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TSS

MOV

GDT

PLED

SN74LVC1G17DBVR-MS/SN74LVC1G17DCKR-MS

Product specification





General Description

The operating voltage range of the SN74LVC1G17DBVR-MS/SN74LVC1G17DCKR-MS single Schmitt-trigger buffer is 1.65 V to 5.5 V The SN74LVC1G17DBVR-MS/SN74LVC1G17DCKR-MS device contains one buffer and performs the Boolean function Y=A.Because of the Schmitt-Trigger inputs,the device may have different input threshold levels for positive-going (VT+)and negative-going (VT-)signals,to provide hysteresis (\triangle Vr)which makes the device tolerant to slow or noisy input signals.

This device is fully specified for partial-power-down applications using lof. The loff circuitry disables the outputs, preventing damaging current backlow through the device when it is powered down.

Features

- Schmitt-Trigger inputs provide hysteresis
- Supports 5V Vcc Operation
- Inputs Accept Voltages to 5.5V
- Max tpd of 5.4 ns at 3.3 V
- ±24-mA Output Drive at 3.3 V
- Ioff Supports Partial -Power-Down Mode

Applications

- AV Receivers
- Audio Docks:Portable
- Blu-ray Players and Home Theater
- MP3 Players/Recorders
- Personal Digital Assistants (PDAs)
- Power:Telecom/Server AC/DC Supply
- Solid State Drives (SSDs):Client and Enterprise
- TVs:LCD/Digital and High-Definition(HDTVs)
- Tablets:Enterprise
- Wireless Headsets,Keyboards,and Mice

Pinning and Marking

SOT-23-5	Pin Configurations	Marking	SC70-5	Pin Configurations	Marking
	VCC Y 5 4 1 2 3 NC A GND	■ • Ū <u>1</u> 7 <u>J</u>		VCC Y	C7 <u>5</u>

Pin Functions

Pin		Тура	Description		
Name	SOT23-5/SC70-5	туре	Description		
NC	1	_	No internal connection		
A	2	I	Input		
GND	3	—	Ground		
Y	4	0	Output		
VCC	5	_	Positive Supply		

Order information

Orderable Device	Package	Packing Option
SN74LVC1G17DBVR-MS	SOT23-5	3000PCS
SN74LVC1G17DCKR-MS	SC70-5	3000PCS

Absolute Maximum Ratings

	Parameter	Min	Max.	Unit	
Vcc	Supply volt	age range	-0.5	6.5	٧
Vi	Input volta	ge range	-0.5	6.5	V
Vo	Voltage range applied to any output in t	he high-impedance or power-off state	-0.5	6.5	V
Vo	Voltage range applied to any o	-0.5	Vcc+0.5	V	
lк	Input clamp current Vr<0			-50	mA
ок	Output clamp current	V ₀ <0		-50	mA
ю	Continuous o	utput current		±50	mA
	Continuous current throu	gh V _{CC} or GND		±100	mA
TJ	Junction tempera		150	°C	
T _{stg}	Storage temp	erature 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.

Recommended Operating Conditions

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

Symbol	Para	Min	Max	Unit	
Vcc	Supply	voltage	1.65	5.5	V
Vi	Input	voltage	0	5.5	V
Vo	Output	voltage	0	Vcc	V
		V _{CC} =1.65V		-4	
		V _{cc} =2.3V		-8	
Юн	High-level output current			-16	mA
		V _{CC} =3V		-24	
		V _{CC} =4.5V		-32	
		V _{CC} =1.65V		4	
		V _{CC} =2.3V		8	
OL	Low-level output current	<u>}</u> (, _2)(16	mA
		Vcc=3V		24	
	V _{cc} =4.5V			32	
TA	Operating free-	air temperature	-40	125	°C



Electrical Characteristics

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

Demonstern	Test Canditians		-	-40°C to 85°	C	-	40°C to 125°	C	11
Parameter	l est Conditions	Vcc	Min	Тур	Max	Min	Тур	Max	Unit
		1.65 V	0.7		1.4	0.7		1.4	
V _{T+}		2.3 V	1		1.7	1		1.7	
Positive-going input threshold		3 V	1.3		2	1.3		2	V
voltage		4.5 V	1.9		3.1	1.9		3.1	
		5.5 V	2.2		3.7	2.2		3.7	
		1.65 V	0.25		0.7	0.25		0.7	
V _{T-}		2.3 V	0.4		1	0.4		1	
Negative-going		3 V	0.8		1.3	0.8		1.3	V
voltage		4.5 V	1.1		2	1.1		2	
		5.5 V	1.4		2.5	1.4		2.5	
		1.65 V	0.3		1	0.3		1	
		2.3 V	0.4		1	0.4		1	
ΔV _T Hysteresis		3 V	0.5		1	0.5		1	v
(VT+ - VT_)		4.5 V	0.6		1	0.6		1	
		5.5 V	0.7		1.1	0.7		1.1	
	I _{ОН} =— 100 µА	1.65 V to 5.5 V	Vcc-0.1			V _{CC} -0.1			
	I _{он} =—4 mA	1.65 V	1.2			1.2			
Mari	I _{он} =—8 mA	2.3 V	1.9			1.9			V
VOH	I _{он} =– 16 mA		2.4			2.4			v
	I _{он} =—24 mA	3 V	2.3			2.3			
	I _{он} =–32 mA	4.5 V	3.8			3.8			
	I _{OL} =100 μΑ	1.65 V to 5.5 V			0.1			0.1	
	I _{OL} =4 mA	1.65 V			0.45			0.45	
Va	I _{OL} =8 mA	2.3 V			0.3			0.3	V
VOL	I _{OL} =16 mA	0.1/			0.4			0.4	, v
	l₀∟=24 mA	3 V			0.55			0.55	
	I₀∟=32 mA	4.5 V			0.55			0.55	
lı A input	Vi=5.5 V or GND	0 to 5.5 V			±5			±5	μA
loff	Vior Vo=5.5 V				±10			±10	μA
lcc	Vi=5.5 V or GND, I₀=0				10			10	μΑ
Δlcc	One input at V _{CC} – 0.6 V, Other inputs at V _{CC} or GND				500			500	μA
Ci	VI=Vcc or GND			5			5		pF

(1) All unused digital inputs of the device must be held at V_{cc} or GND to ensure proper device operation.



Electrical Characteristics

Vcc=5.0V or 3.3V, Typical values are at T_A=+25°C. (unless otherwise noted)

						–40°C t	o 125°C				
Parameter	meter From (Input) To (Out		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 _{pd}	A	Y	3.9	10.5	1.9	6.2	2.2	5.9	1.5	4.8	ns

T_A=25°C

Parameter		Test Conditions	V _{cc} =1.8 V	Vcc=2.5 V	V _{cc} =3.3 V	V _{cc} =5 V	Unit	
•	arameter	Test conditions	Тур	Тур	Тур	Тур	Onic	
C _{pd}	Power dissipation capacitance	f=10 MHz	20	30	35	50	pF	

Typical Characteristics

Over recommended operating free-air temperature range, CL=30 pF or 50 pF (unless otherwise noted).



Parameter Measurement Information



TEST	S1
T _{PHL} /T _{PLH}	OPEN
T _{PLZ} /T _{PZL}	Vload
Трнд/Трдн	GND



Parameter Measurement Information(Continued)

Vec	INPUTS		V.,	Views	C	R	Va
VCC	VCC VI Tr/Tf VM VLOAD		V LOAD	UL UL		¥۵	
1.8V±0.15V	Vcc	≤2ns	V _{cc} /2	2×V _{CC}	30pF	1kΩ	0.15V
2.5V±0.15V	Vcc	≤2ns	V _{cc} /2	2×V _{CC}	30pF	500Ω	0.15V
3.3V±0.15V	3V	≤2.5ns	1.5V	6V	50pF	500Ω	0.3V
5V±0.15V	Vcc	≤2.5ns	V _{cc} /2	2×V _{CC}	50pF	500Ω	0.3V





Propagation Delay for Output and Inverted Output

B. Waveform 1 is for an output with internal conditions such that

the output is low, except when disabled by the output control.

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 = 50.



V.



Enable and Disable Times Low-And High-Level Enabling

- D. The outputs are measured one at a time, with one transition per measurement.
- E. t_{PLZ} and t_{PHZ} are the same as $t_{dis}.$

Waveform 2 is for an output with internal conditions such that the 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 device.

Feature Description

Notes: A. C_L includes probe and jig capacitance.

The device is designed for 1.65V to 5.5V V_{CC} operation and it allows down voltage translation from 5V to 3.3V, or 3.3V to 1.8V. The input voltage of SN74LVC1G17 accepts to 5.5V.

The SN74LVC1G17DBVR-MS/SN74LVC1G17DCKR-MS has power-down protection (off) and Schmitt-trigger input.

I_{off} feature allows voltage on the inputs and outputs when V_{CC} is 0 V, and is able to reduce leakage when V_{CC} is 0V. Schmitt-Trigger input can improve the noise immunity capability



Device Functional Modes

Input A	Output Y
Н	Н
L	L

Application Information

The SN74LVC1G17DBVR-MS/SN74LVC1G17DCKR-MS is a high drive CMOS device that can be used for a multitude of buffer type functions where the input is slow or noisy. 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 VCC. channel input elements, such as push buttons or rotary knobs, offer simple ways to interact with electronic systems. Typically, these elements have recoil or bouncing, where the mechanical element makes and breaks contact multiple times during human interaction. This bouncing can cause one or more repeated signals to be passed, triggering multiple actions when only a single input was intended. One potential solution to mitigating these multiple inputs is by utilizing a Schmitt-trigger to create a debounce circuit.

Typical Power Button Circuit





Package Outline SOT23-5





Recommended Land Pattern (Unit: mm)





Symbol	Dimensions	n Millimeters	Dimensions In Inches		
Symbol	Min	Max	Min	Max	
A	1.050	1.250	0.041	0.049	
A1	0.000	0.100	0.000	0.004	
A2	1.050	1.150	0.041	0.045	
b	0.300	0.500	0.012	0.020	
С	0.100	0.200	0.004	0.008	
D	2.820	3.020	0.111	0.119	
E	1.500	1.700	0.059	0.067	
E1	2.650	2.950	0.104	0.116	
е	0.950)BSC	0.037	7BSC	
e1	1.800	2.000	0.071	0.079	
L	0.300	0.600	0.012	0.024	
L1	0.600	DREF	0.024REF		
θ	0°	8°	0°	8°	



Package Outline SC70-5







symbol	Dimension In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
С	0.110	0.175	0.004	0.007
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
е	0.650TYP		0.026TYP	
e1	1.200	1.400	0.047	0.055
L	0.525REF		0.021REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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