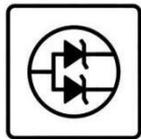


# MSKSEMI 美森科

SEMICONDUCTOR



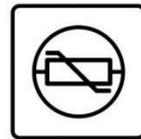
ESD



TVS



TSS



MOV



GDT



PLED

**SN74LVC1G34DBVR-MS/SN74LVC1G34DCKR-MS**

**Product specification**

## General Description

The operating voltage range of the SN74LVC1G34DBVR-MS/SN74LVC1G34DCKR-MS single buffer is 1.65 V to 5.5V.

The SN74LVC1G34DBVR-MS/SN74LVC1G34DCKR-MS device contains one buffer and performs the Boolean function  $Y=A$ . The CMOS device has a high output drive while maintaining low static power dissipation over a broad VCC operating range.

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.

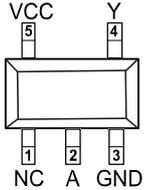
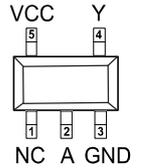
## Features

- Low Power Consumption, 10- $\mu$ A Max  $I_{cc}$
- Supports 5V Vcc Operation
- Inputs Accept Voltages to 5.5V
- Max  $t_{pd}$  of 3.3 ns at 3.3 V
- $\pm 24$ mA Output Drive at 3.3 V
- $I_{off}$  Supports Partial-Power-Down Mode
- Typical  $V_{OHV} > 2V$  at  $V_{cc}=3.3$  V,  $T_A=25^\circ\text{C}$
- Typical  $V_{OLP} < 0.8$  V at  $V_{cc}=3.3$  V,  $T_A=25^\circ\text{C}$

## Applications

- AV Receivers
- Audio Docks: Portable
- Blu-ray Players and Home Theater
- Embedded PC
- MP3 Player/Recorder (Portable Audio)
- Personal Digital Assistant (PDA)
- Power: Telecom/Server AC/DC Supply
- Solid State Drive (SSD): Client and Enterprise
- TV: LCD/Digital and High-Definition (HDTV)
- Tablet: Enterprise
- Video Analytics: Server
- Wireless Headset, Keyboard, and Mouse

## Pinning and Marking

SOT-23-5	Pin Configurations	Marking	SC70-5	Pin Configurations	Marking
					

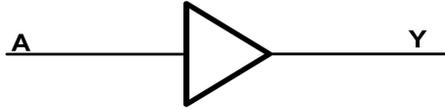
## Pin Functions

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

## Order information

Orderable Device	Package	Packing Option
SN74LVC1G34DBVR-MS	SOT23-5	3000PCS
SN74LVC1G34DCKR-MS	SC70-5	3000PCS

## Circuit Diagram



## Absolute Maximum Ratings

Parameters		Min	Max.	Unit	
$V_{CC}$	Supply voltage range	-0.5	6.5	V	
$V_I$	Input voltage range	-0.5	6.5	V	
$V_O$	Voltage range applied to any output in the high-impedance or power-off state	-0.5	6.5	V	
$V_O$	Voltage range applied to any output in the high or low state	-0.5	$V_{CC}+0.5$	V	
$I_K$	Input clamp current		$V_I < 0$	-50	mA
$I_{OK}$	Output clamp current		$V_O < 0$	-50	mA
$I_O$	Continuous output current		$\pm 50$	mA	
	Continuous current through $V_{CC}$ or GND		$\pm 100$	mA	
$T_J$	Junction temperature under bias		150	$^{\circ}\text{C}$	
$T_{stg}$	Storage temperature range	-65	150	$^{\circ}\text{C}$	

(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	Parameter	Min	Max	Unit
$V_{CC}$	Supply voltage	1.65	5.5	V
$V_I$	Input voltage	0	5.5	V
$V_O$	Output voltage	0	$V_{CC}$	V
$I_{OH}$	High-level output current	$V_{CC}=1.65\text{V}$	-4	mA
		$V_{CC}=2.3\text{V}$	-8	
		$V_{CC}=3\text{V}$	-16	
		$V_{CC}=4.5\text{V}$	-24	
$I_{OL}$	Low-level output current	$V_{CC}=1.65\text{V}$	4	mA
		$V_{CC}=2.3\text{V}$	8	
		$V_{CC}=3\text{V}$	16	
		$V_{CC}=4.5\text{V}$	24	
$T_A$	Operating free-air temperature	-40	125	$^{\circ}\text{C}$

**Electrical Characteristics**

V<sub>CC</sub>=5.0V or 3.3V, Typical values are at T<sub>A</sub> =+25°C. (unless otherwise noted).

Parameter	Test Conditions	V <sub>CC</sub>	-40°C to 85°C			-40°C to 125°C			Unit
			Min	Typ	Max	Min	Typ	Max	
V <sub>OH</sub>	I <sub>OH</sub> =-100 μA	1.65 V to 5.5 V	V <sub>CC</sub> -0.1			V <sub>CC</sub> -0.1			V
	I <sub>OH</sub> =-4 mA	1.65 V	1.2			1.2			
	I <sub>OH</sub> =-8 mA	2.3 V	1.9			1.9			
	I <sub>OH</sub> =-16 mA	3 V	2.4			2.4			
	I <sub>OH</sub> =-24 mA		2.3			2.3			
	I <sub>OH</sub> =-32 mA	4.5 V	3.8			3.8			
V <sub>OL</sub>	I <sub>OL</sub> =100 μA	1.65 V to 5.5 V			0.1			0.1	V
	I <sub>OL</sub> =4 mA	1.65 V			0.45			0.45	
	I <sub>OL</sub> =8 mA	2.3 V			0.3			0.3	
	I <sub>OL</sub> =16 mA	3 V			0.4			0.4	
	I <sub>OL</sub> =24 mA				0.55			0.55	
	I <sub>OL</sub> =32 mA	4.5 V			0.55			0.55	
I <sub>I</sub>	A input	V <sub>I</sub> =5.5 V or GND	0 to 5.5 V		±5			±5	μA
I <sub>off</sub>		V <sub>I</sub> or V <sub>O</sub> =5.5 V	0		±10			±10	μA
I <sub>CC</sub>		V <sub>I</sub> =5.5 V or GND, I <sub>O</sub> =0	1.65 V to 5.5 V		10			10	μA
ΔI <sub>CC</sub>		One input at V <sub>CC</sub> -0.6 V, Other inputs at V <sub>CC</sub> or GND	3 V to 5.5 V		500			500	μA
C <sub>i</sub>		V <sub>I</sub> =V <sub>CC</sub> or GND	3.3 V		5			5	pF

(1) All unused digital inputs of the device must be held at V<sub>CC</sub> or GND to ensure proper device operation

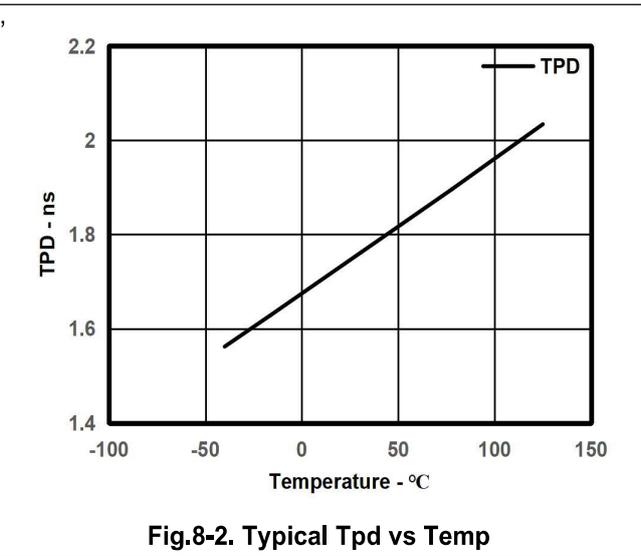
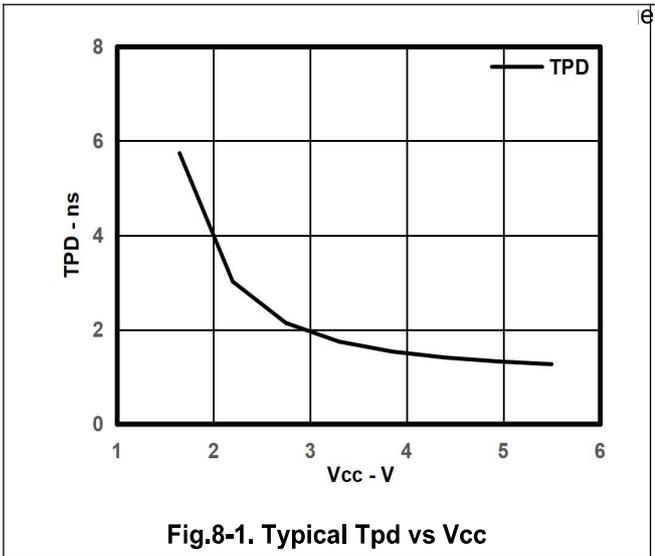
V<sub>CC</sub>=5.0V or 3.3V, Typical values are at T<sub>A</sub> =+25°C. (unless otherwise noted).

Parameter	From (Input)	To (Output)	-40°C to 125°C								Unit
			V <sub>CC</sub> =1.8 V ± 0.15 V		V <sub>CC</sub> =2.5 V ± 0.2 V		V <sub>CC</sub> =3.3 V ± 0.3 V		V <sub>CC</sub> =5 V ± 0.5 V		
			Min	Max	Min	Max	Min	Max	Min	Max	
t <sub>pd</sub>	A	Y	3.9	9.5	1.4	4.5	1	3.3	1	3.0	ns

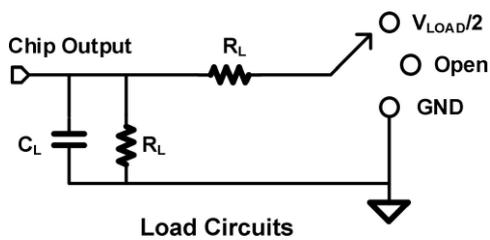
T<sub>A</sub>=25°C

Parameter	Test Conditions	V <sub>CC</sub> =1.8 V	V <sub>CC</sub> =2.5 V	V <sub>CC</sub> =3.3 V	V <sub>CC</sub> =5 V	Unit	
		Typ	Typ	Typ	Typ		
C <sub>pd</sub>	Power dissipation capacitance	f=10 MHz	17	28	33	47	pF

**Typical Characteristics**



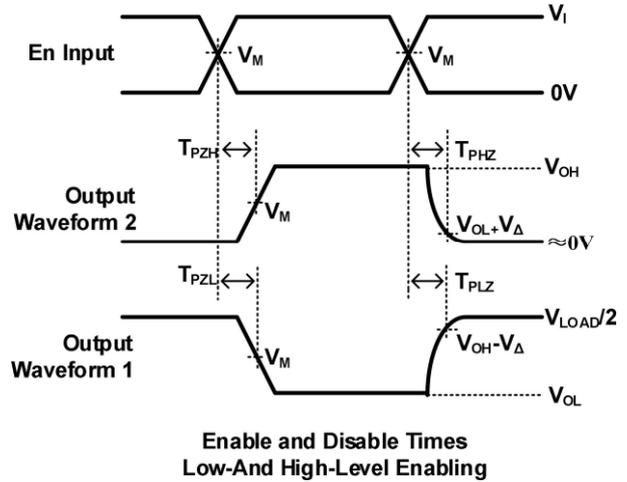
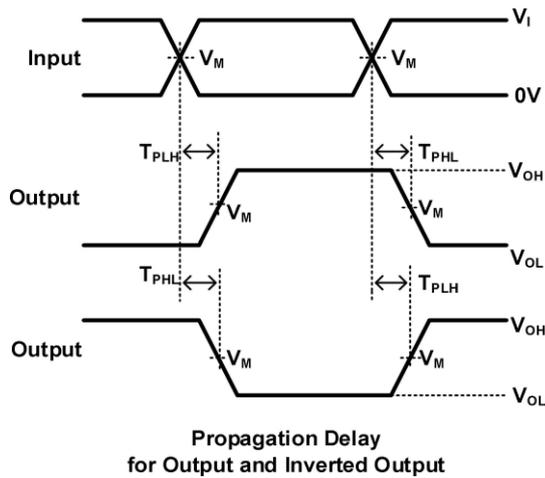
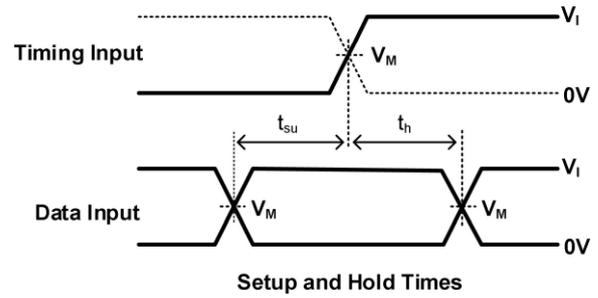
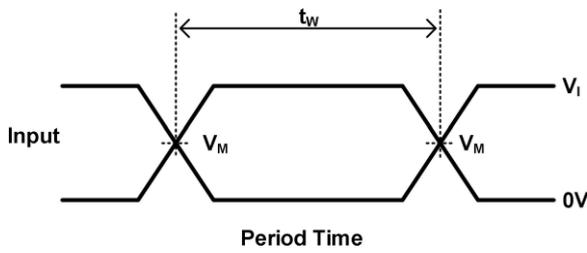
**Parameter Measurement Information**



TEST	S1
T <sub>PHL</sub> /T <sub>PLH</sub>	OPEN
T <sub>PLZ</sub> /T <sub>PZL</sub>	V <sub>LOAD</sub>
T <sub>PHZ</sub> /T <sub>PZH</sub>	GND

V <sub>CC</sub>	INPUTS		V <sub>M</sub>	V <sub>LOAD</sub>	C <sub>L</sub>	R <sub>L</sub>	V <sub>Δ</sub>
	V <sub>I</sub>	T <sub>r</sub> /T <sub>f</sub>					
1.8V±0.15V	V <sub>CC</sub>	≤2ns	V <sub>CC</sub> /2	2×V <sub>CC</sub>	30pF	1kΩ	0.15V
2.5V±0.15V	V <sub>CC</sub>	≤2ns	V <sub>CC</sub> /2	2×V <sub>CC</sub>	30pF	500Ω	0.15V
3.3V±0.15V	3V	≤2.5ns	1.5V	6V	50pF	500Ω	0.3V
5V±0.15V	V <sub>CC</sub>	≤2.5ns	V <sub>CC</sub> /2	2×V <sub>CC</sub>	50pF	500Ω	0.3V

**Parameter Measurement Information(Continued)**



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 10 MHz,  $Z = 50$ .

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 device.

**Feature Description**

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 SN74LVC1G34DBVR-MS/SN74LVC1G34DCKR-MS accepts to 5.5V.

The SN74LVC1G34DBVR-MS/SN74LVC1G34DCKR-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

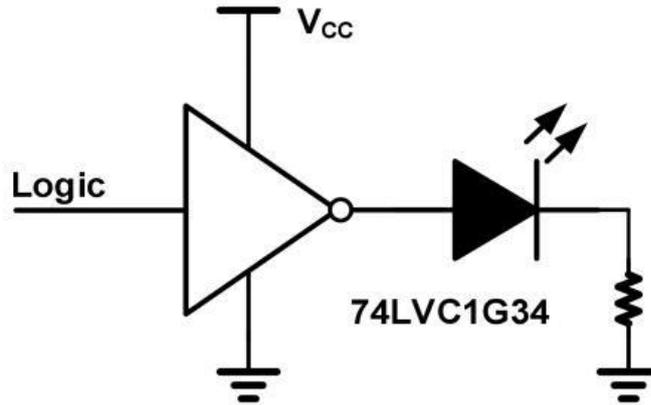
**Device Functional Modes**

Input A	Output Y
H	H
L	L

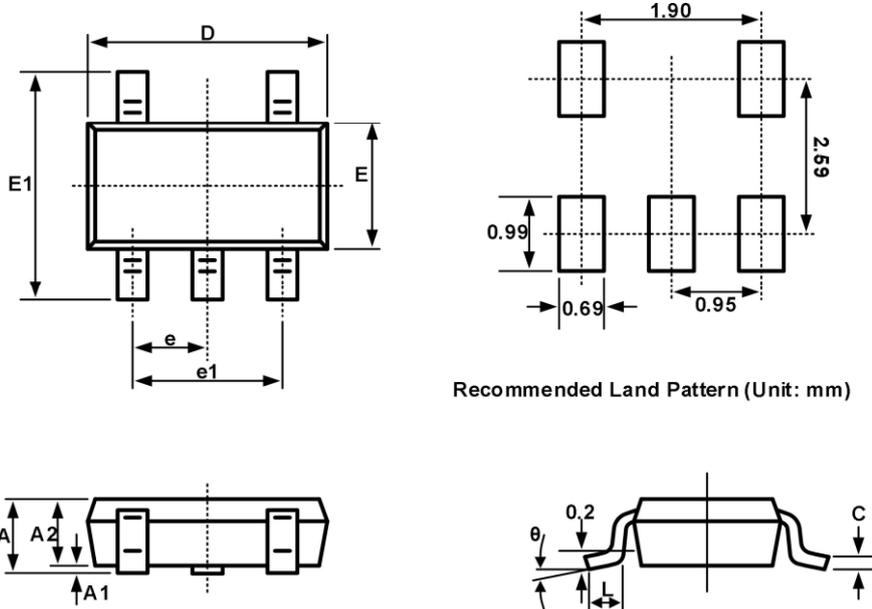
### Application Information

The SN74LVC1G34DBVR-MS/SN74LVC1G34DCKR-MS is a high drive CMOS device that can be used for implementing inversion logic 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  $V_{CC}$ .

### Typical Power Button Circuit

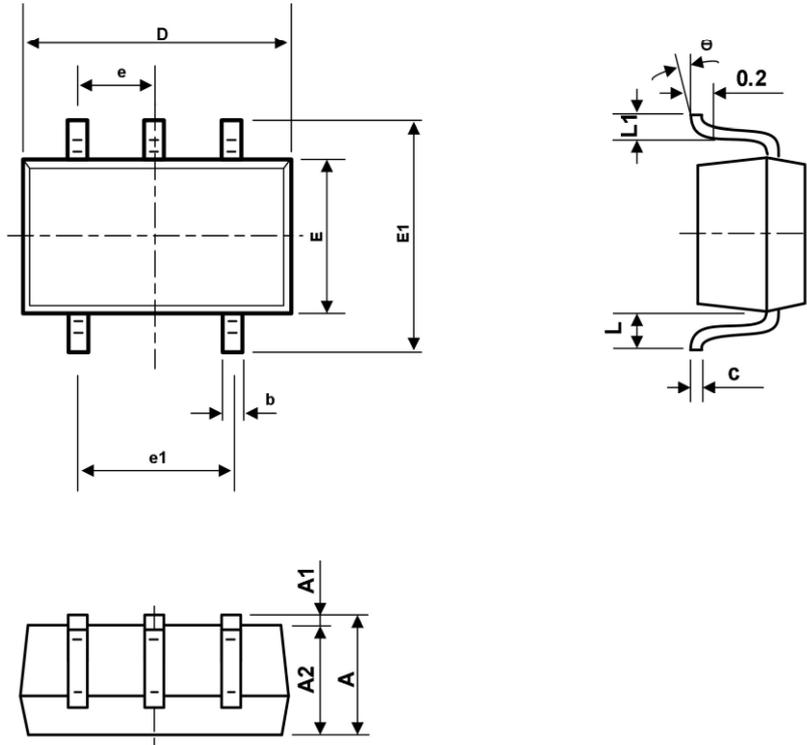


**Package Outline**  
SOT23-5



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	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
c	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
e	0.950BSC		0.037BSC	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
L1	0.600REF		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
c	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
e	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
e	0°	8°	0°	8°

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