

PJ74LVC1G17 Datasheet

Single Bus Buffer Gate With 3-State Output In a SOT23-5 and SC70-5 Package

Version: Rev.1.0

Release Date: 2025-10-10

General Description

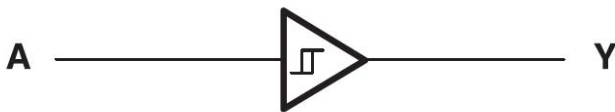
The PJ74LVC1G17 is a Single Bus Buffer Gate with 3-State Output. The device is designed for 1.65 V to 5.5 V for V_{CC} operation, it can be driven from either 3.3 V or 5 V devices. This feature allows the use of these devices as translators in mixed 3.3 V and 5 V environments.

The PJ74LVC1G17 device contains one buffer and performs the Boolean function $Y = A$.

The CMOS device has high output drive while maintaining low static power dissipation over a broad V_{CC} operating range.

The PJ74LVC1G17 is available in SOT23-5 and SC70-5 packages.

Simplified Schematic



Features

- ◆ Wide Supply Voltage Range : 1.65 V to 5.5 V
- ◆ Max. T_{PD} of 6.5 ns at $V_{CC} = 3.3$ V
- ◆ Low Power Consumption, 10 μ A (I_{CC} Max.)
- ◆ ± 24 mA Output Drive at $V_{CC} = 3.3$ V
- ◆ Latch-Up Performance Exceeds 100 mA Per JESD 78, Class II
- ◆ ESD Protection Exceeds JESD 22
 - 2000 V Human-Body Model (A114-A)
 - 1000 V Charged-Device Model (C101)
- ◆ Operating temperature Range : -40°C to 125°C
- ◆ Available Package : SOT23-5 and SC70-5

Applications

- ◆ Active Noise Cancellation (ANC)
- ◆ Blood Pressure Monitor
- ◆ Embedded PC
- ◆ Solid State Drive (SSD) : Client and Enterprise
- ◆ TV : LCD/Digital and High-Definition (HDTV)
- ◆ Tablet : Enterprise
- ◆ Video Analytics : Server
- ◆ Wireless Headset, Keyboard, and Mouse
- ◆ Power Supply : Telecom/Server AC/DC Controller

Ordering Information

Order number	Marking ID	Package	MSL	Description
PJ74LVC1G17S5	AB DNN	SOT23-5	Level-3	Halogen free RoHS compliant in T/R,3,000 pcs/Reel
PJ74LVC1G17C5	A7 W	SC70-5	Level-3	Halogen free RoHS compliant in T/R,3,000 pcs/Reel

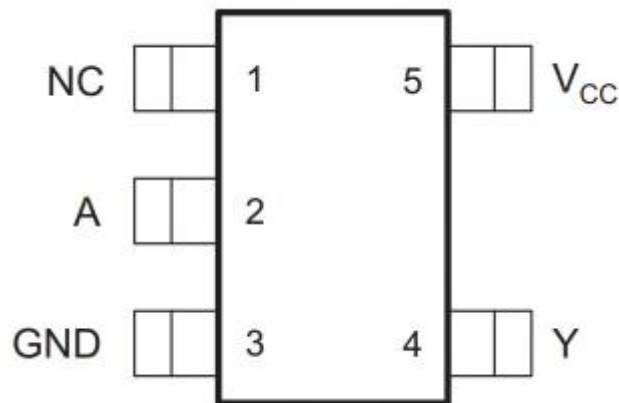
Note:

(1) Panjit can meet RoHS 2.0/REACH requirement. So most package types Panjit offers only states halogen free, instead of lead free.

Marking Information

Marking ID	Package	Definition
AB DNN	SOT23-5	AB: Product code D: Date code NN: Serial number
A7 W	SC70-5	A7: Product code W: Week code

Pin Configuration



SOT23-5 and SC70-5 (Top View)

Functional Pin Description

Pin		Description
Name	Num	
NC	1	No Connect
A	2	Data Input
GND	3	Ground
Y	4	Data Output
V _{CC}	5	Supply Power Input

Function Table

H = HIGH voltage level; L = LOW voltage level

INPUTs	OUTPUT
A	Y
L	L
H	H

Absolute Maximum Ratings

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

Parameter	Symbol	Value	Unit
Supply Voltage	V _{CC}	-0.5 to 6.5	V
Input Voltage	V _I	-0.5 to 6.5	V
Voltage range applied to any output in the high-impedance or power-off state ⁽²⁾	V _O	-0.5 to 6.5	V
Voltage range applied to any output in the high or low state ⁽²⁾⁽³⁾	V _O	-0.5 to V _{CC} +0.5	V
Input clamp current, V _I < 0	I _{IK}	-50	mA
Output clamp current, V _O < 0	I _{OK}	-50	mA
Continuous output current	I _O	±50	mA
Storage temperature range	T _{STG}	-65 to 150	°C
ESD HBM, ANSI/ESDA/JEDEC JS-001 ⁽⁴⁾	ESD _{HBM}	±2000	V
ESD CDM, JESD22-C101 ⁽⁵⁾	ESD _{CDM}	±1000	V

(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 value of V_{CC} is provided in the Recommended Operating Conditions table.

(4) JEDEC document JEP155 states that 500-V HBM allows safe manufacturing with a standard ESD control process.

(5) JEDEC document JEP157 states that 250-V CDM allows safe manufacturing with a standard ESD control process.

Recommended Operating Conditions

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply voltage	V _{CC}	Operating	1.65		5.5	V
		Data retention only	1.5			
Input voltage	V _I		0		5.5	V
Output voltage	V _O				V _{CC}	V
High-level output current	I _{OH}	V _{CC} = 1.65 V			-4	mA
		V _{CC} = 2.3 V			-8	
		V _{CC} = 3 V			-16	
		V _{CC} = 3 V			-24	
		V _{CC} = 4.5 V			-32	
Low-level output current	I _{OL}	V _{CC} = 1.65 V			4	mA
		V _{CC} = 2.3 V			8	
		V _{CC} = 3 V			16	
		V _{CC} = 3 V			24	
		V _{CC} = 4.5 V			32	
Operating temperature	T _A		-40		125	°C

Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Positive-going input threshold voltage	V_{T+}	$V_{CC} = 1.65\text{ V}$	0.76		1.13	V
		$V_{CC} = 2.3\text{ V}$	1.08		1.56	
		$V_{CC} = 3\text{ V}$	1.48		1.92	
		$V_{CC} = 4.5\text{ V}$	2.19		2.74	
		$V_{CC} = 5.5\text{ V}$	2.65		3.33	
Negative-going input threshold voltage	V_{T-}	$V_{CC} = 1.65\text{ V}$	0.35		0.59	V
		$V_{CC} = 2.3\text{ V}$	0.56		0.88	
		$V_{CC} = 3\text{ V}$	0.89		1.2	
		$V_{CC} = 4.5\text{ V}$	1.51		1.97	
		$V_{CC} = 5.5\text{ V}$	1.88		2.4	
Hysteresis Voltage	ΔV_T	$V_{CC} = 1.65\text{ V}$	0.36		0.64	V
		$V_{CC} = 2.3\text{ V}$	0.45		0.78	
		$V_{CC} = 3\text{ V}$	0.51		0.83	
		$V_{CC} = 4.5\text{ V}$	0.58		0.93	
		$V_{CC} = 5.5\text{ V}$	0.69		1.04	
High-level output voltage	V_{OH}	$V_{CC} = 1.65\sim 5.5\text{ V}, I_{OH} = 100\ \mu\text{A}$	$V_{CC}-0.1$			V
		$V_{CC} = 1.65\text{ V}, I_{OH} = 4\text{ mA}$	1.2			
		$V_{CC} = 2.3\text{ V}, I_{OH} = 8\text{ mA}$	1.9			
		$V_{CC} = 3\text{ V}, I_{OH} = 16\text{ mA}$	2.4			
		$V_{CC} = 3\text{ V}, I_{OH} = 24\text{ mA}$	2.3			
		$V_{CC} = 4.5\text{ V}, I_{OH} = 32\text{ mA}$	3.8			
Low-level output voltage	V_{OL}	$V_{CC} = 1.65\sim 5.5\text{ V}, I_{OL} = 100\ \mu\text{A}$			0.1	V
		$V_{CC} = 1.65\text{ V}, I_{OL} = 4\text{ mA}$			0.45	
		$V_{CC} = 2.3\text{ V}, I_{OL} = 8\text{ mA}$			0.3	
		$V_{CC} = 3\text{ V}, I_{OL} = 16\text{ mA}$			0.4	
		$V_{CC} = 3\text{ V}, I_{OL} = 24\text{ mA}$			0.55	
		$V_{CC} = 4.5\text{ V}, I_{OL} = 32\text{ mA}$			0.55	
Input leakage current	I_L	$V_{IN} = 5.5\text{ V or GND}, V_{CC} = 0\sim 5.5\text{ V}$			± 5	μA
Power off leakage current	I_{OFF}	$V_{IN} \text{ or GND}, V_{CC} = 0\sim 5.5\text{ V}$			± 10	μA
Quiescent supply current	I_Q	$V_{IN} = V_{CC} \text{ or GND}, I_{OUT} = 0, V_{CC} = 1.65\sim 5.5\text{ V}$			10	μA
Additional quiescent supply current per input pin	ΔI_Q	$V_{CC} = 3\sim 5.5\text{ V}, \text{one input at } V_{CC}-0.6\text{ V}, \text{other input at } V_{CC} \text{ or GND}$			500	μA

Switching Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Propagation delay from input (A) to output (Y)	T _{PD}	V _{CC} = 1.8 V ± 0.15 V, R _L = 1 kΩ	3.8		13	nS
		V _{CC} = 2.5 V ± 0.2 V R _L = 500 Ω				
		V _{CC} = 3.3 V ± 0.3 V R _L = 500 Ω	1.8		6.5	nS
		V _{CC} = 5 V ± 0.5 V R _L = 500 Ω				

Typical Performance Characteristics

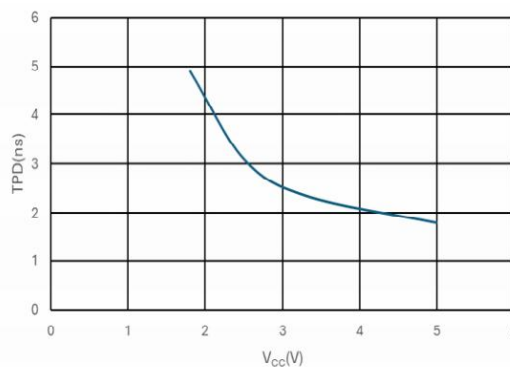
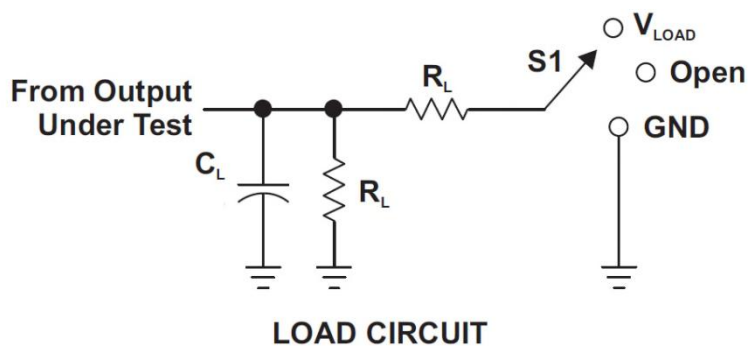


Figure 1. T_{PD} across V_{CC} at 25°C

Parameter Measurement Information



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 x V _{CC}	30 pF	1 kΩ	0.15 V
2.5 V ± 0.2 V	V _{CC}	≤ 2 ns	V _{CC} /2	2 x V _{CC}	30 pF	500 Ω	0.15 V
3.3 V ± 0.3 V	3 V	≤ 2.5 ns	1.5 V	6 V	50 pF	500 Ω	0.3 V
5 V ± 0.5 V	V _{CC}	≤ 2.5 ns	V _{CC} /2	2 x V _{CC}	50 pF	500 Ω	0.3 V

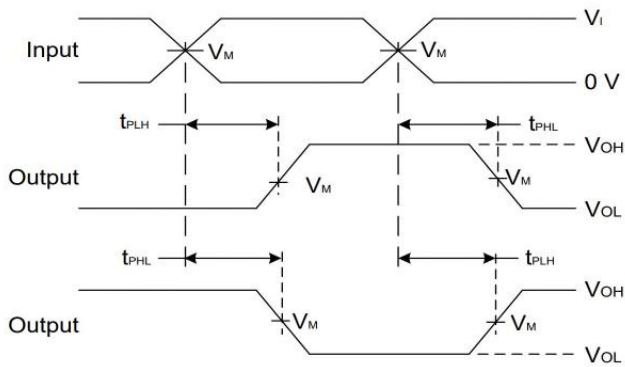


Figure 2. Voltage Waveform Propagation Delay Times Inverting and Non Inverting Outputs

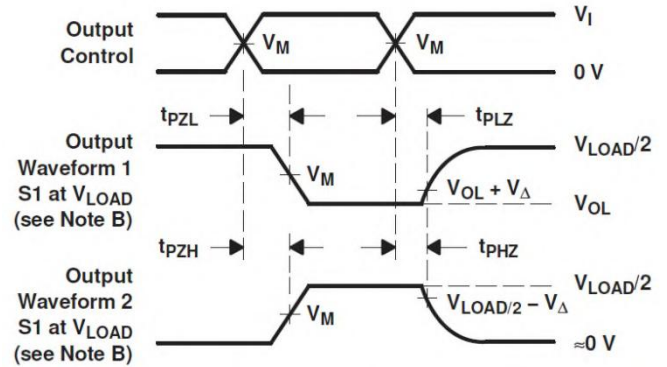


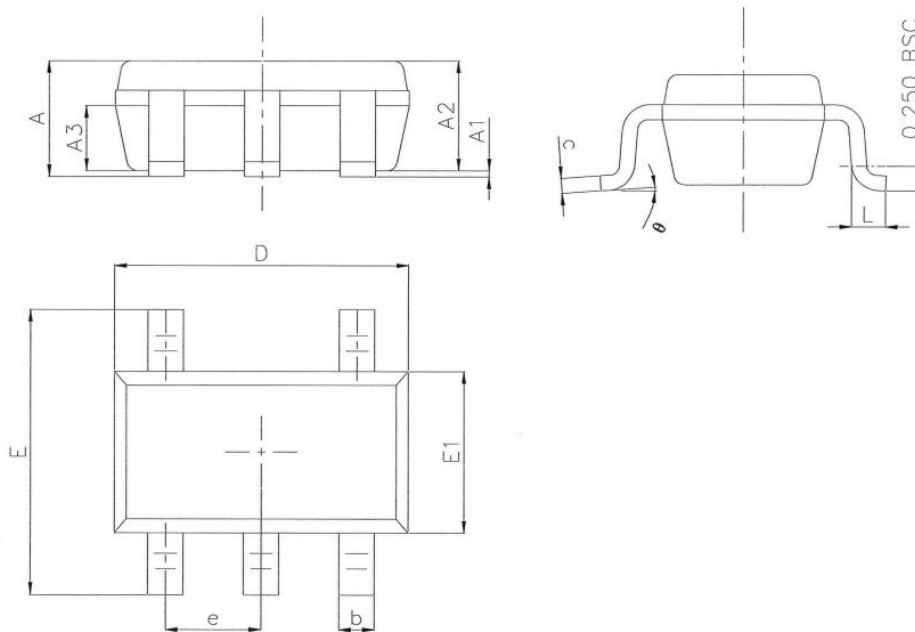
Figure 3. Voltage Waveform Enable and Disable Times Low- and High-Level Enabling

Notes:

- (1) C_L includes probe and jig capacitance.
- (2) 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.
- (3) All pulses and supplied at pulse repetition rate ≤ 10 MHz.
- (4) The Inputs are measured separately one transition per measurement.

Package Outline Dimensions - SOT23-5

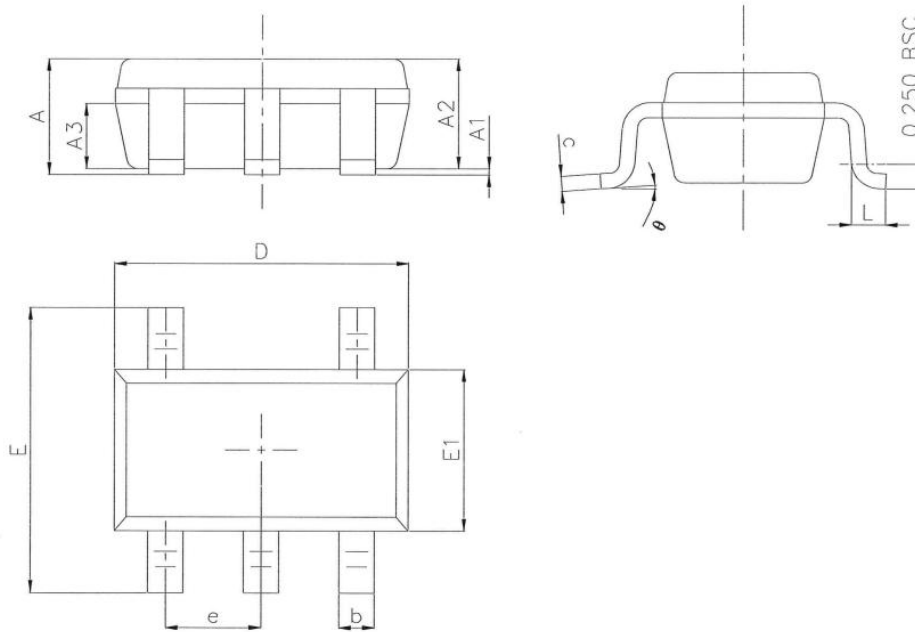
SOT23-5 Unit (mm)



Symbol	Dimension in mm		
	Min.	Nom.	Max.
A	1.050	1.150	1.250
A1	0.000	0.060	0.100
A2	1.000	1.100	1.200
A3	0.550	0.650	0.750
D	2.820	2.920	3.020
E1	1.510	1.610	1.700
E	2.650	2.800	2.950
b	0.300	0.400	0.500
e	0.950BSC		
θ	0°	4°	8°
L	0.300	0.420	0.570
c	0.100	0.152	0.200

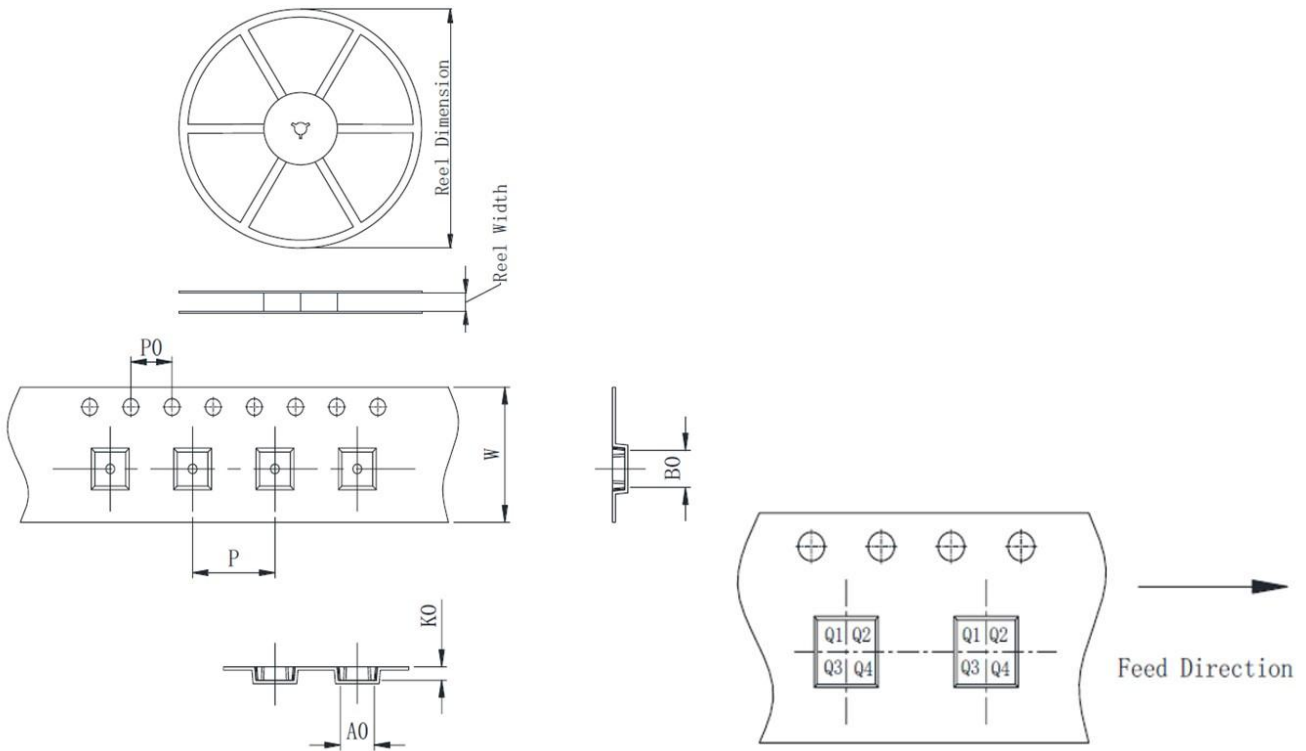
Package Outline Dimensions - SC70-5

SC70-5 Unit (mm)



Symbol	Dimension in mm		
	Min.	Nom.	Max.
A	0.90	0.95	1.00
A1	0.00	0.05	0.10
A2		0.9	
A3		0.55	
D	2.00	2.10	2.20
E1	1.15	1.25	1.35
E	2.00	2.10	2.20
b	0.15	0.225	0.30
e	0.65BSC		
θ	0°	4°	8°
L	0.26	0.35	0.46
c	0.10	0.15	0.20

Packing information



Package type	Reel size	Reel dimension (±3.0mm)	Reel width (±1.0mm)	A0 (±0.1mm)	B0 (±0.1mm)	K0 (±0.1mm)	P (±0.1mm)	P0 (±0.1mm)	W (±0.3mm)	Pin1
SOT23-5	7'	180	8.4	3.23	3.17	1.32	4.0	4.0	8.0	Q3
SC70-5	7'	180	8.4	3.23	3.17	1.32	4.0	4.0	8.0	Q3

Version History

Version	Date	Changes
Rev.1.0	2025-10-10	Initial release

Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Panjit International Inc..
- Panjit International Inc. reserves the rights to make changes of the content herein the document follow PCN procedure. Please refer to our website for the latest document.
- Panjit International Inc. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Panjit International Inc. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Panjit International Inc. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Panjit International Inc. for any damages resulting from such improper use or sale.
- Since Panjit International Inc. uses lot number as the tracking base, please provide the lot number for tracking when complaining.

Copyright© PANJIT International Inc.

Website: www.panjit.com.tw