Single Bilateral Analog Switch

Description

This single analog switch is designed for 1.65-V to 5.5-V VCC operation.

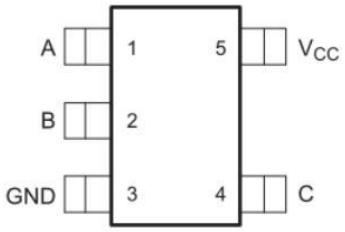
The 74LVC1G66Gx,125 device can handle analog and digital signals.

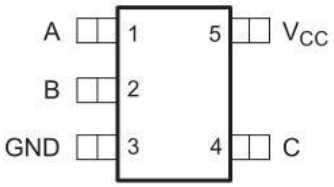
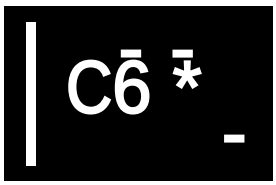
The device permits bidirectional transmission of signals with amplitudes of up to 5.5 V(peak).

Features

- 1.65-V to 5.5-V VCC Operation
- Inputs Accept Voltages to 5.5 V
- High On-Off Output Voltage Ratio
- High Degree of Linearity
- Low ON-State Resistance, Typically : 2.5 Ω (VCC= 4.5 V)

Connection Diagrams and Pin Description

PIN DESCRIPTION	MARKING
 SOT-23-5	

PIN DESCRIPTION	MARKING
 SC70-5	

PIN No. DBV/DCK	NAME	I/O	FUNCTION
1	A	I/O	Bidirectional signal to be switched
2	B	I/O	Bidirectional signal to be switched
3	GND	-	Ground pin
4	C	I	Controls the switch (L = OFF, H = ON)
5	VCC	-	Supply Voltage

ORDERING NUMBER	PACKAGE	PACKING OPTION
74LVC1G66GV,125	SOT23-5	3000PCS
74LVC1G66GW,125	SC70-5	3000PCS

Logic Diagram

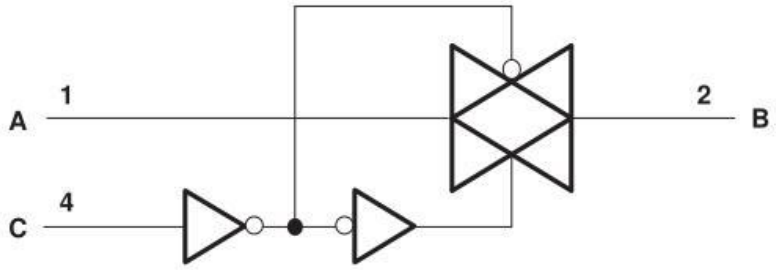


Figure 3.1：74LVC1G66Gx,125 Logic Diagram

Absolute Maximum Ratings

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

Symbol	Parameter		MIN	MAX	Unit
V_{CC}	Supply Voltage		-0.5	6.5	V
V_I	Input Voltage Range		-0.5	6.5	V
$V_{I/O}$	Switch I/O voltage(2)(3)(4)		-0.5	VCC + 0.5	V
I_{IK}	Continuous Output Current	VI < 0		-50	mA
T_J	Junction Temperature			125	℃
T_{OP}	Operating Temperature		0	70	℃

Absolute maximum ratings are those values beyond which the device could be permanently damaged,These are stress ratings only,which do not imply functional operation of the device at these or any other conditions beyond those indicated under normal operating conditions.

(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) The input and output negative-voltage ratings may be exceeded if the input and output clamp-current ratings are observed.

(4) This value is limited to 5.5 V maximum.

Recommended Operating Conditions

Symbol	Parameter		MIN	MAX	Unit
V_{CC}	Supply Voltage		1.65	5.5	V
$V_{I/O}$	Switch I/O voltage		0	VCC	V
V_{IH}	High-level input voltage, control input	VCC = 1.65 V to 1.95 V	VCC × 0.65		V
		VCC = 2.3 V to 2.7 V	VCC × 0.7		
		VCC = 3 V to 3.6 V	VCC × 0.7		
		VCC = 4.5 V to 5.5 V	VCC × 0.7		
V_{IL}	Low-level input voltage, control input	VCC = 1.65 V to 1.95 V		VCC × 0.35	V
		VCC = 2.3 V to 2.7 V		VCC × 0.3	
		VCC = 3 V to 3.6 V		VCC × 0.3	
		VCC = 4.5 V to 5.5 V		VCC × 0.3	
V_I	Control input voltage		0	5.5	V

Electrical Characteristics

DC Specifications

(T_a=25℃, voltages are referenced to GND (ground=0V), unless otherwise specified)

Symbol	Parameter	Test Condition		Vcc	MIN	TYP	MAX	Unit
ron	ON-state switch resistance	VI = VCC or GND, VC = VIH	IS = 4 mA	1.65 V	--	10	--	Ω
			IS = 8mA	2.3 V	--	5	--	
			IS = 24 mA	3V	--	4	--	
			IS = 32mA	4.5V	--	3	--	
ron(p)	Peak on resistance	VI = VCC or GND, VC = VIH	IS = 4 mA	1.65 V	--	--	300	Ω
			IS = 8mA	2.3 V	--	--	100	
			IS = 24 mA	3V	--	--	50	
			IS = 32mA	4.5V	--	--	25	
IS(off)	OFF-state switch leakage current	VI = VCC and VO = GND or VI = GND and VO = VCC, VC = VIL		5.5V	--	--	±1	μA
IS(on)	ON-state switch leakage current	VI = VCC or GND, VC = VIH,VO = Open		5.5V	--	--	±1	μA
I_I	Control input current	VC = VCC or GND		5.5 V	--	--	±1	uA
I_{CC}	Supply current	VC = VCC or GND		5.5 V	--	--	10	uA
ΔI_{CC}	Supply current change	VC = VCC – 0.6 V		5.5 V	--	--	500	uA

Application Information

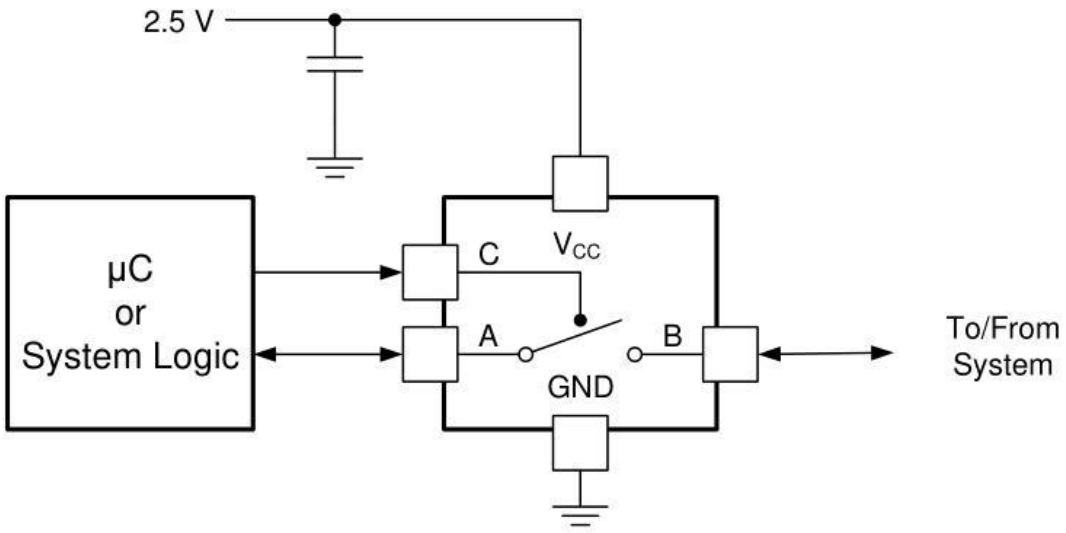
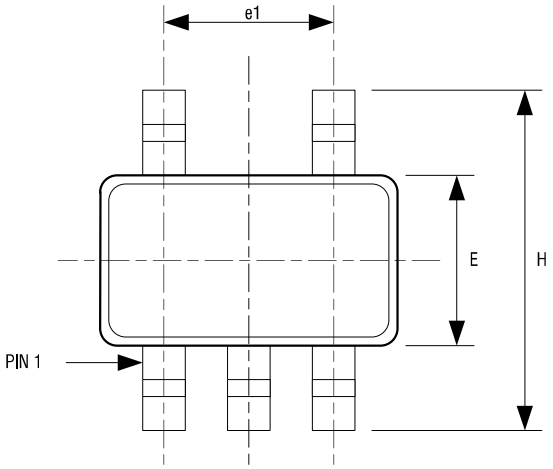


Figure 5.1：Application Schematic

PACKAGE DESCRIPTION

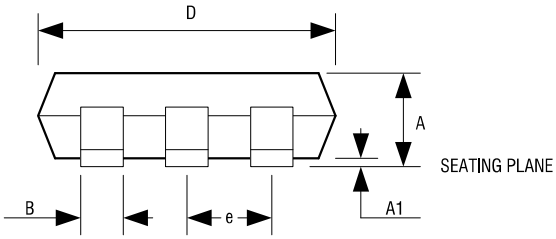
SOT-23-5



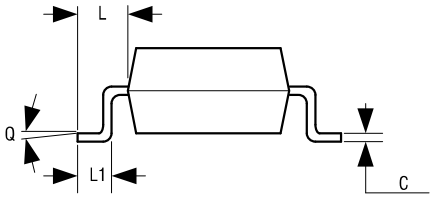
TOP VIEW

5LD SOT-23 PACKAGE OUTLINE DIMENSIONS

Dimension	Min.	Max.
A	1.05	1.35
A1	0.04	.15
B	0.3	0.5
C	0.09	0.2
D	2.8	3.0
H	2.5	3.1
E	1.5	1.7
e	0.95 REF.	
e1	1.90 REF.	
L1	0.2	0.55
L	0.35	0.8
Q	0°	10°



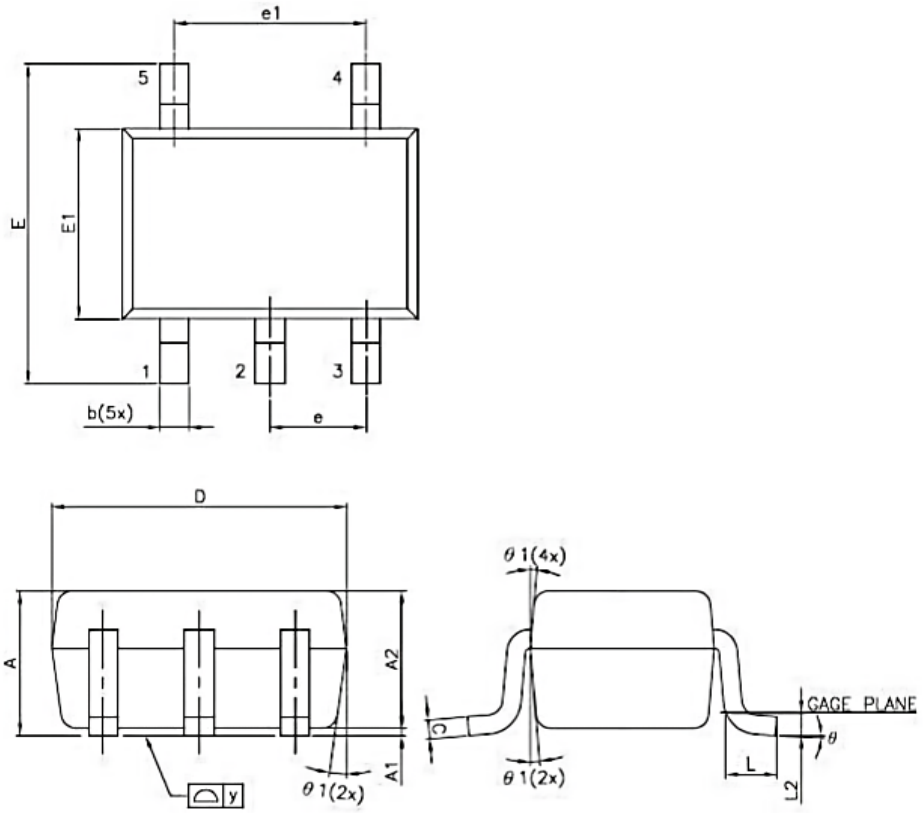
FRONT VIEW



SIDE VIEW

NOTE:
1.DIMENSIONS ARE IN MLLIMETERS
2.DRAWING NOT TO SCALE
3.DIMENSIONS ARE INCLUSIVE OF PLATING
4.DIMENSIONS ARE EXCLUSVE OF MOLD FLASH AND METAL BURR

SC70-5



Symbol	Dim in mm		
	MIN	TYP	MAX
A	0.90	1.00	1.10
A1	0.00	0.05	0.10
A2	0.90	0.95	1.00
b	0.15	0.25	0.35
C	0.10	0.12	0.15
D	1.80	2.00	2.20
E	2.15	2.25	2.35
E1	1.15	1.25	1.35
e	0.650TYP.		
el	1.20	1.30	1.40
L	0.25	0.30	0.40
L2	0.15TYP.		
Y	0.00	0.05	0.10
θ	4°	8°	12°