration and Functions

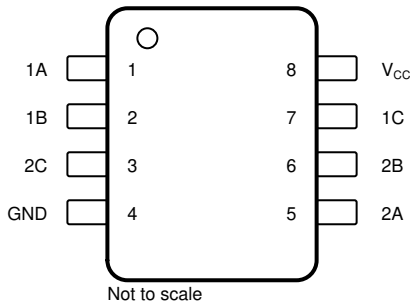


Figure 6-1. DCU Package 8-Pin VSSOP Top View

Pin Functions

PIN		I/O	DESCRIPTION
NAME	NAME		
1A	1	I/O	Bidirectional signal to be switched
1B	2	I/O	Bidirectional signal to be switched
2C	3	I	Controls the switch (L = OFF, H = ON)
GND	4	—	Ground pin
2A	5	I/O	Bidirectional signal to be switched
2B	6	I/O	Bidirectional signal to be switched
1C	7	I	Controls the switch (L = OFF, H = ON)
V_{CC}	8	—	Power Pin

7 Specifications

7.1 Absolute Maximum Ratings

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

			MIN	MAX	UNIT
V_{CC}	Supply voltage range(2)		–0.5	6.5	V
V_I	Input voltage range(2) (3)		–0.5	6.5	V
V_O	Switch I/O voltage range(2) (3) (4)		–0.5	V_{CC} + 0.5	V
I_{IK}	Control input clamp current	V_I < 0		–50	mA
$I_{I/OK}$	I/O port diode current	$V_{I/O}$ < 0 or $V_{I/O}$ > V_{CC}		–50	mA
I_T	On-state switch current	$V_{I/O}$ = 0 to V_{CC}		±50	mA
	Continuous current through V_{CC} or GND			±100	mA
T_J	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 *Recommended Operating Conditions* is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.
(2) All voltages are with respect to ground, unless otherwise specified.
(3) Exceeding the input and output negative-voltage ratings is permitted when in observance of the input and output clamp-current ratings.
(4) This limit on this value is limited 5.5 V maximum.

7.2 ESD Ratings

			VALUE	UNIT
$V_{(ESD)}$	Electrostatic discharge	Human-body model (HBM), per AEC Q100-002(1)	2000	V
		Charged-device model (CDM), per AEC Q100-011	750	

(1) AEC Q100-002 indicates that HBM stressing shall be in accordance with the ANSI/ESDA/JEDEC JS-001 specification.

7.3 Thermal Information

THERMAL METRIC(1)		SN74LVC2G66-Q1 DCU (VSSOP) 8 PINS	UNIT
$R_{\theta JA}$	Junction-to-ambient thermal resistance	204.4	°C/W
$R_{\theta JCtop}$	Junction-to-case (top) thermal resistance	77	°C/W
$R_{\theta JB}$	Junction-to-board thermal resistance	83.2	°C/W
ψ_{JT}	Junction-to-top characterization parameter	7.1	°C/W
ψ_{JB}	Junction-to-board characterization parameter	82.7	°C/W
$R_{\theta JCbot}$	Junction-to-case (bottom) thermal resistance	N/A	°C/W

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

7.4 Recommended Operating Conditions

See (1)

			MIN	MAX	UNIT
V_{CC}	Supply voltage		1.65	5.5	V
$V_{I/O}$	I/O port voltage		0	V_{CC}	V
V_{IH}	High-level input voltage, control input	V_{CC} = 1.65 V to 1.95 V	V_{CC} × 0.65		V
		V_{CC} = 2.3 V to 2.7 V	V_{CC} × 0.7		
		V_{CC} = 3 V to 3.6 V	V_{CC} × 0.7		
		V_{CC} = 4.5 V to 5.5 V	V_{CC} × 0.7		

7.4 Recommended Operating Conditions (continued)

See (1)

			MIN	MAX	UNIT
V_{IL}	Low-level input voltage, control input	V_{CC} = 1.65 V to 1.95 V		V_{CC} × 0.35	V
		V_{CC} = 2.3 V to 2.7 V		V_{CC} × 0.3	
		V_{CC} = 3 V to 3.6 V		V_{CC} × 0.3	
		V_{CC} = 4.5 V to 5.5 V		V_{CC} × 0.3	
V_I	Control input voltage		0	5.5	V
Δt/Δv	Input transition rise/fall time	V_{CC} = 1.65 V to 1.95 V		20	ns/V
		V_{CC} = 2.3 V to 2.7 V		20	
		V_{CC} = 3 V to 3.6 V		10	
		V_{CC} = 4.5 V to 5.5 V		10	
T_A	Operating free-air temperature		–40	125	°C

(1) Hold all unused inputs of the device at V_{CC} or GND to ensure proper device operation. See the TI application report, *Implications of Slow or Floating CMOS Inputs*, literature number SCBA004.

7.5 Electrical Characteristics

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

PARAMETER		TEST CONDITIONS		V_{CC}	MIN	TYP(1)	MAX	UNIT
r_{on}	On-state switch resistance	V_I = V_{CC} or GND, V_C = V_{IH} (see Figure 8-1 and Figure 7-1)	I_S = 4 mA	1.65 V		12.5	35	Ω
			I_S = 8 mA	2.3 V		9	30	
			I_S = 24 mA	3 V		7.5	20	
			I_S = 32 mA	4.5 V		6	15	
$r_{on(p)}$	Peak on-state resistance	V_I = V_{CC} to GND, V_C = V_{IH} (see Figure 8-1 and Figure 7-1)	I_S = 4 mA	1.65 V		85	120(1)	Ω
			I_S = 8 mA	2.3 V		22	30(1)	
			I_S = 24 mA	3 V		12	25	
			I_S = 32 mA	4.5 V		7.5	20	
Δr_{on}	Difference of on-state resistance between switches	V_I = V_{CC} to GND, V_C = V_{IH} (see Figure 8-1 and Figure 7-1)	I_S = 4 mA	1.65 V			10	Ω
			I_S = 8 mA	2.3 V			8	
			I_S = 24 mA	3 V			6	
			I_S = 32 mA	4.5 V			5	
$I_{S(off)}$	Off-state switch leakage current	V_I = V_{CC} and V_O = GND or V_I = GND and V_O = V_{CC}, V_C = V_{IL} (see Figure 8-2)		5.5 V			±2	μA
							±0.1(1)	
$I_{S(on)}$	On-state switch leakage current	V_I = V_{CC} or GND, V_C = V_{IH}, V_O = Open (see Figure 8-3)		5.5 V			±2	μA
							±0.1(1)	
I_I	Control input current	V_C = V_{CC} or GND		5.5 V			±1	μA
							±0.1(1)	
I_{CC}	Supply current	V_C = V_{CC} or GND		5.5 V			15	μA
							1(1)	
ΔI_{CC}	Supply-current change	V_C = V_{CC} – 0.6 V		5.5 V			500	μA
C_{ic}	Control input capacitance			5 V		3.5		pF
$C_{io(off)}$	Switch input/output capacitance			5 V		6		pF
$C_{io(on)}$	Switch input/output capacitance			5 V		14		pF

(1) T_A = 25°C

7.6 Switching Characteristics

over recommended operating free-air temperature range (unless otherwise noted) (see Figure 8-4)

PARAMETER	FROM (INPUT)	TO (OUTPUT)	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		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
t_{en} (1)	C	A or B	2.3	12	1.6	7.5	1.5	6.4	1.3	5.9	ns
t_{dis} (2)	C	A or B	2.2	12.5	1.2	7.9	2	9.2	1.1	8.3	ns

(1) t_{PZL} and t_{PZH} are the same as t_{en}.
(2) t_{PLZ} and t_{PHZ} are the same as t_{dis}.

7.7 Analog Switch Characteristics

T_A = 25°C

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	V_{CC}	TYP	UNIT
Frequency response (switch on)	A or B	B or A	C_L = 50 pF, R_L = 600 Ω, f_{in} = sine wave (see Figure 8-5)	1.65 V	35	MHz
				2.3 V	120	
				3 V	175	
				4.5 V	195	
			C_L = 5 pF, R_L = 50 Ω, f_{in} = sine wave (see Figure 8-5)	1.65 V	>300	
				2.3 V	>300	
				3 V	>300	
				4.5 V	>300	
Crosstalk(1) (between switches)	A or B	B or A	C_L = 50 pF, R_L = 600 Ω, f_{in} = 1 MHz (sine wave) (see Figure 8-6)	1.65 V	–58	dB
				2.3 V	–58	
				3 V	–58	
				4.5 V	–58	
			C_L = 5 pF, R_L = 50 Ω, f_{in} = 1 MHz (sine wave) (see Figure 8-6)	1.65 V	–42	
				2.3 V	–42	
				3 V	–42	
				4.5 V	–42	
Crosstalk (control input to signal output)	C	A or B	C_L = 50 pF, R_L = 600 Ω, f_{in} = 1 MHz (square wave) (see Figure 8-7)	1.65 V	35	mV
				2.3 V	50	
				3 V	70	
				4.5 V	100	
Feedthrough attenuation (switch off)	A or B	B or A	C_L = 50 pF, R_L = 600 Ω, f_{in} = 1 MHz (sine wave) (see Figure 8-8)	1.65 V	–58	dB
				2.3 V	–58	
				3 V	–58	
				4.5 V	–58	
			C_L = 5 pF, R_L = 50 Ω, f_{in} = 1 MHz (sine wave) (see Figure 8-8)	1.65 V	–42	
				2.3 V	–42	
				3 V	–42	
				4.5 V	–42	

7.7 Analog Switch Characteristics (continued)

T_A = 25°C

PARAMETER	FROM (INPUT)	TO (OUTPUT)	TEST CONDITIONS	V_{CC}	TYP	UNIT
Sine-wave distortion	A or B	B or A	C_L = 50 pF, R_L = 10 kΩ, f_{in} = 1 kHz (sine wave) (see Figure 8-9)	1.65 V	0.1%	
				2.3 V	0.025%	
				3 V	0.015%	
				4.5 V	0.01%	
			C_L = 50 pF, R_L = 10 kΩ, f_{in} = 10 kHz (sine wave) (see Figure 8-9)	1.65 V	0.15%	
				2.3 V	0.025%	
				3 V	0.015%	
				4.5 V	0.01%	

(1) Adjust f_{in} voltage to obtain 0 dBm at input.

7.8 Operating Characteristics

T_A = 25°C

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	f = 10 MHz	8	9	9.5	11	pF

7.9 Typical Characteristics

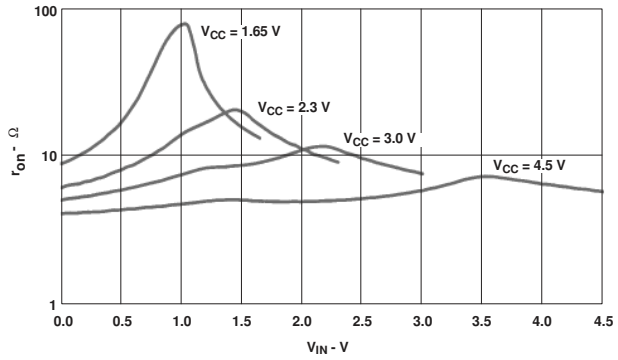


Figure 7-1. Typical r_{on} as a Function of Input Voltage (V_I) for V_I = 0 to V_{CC}

8 Parameter Measurement Information

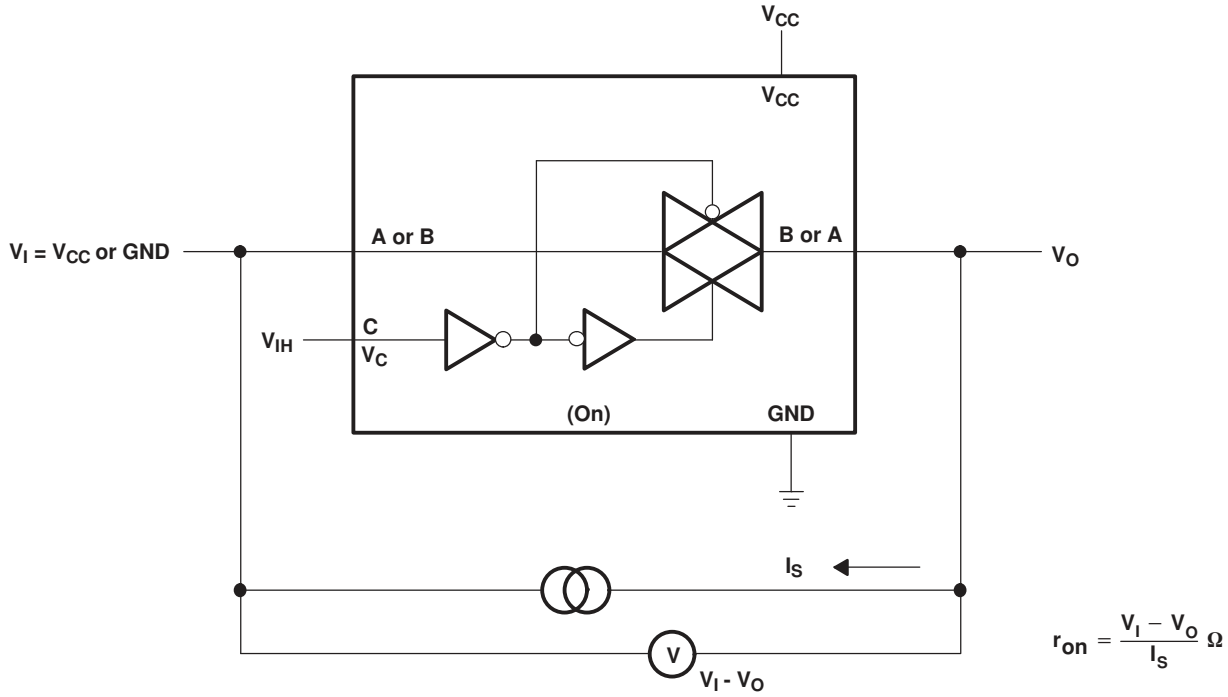


Figure 8-1. On-State Resistance Test Circuit

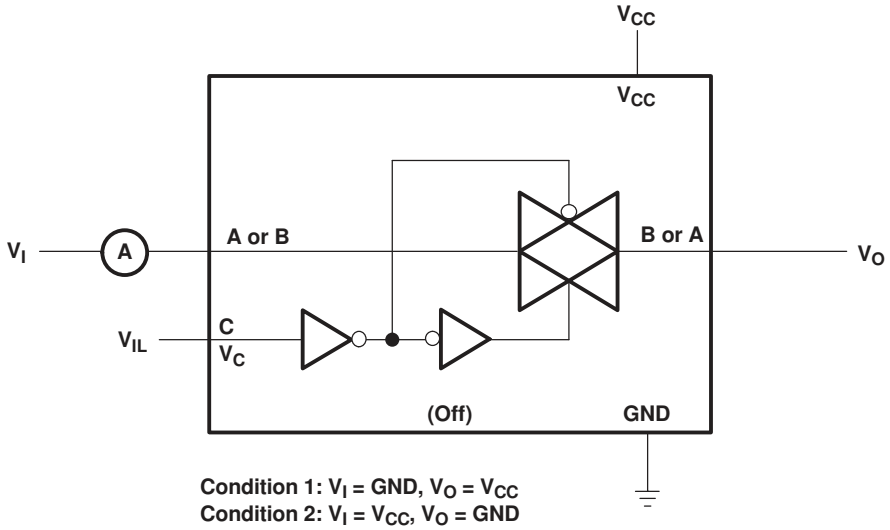


Figure 8-2. Off-State Switch Leakage-Current Test Circuit

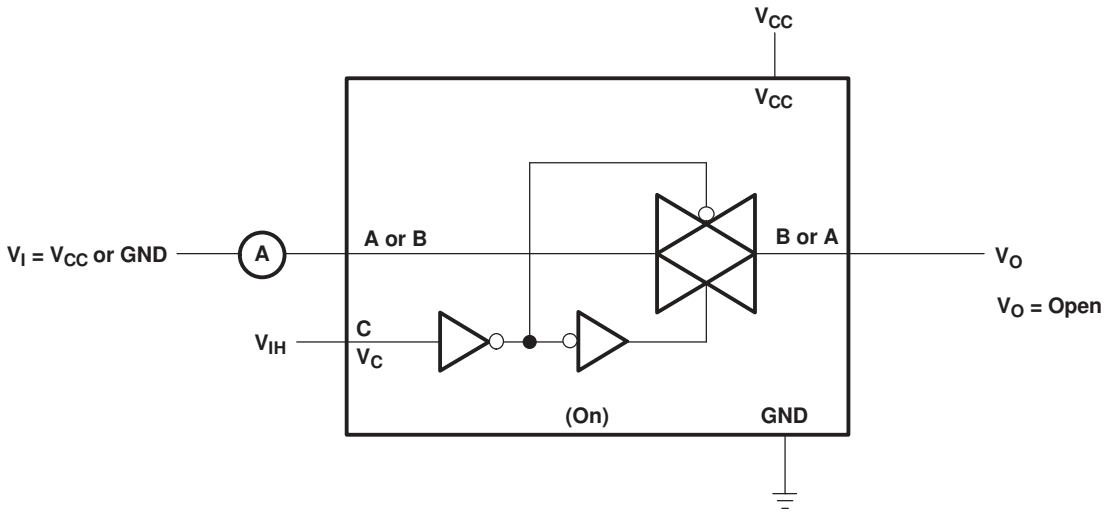
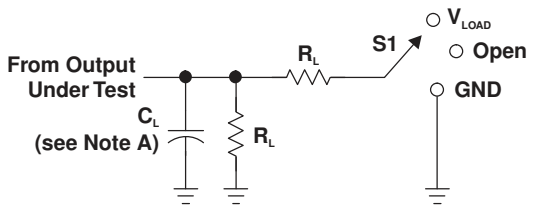


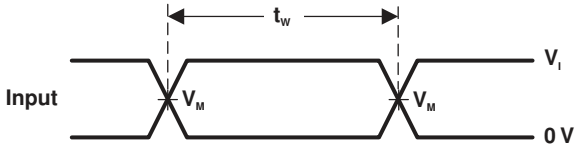
Figure 8-3. On-State Leakage-Current Test Circuit



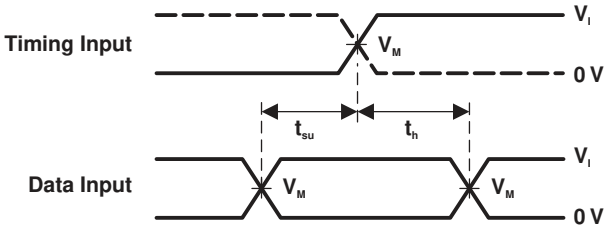
LOAD CIRCUIT

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

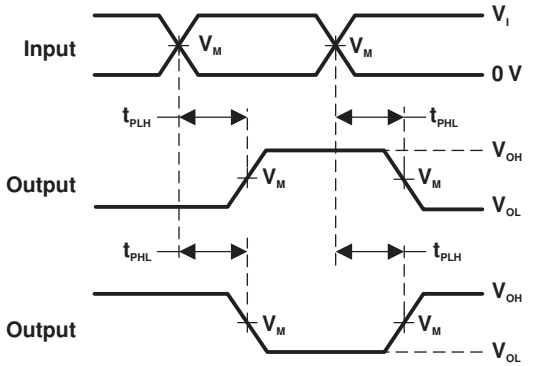
V_{CC}	INPUTS		V_M	V_{LOAD}	C_L	R_L	V_Δ
	V_I	t_r/t_f					
1.8 V ± 0.15 V	V_{CC}	≤2 ns	$V_{CC}/2$	2 × V_{CC}	30 pF	1 kΩ	0.15 V
2.5 V ± 0.2 V	V_{CC}	≤2 ns	$V_{CC}/2$	2 × V_{CC}	30 pF	500 Ω	0.15 V
3.3 V ± 0.3 V	V_{CC}	≤2.5 ns	$V_{CC}/2$	2 × V_{CC}	50 pF	500 Ω	0.3 V
5 V ± 0.5 V	V_{CC}	≤2.5 ns	$V_{CC}/2$	2 × V_{CC}	50 pF	500 Ω	0.3 V



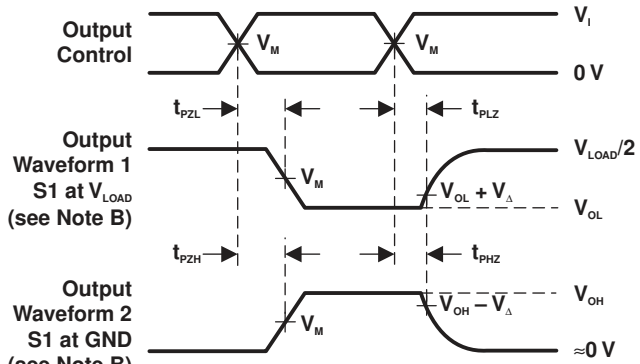
VOLTAGE WAVEFORMS
PULSE DURATION



VOLTAGE WAVEFORMS
SETUP AND HOLD TIMES



VOLTAGE WAVEFORMS
PROPAGATION DELAY TIMES
INVERTING AND NONINVERTING OUTPUTS



VOLTAGE WAVEFORMS
ENABLE AND DISABLE TIMES
LOW- AND HIGH-LEVEL ENABLING

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 have 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_{pd}.
H. All parameters and waveforms are not applicable to all devices.

Figure 8-4. Load Circuit and Voltage Waveforms

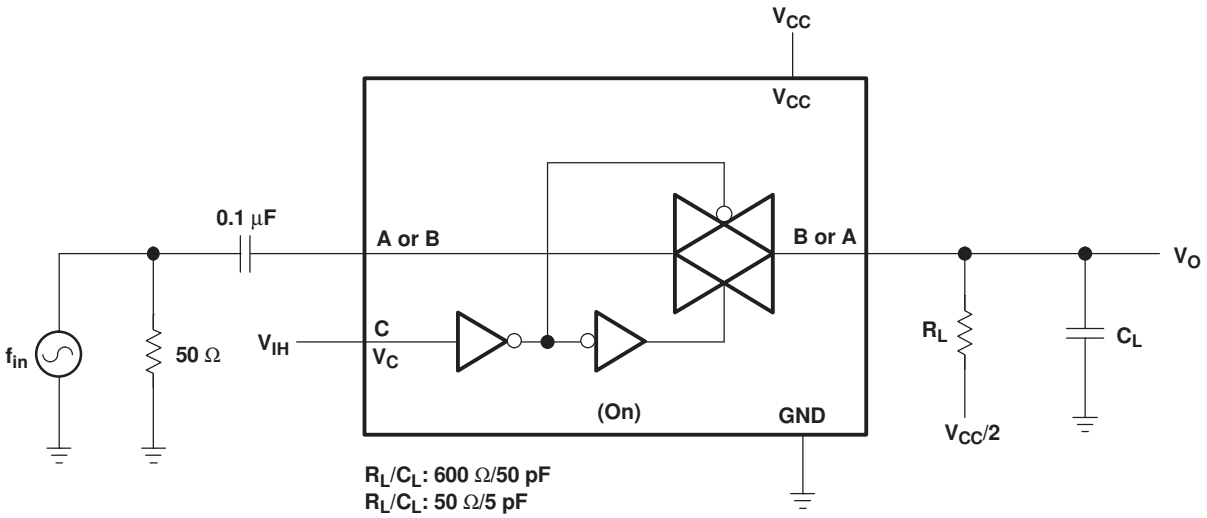


Figure 8-5. Frequency Response (Switch On)

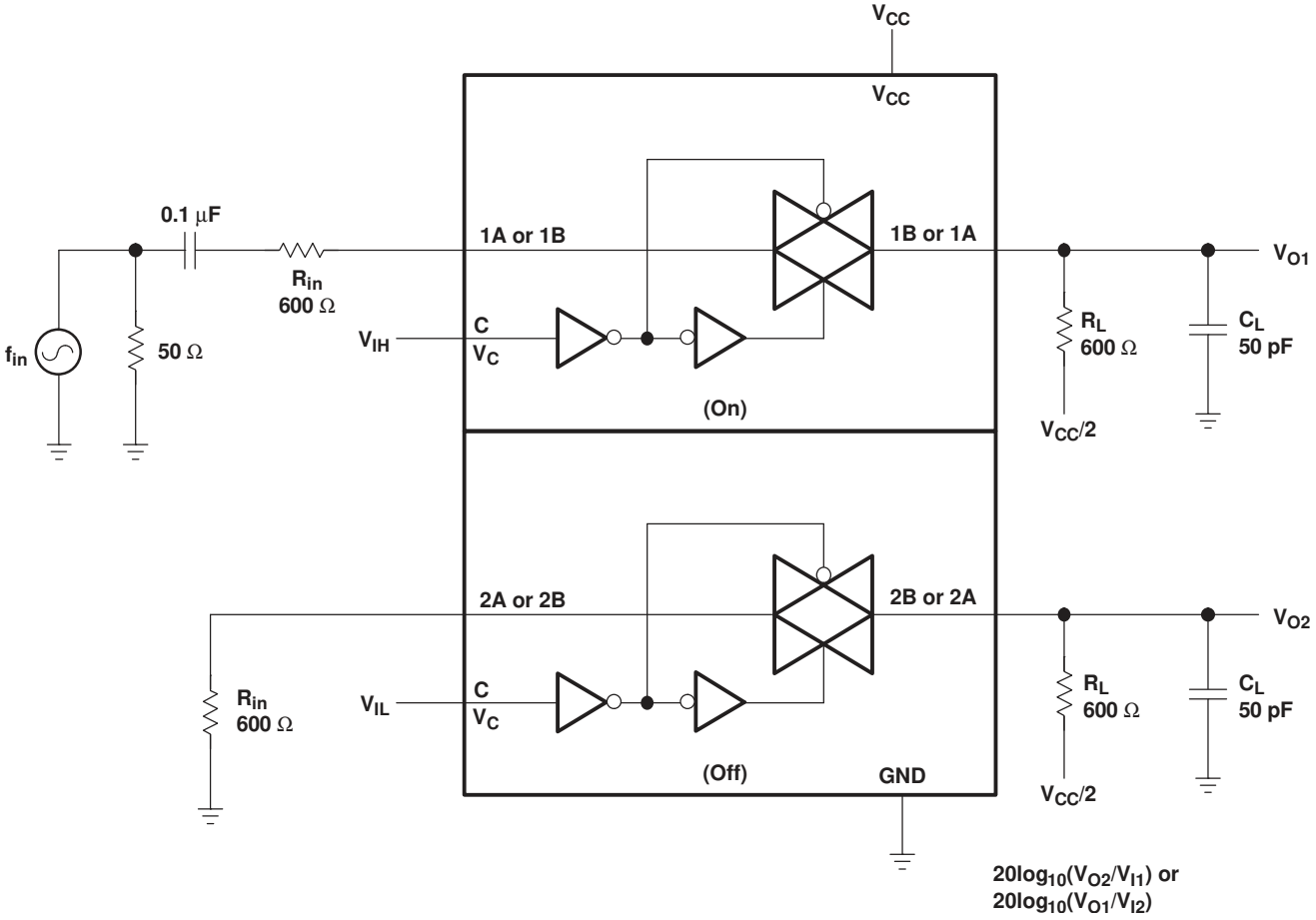


Figure 8-6. Crosstalk (Between Switches)

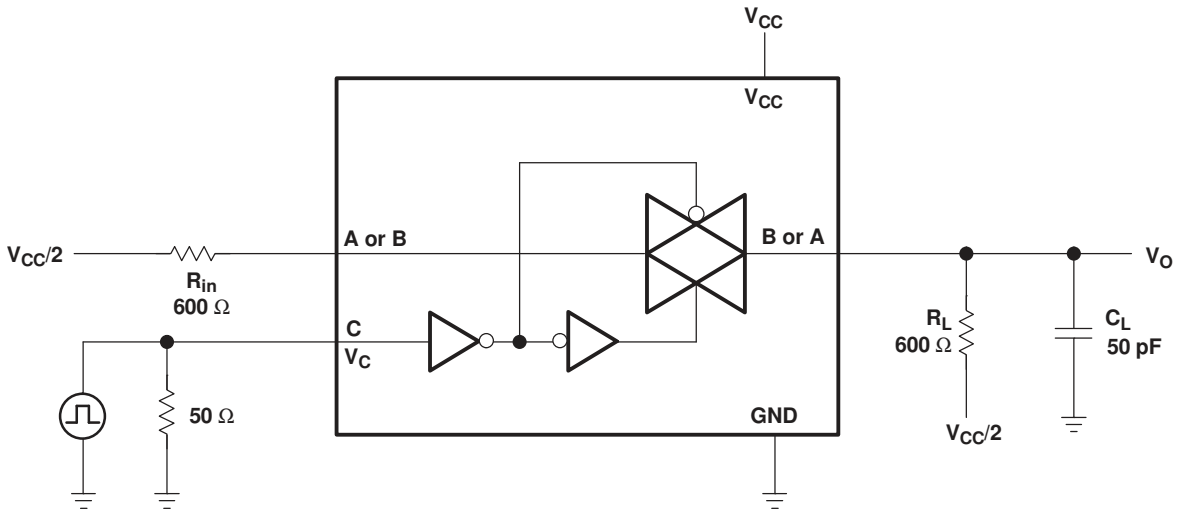


Figure 8-7. Crosstalk (Control Input, Switch Output)

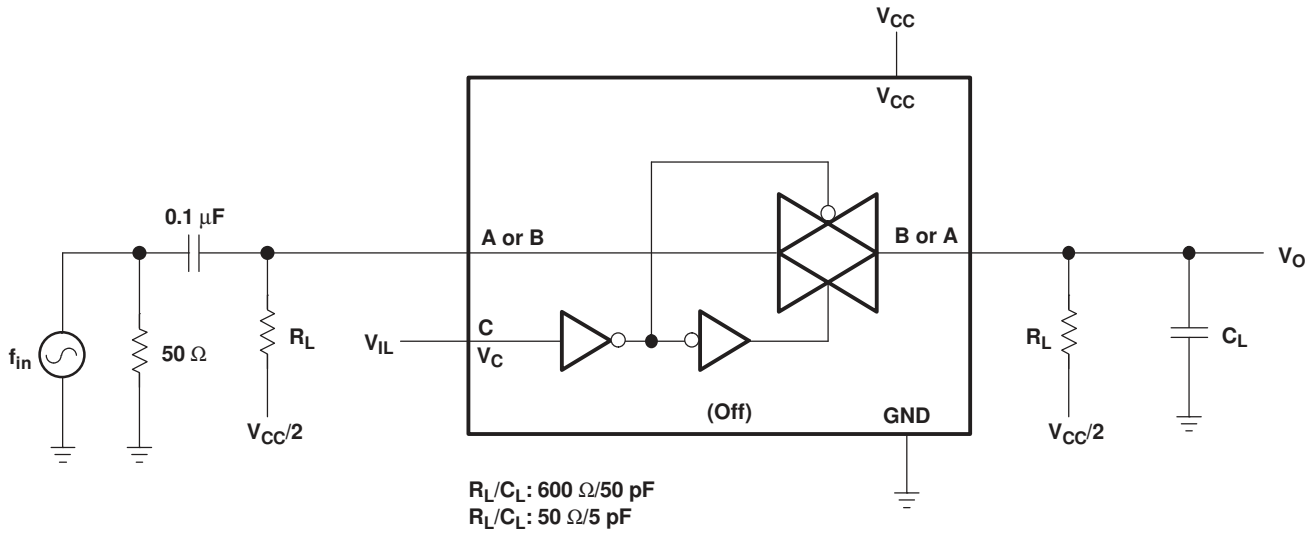


Figure 8-8. Feedthrough (Switch Off)

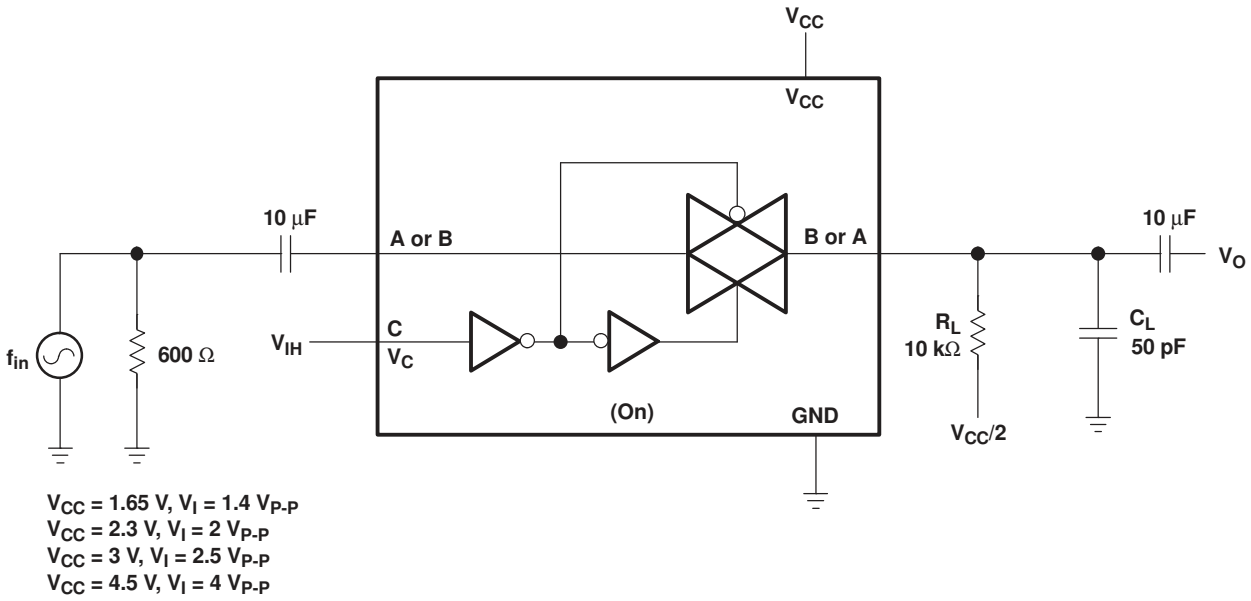


Figure 8-9. Sine-Wave Distortion

9 Detailed Description

9.1 Overview

This dual bilateral analog switch is designed for 1.65-V to 5.5-V V_{CC} operation. Robust LVC family technology allows this device to accept input voltages without connecting power to V_{CC}.

The SN74LVC2G66-Q1 device permits signals with amplitudes of up to 5.5 V (peak) to be transmitted in either direction. A high-level voltage applied to the control pin C enables the respective switch to begin propagating signals across the device. A low-level voltage disables this transmission. Each device incorporates two switches with independent control and operation.

9.2 Functional Block Diagram

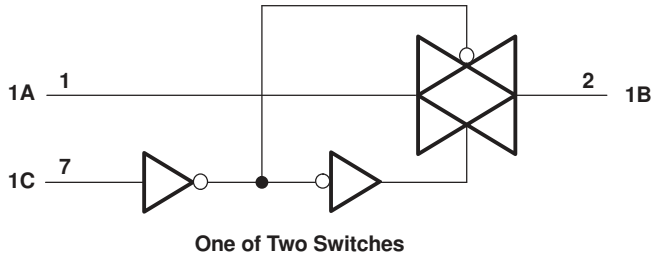


Figure 9-1. Logic Diagram, Each Switch (Positive Logic)

9.3 Feature Description

Each switch section has its own enable-input control (C). A high-level voltage applied to C turns on the associated switch section. When C is this Signals can pass through A to B or B to A. Low ON-resistance of 6 Ω at 4.5-V V_{CC} is ideal for analog signal conditioning systems. The control signals can accept voltages up to 5.5 V without V_{CC} connected in the system. Combination of lower t_{pd} of 0.8 ns at 3.3 V and low enable and disable time make this part suitable for high-speed signal switching applications.

9.4 Device Functional Modes

Table 9-1 shows the functional modes of the SN74LVC2G66-Q1.

Table 9-1. Function Table (Each Section)

CONTROL INPUT (C)	SWITCH
L	Off
H	On

10 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, as well as validating and testing their design implementation to confirm system functionality.

10.1 Application Information

The SN74LVC2G66-Q1 can be used in any situation where an Dual SPST switch would be used and a solid-state, voltage controlled version is preferred.

10.2 Typical Application

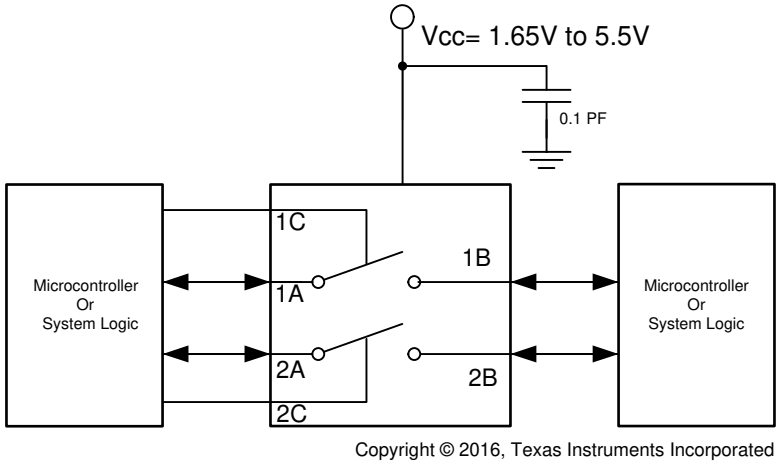


Figure 10-1. Typical Application Schematic

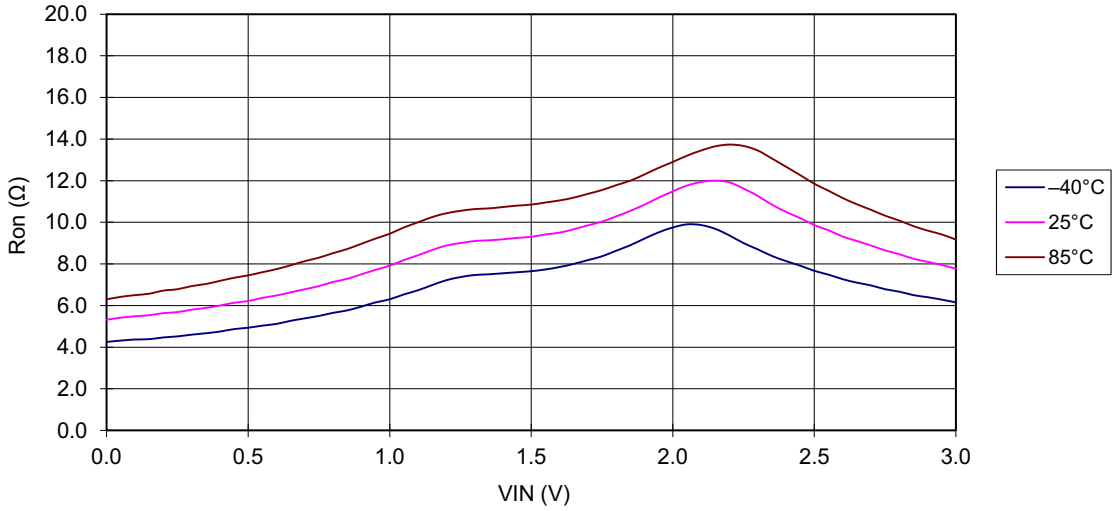
10.2.1 Design Requirements

The SN74LVC2G66-Q1 allows on/off control of analog and digital signals with a digital control signal. All input signals should remain between 0 V and V_{CC} for optimal operation.

10.2.2 Detailed Design Procedure

1. Recommended Input Conditions:
   - For rise time and fall time specifications, see Δt/Δv in the *Recommended Operating Conditions* table.
   - For specified high and low levels, see V_{IH} and V_{IL} in the *Recommended Operating Conditions* table.
   - Inputs and outputs are overvoltage tolerant allowing them to go as high as 5.5 V at any valid V_{CC}.
2. Recommended Output Conditions:
   - Load currents should not exceed ±50 mA.
3. Frequency Selection Criterion:
   - Maximum frequency tested is 150 MHz.
   - Added trace resistance or capacitance can reduce maximum frequency capability; use layout practices as directed in the *Layout* section.

10.2.3 Application Curve



Pin: A–B, V_{CC} = 3 V, I_S = 24 mA

Figure 10-2. r_{on} vs V_I

11 Power Supply Recommendations

The power supply can be any voltage between the minimum and maximum supply voltage rating located in the *Recommended Operating Conditions*.

Each V_{CC} terminal should have a good bypass capacitor to prevent power disturbance. For devices with a single supply, a 0.1-µF bypass capacitor is recommended. If there are multiple pins labeled V_{CC}, then a 0.01-µF or 0.022-µF capacitor is recommended for each V_{CC} because the VCC pins will be tied together internally. For devices with dual-supply pins operating at different voltages, for example V_{CC} and V_{DD}, a 0.1-µF bypass capacitor is recommended for each supply pin. It is acceptable to parallel multiple bypass capacitors to reject different frequencies of noise. 0.1-µF and 1-µF capacitors are commonly used in parallel. The bypass capacitor should be installed as close to the power terminal as possible for best results.

12 Layout

12.1 Layout Guidelines

Reflections and matching are closely related to loop antenna theory, but different enough to warrant their own discussion. When a PCB trace turns a corner at a 90° angle, a reflection can occur. This is primarily due to the change of width of the trace. At the apex of the turn, the trace width is increased to 1.414 times its width. This upsets the transmission line characteristics, especially the distributed capacitance and self–inductance of the trace — resulting in the reflection.

Note

Not all PCB traces can be straight, and so they will have to turn corners. Figure 12-1 shows progressively better techniques of rounding corners. Only the last example maintains constant trace width and minimizes reflections.

12.2 Layout Example

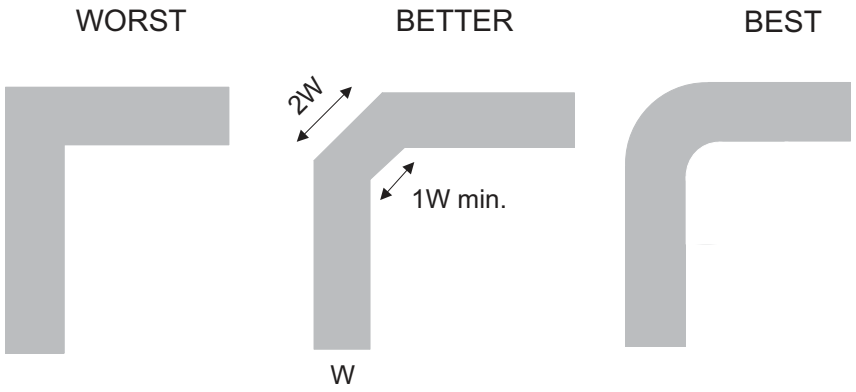


Figure 12-1. Trace Example

13 Device and Documentation Support

13.1 Documentation Support

13.1.1 Related Documentation

For related documentation, see the following:

- Texas Instruments, SN74LVC2G66-Q1 Functional Safety, FIT Rate, Failure Mode Distribution and Pin FMA

13.2 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.

13.3 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.

Linked content is provided "AS IS" by the respective contributors. They do not constitute TI specifications and do not necessarily reflect TI's views; see TI's Terms of Use.

13.4 Trademarks

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13.5 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.

13.6 Glossary

TI Glossary	This glossary lists and explains terms, acronyms, and definitions.

14 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
SN74LVC2G66QDCURQ1	ACTIVE	VSSOP	DCU	8	3000	RoHS & Green	NIPDAU	Level-1-260C-UNLIM	-40 to 125	CAYR	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.

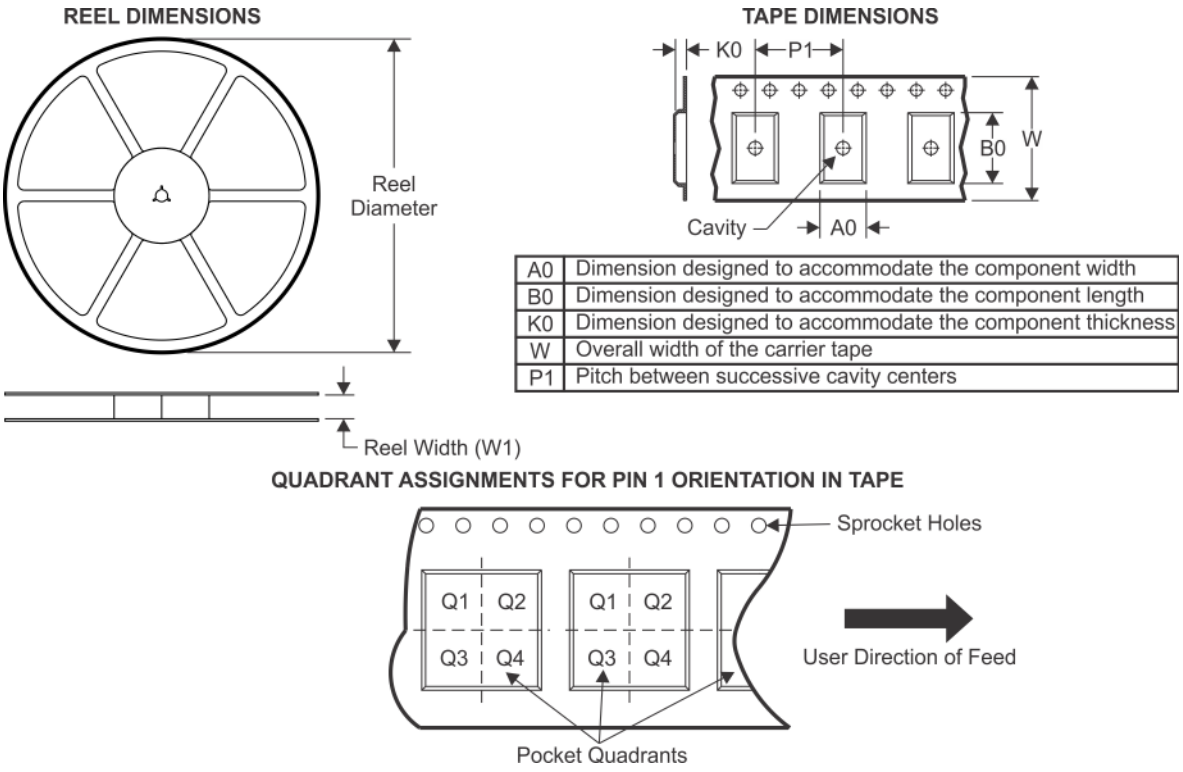
OTHER QUALIFIED VERSIONS OF SN74LVC2G66-Q1 :

- Catalog : SN74LVC2G66

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product

TAPE AND REEL INFORMATION

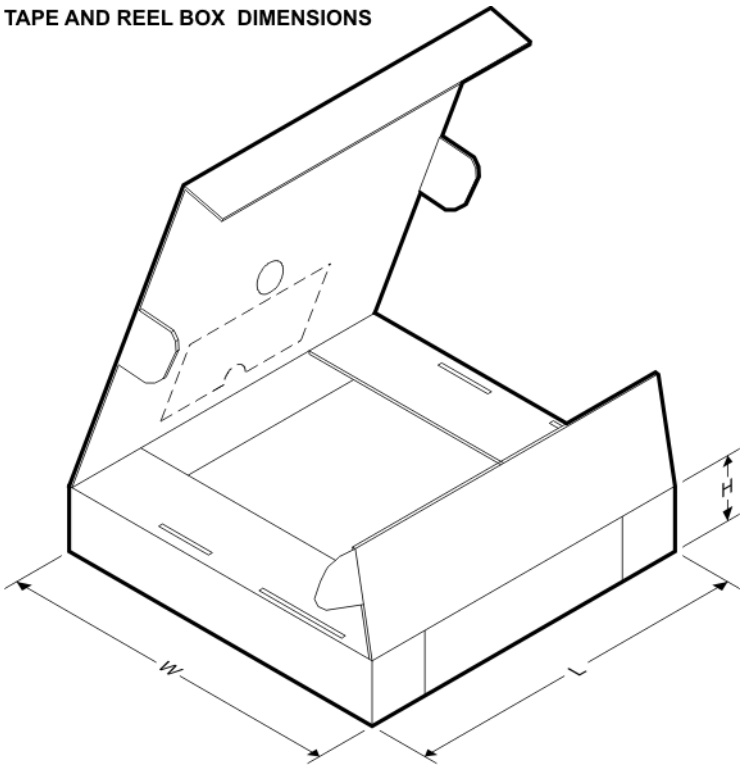


A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

*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
SN74LVC2G66QDCURQ1	VSSOP	DCU	8	3000	180.0	8.4	2.25	3.35	1.05	4.0	8.0	Q3

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

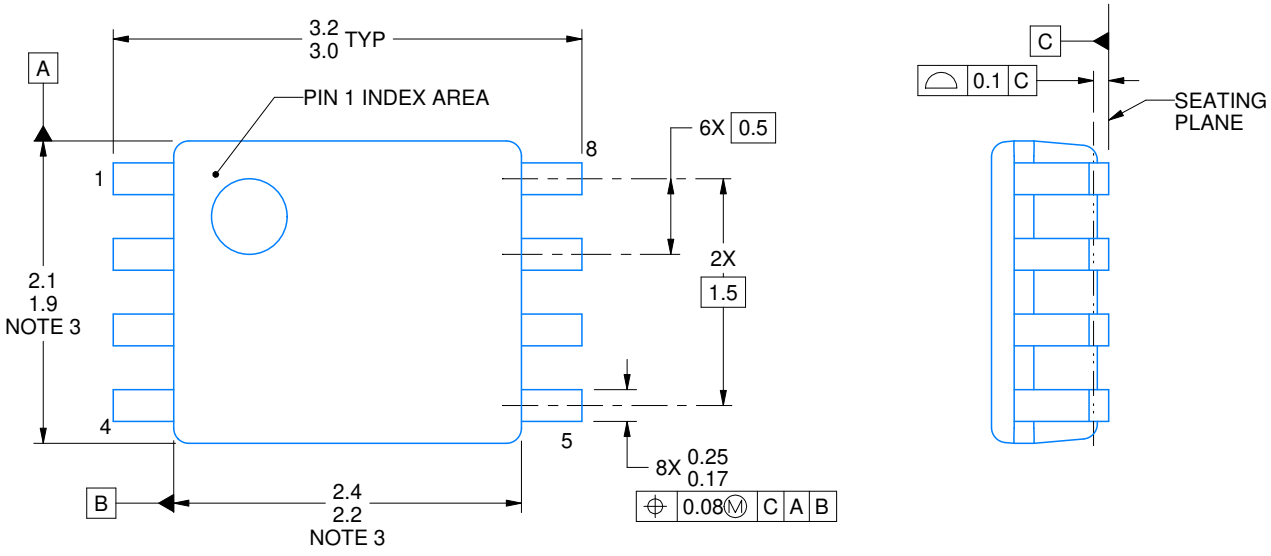
Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74LVC2G66QDCURQ1	VSSOP	DCU	8	3000	202.0	201.0	28.0

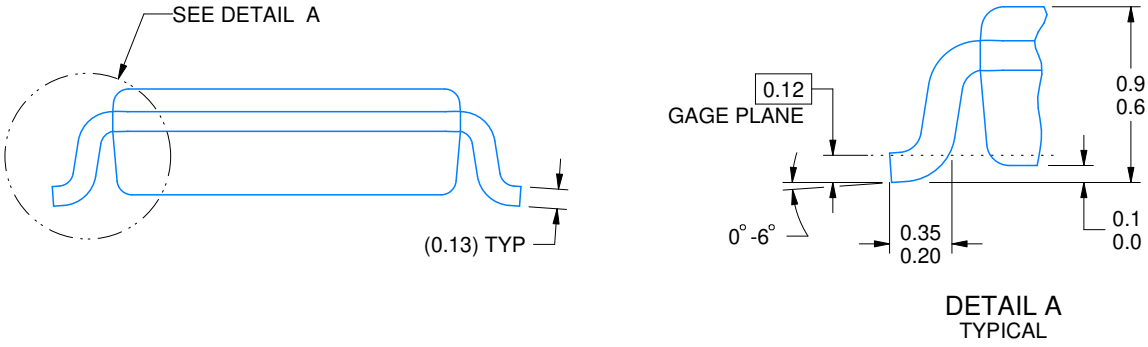
DCU0008A

PACKAGE OUTLINE

VSSOP - 0.9 mm max height

SMALL OUTLINE PACKAGE

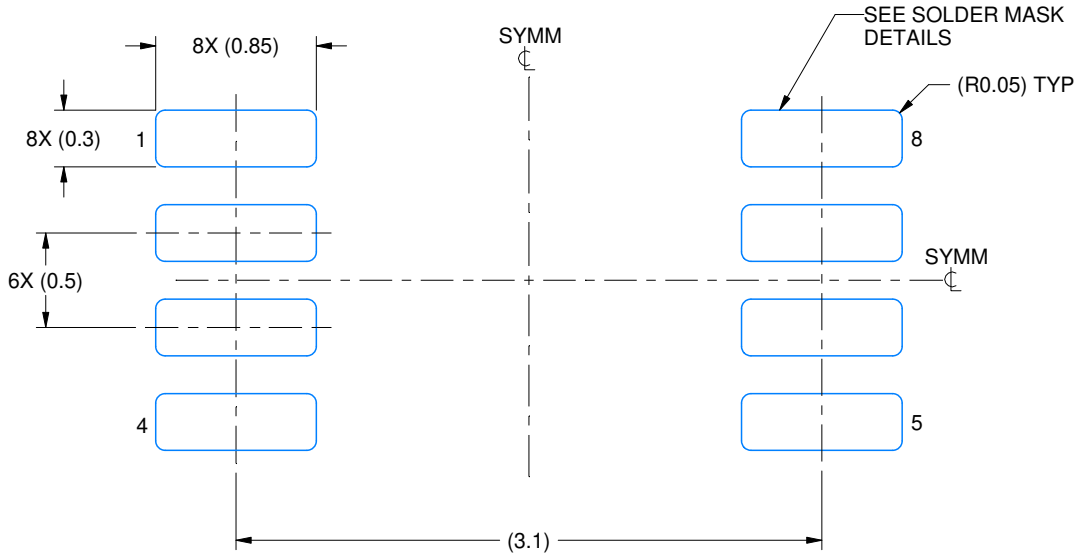




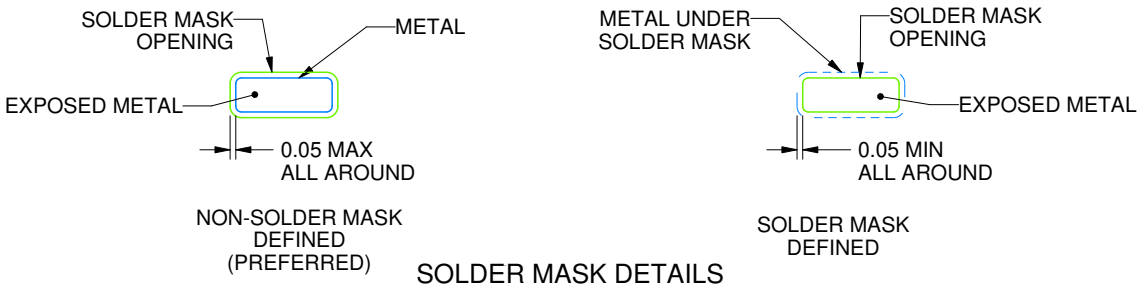
4225266/A 09/2014

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.



LAND PATTERN EXAMPLE
EXPOSED METAL SHOWN
SCALE: 25X



SOLDER MASK DETAILS

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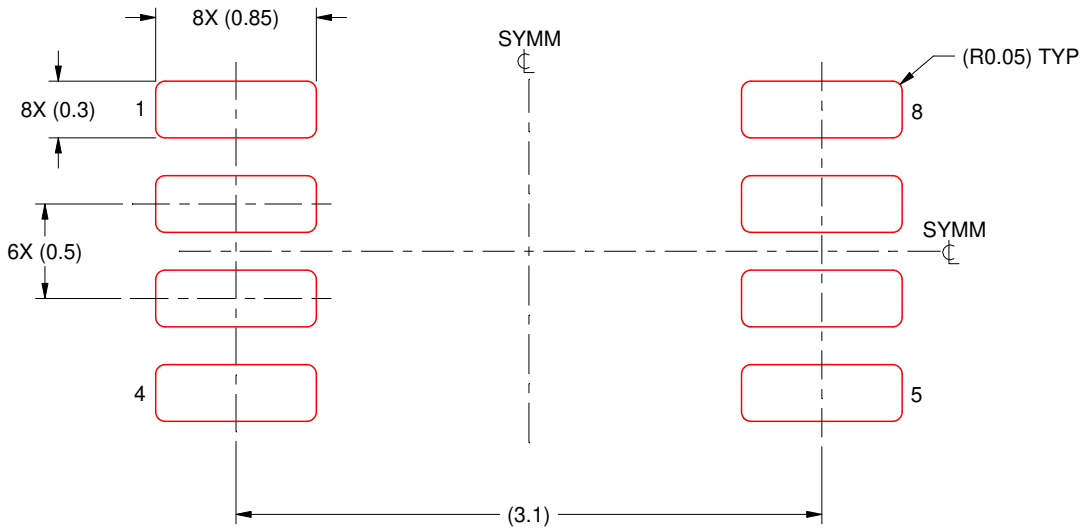
NOTES: (continued)

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



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.

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