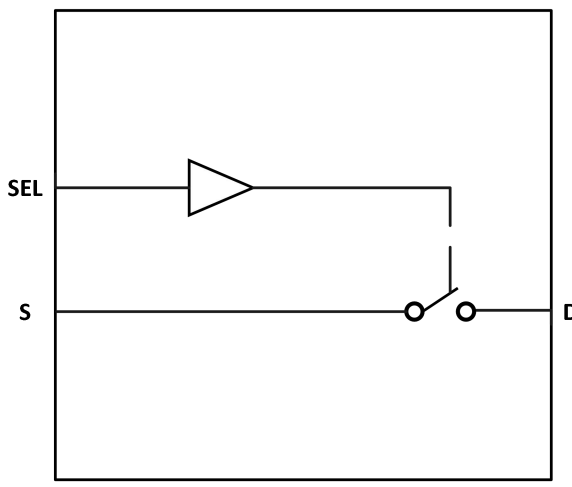


GT74LVC1G66 4.5Ω Bilateral SPST Analog Switch

1 Features	2 Application
<ul style="list-style-type: none"> - Bandwidth: 300MHz - High Speed, Typically 30ns - Supply Range: +1.8V to +5.5V - Low ON-State Resistance: 4.5Ω(TYP) - Rail-to-Rail Operation 	<ul style="list-style-type: none"> - Wireless Devices - Audio and Video Signal Routing - Portable Computing - Wearable Devices - Signal Gating, Chopping, Modulation or Demodulation (Modem)

3 Description	Circuit Diagram
<p>The GT74LVC1G66 is a bidirectional 1-channel single-pole single-throw (SPST) analog switch, which is designed to operate from 1.8V to 5.5V.</p> <p>The GT74LVC1G66 device can handle both analog and digital signals. It features bandwidth (300 MHz) and low on resistance (4.5Ω TYP).</p> <p>The switch section has its enable-input control (SEL). A high-level voltage applied to SEL turns on the associated switch section.</p> <p>Applications include signal gating, chopping, modulation or demodulation (modem), and signal multiplexing for analog-to-digital and digital-to-analog conversion systems.</p>	

4 Device Summary, Pin and Packages

Table 4-1. Device Summary ⁽¹⁾

Serial Name	Part Name	Package	Body Size (Nom)	Marking ⁽²⁾	MSL ⁽³⁾	Package Qty
GT74LVC1G66	GT74LVC1G66S5	SOT23-5	2.9mm×1.6mm×0.95mm	1G66 XXXXX	3	3000
GT74LVC1G66	GT74LVC1G66C5	SC70-5	2.1mm×1.3mm×0.75mm	1G66 XXXXX	3	3000

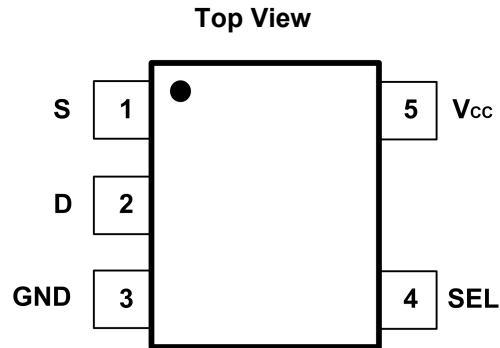
(1) For all available packages, please contact product sales.

(2) There may be additional marking, which relates to the lot trace code information (data code and vendor code), the logo or the environmental category on the device.

(3) MSL, The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications.

(4) "XXXXX" in Marking will be appeared as the batch code.

4 Device Summary, Pin and Packages (Continued)



**Fig.4-1. GT74LVC1G66:C5(SC70-5) Package
GT74LVC1G66:S5(SOT23-5) Package**

Table 4-2 Pin Definition

Name	Pin	I/O	Description
	C5 S5		
S	1	I/O	Bidirectional signal to be switched
D	2	I/O	Bidirectional signal to be switched
GND	3	-	Ground
SEL	4	I	Controls the switch (L = OFF, H = ON)
V _{CC}	5	-	Power Supply

* It is suggested to leave the unconnected pins floating

Table 4-3 Truth Table

SEL	Function
High	All Switches ON
Low	All Switches OFF

5 Voltage, Temperature, ESD and Thermal Ratings

5.1 Absolute Maximum Ratings

Parameters		Min.	Max.	Unit
Supply Voltage		-0.3	6.0	V
Select Input Voltage ⁽¹⁾⁽²⁾		-0.3	6.0	
Switch I/O Voltage ⁽²⁾⁽³⁾⁽⁴⁾		-0.3	V _{CC} +0.3	
Control input clamp current	V _I <0		-50	mA
I/O port diode current	V _{I/O} <0 or V _{I/O} >V _{CC}		-50	
On-state switch current	V _{I/O} =0 to V _{CC}	-50	50	
Continuous current through V _{CC} or GND		-100	100	
Junction Temperature ⁽⁵⁾		-40	150	°C
Storage temperature		-65	150	

(1) Stresses above these ratings may cause permanent damage. Exposure to absolute maximum conditions for extended periods may degrade device reliability. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those specified is not implied.

(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.

(5) The maximum power dissipation is a function of T_{J(MAX)}, R_{θJA}, and T_A. The maximum allowable power dissipation at any ambient temperature is P_D = (T_{J(MAX)} - T_A) / R_{θJA}. All numbers apply for packages soldered directly onto a PCB.

5.2 ESD Ratings

ESD		Value	Unit	
V(ESD) ⁽¹⁾⁽²⁾	Electrostatic Discharge	Human-Body Model (HBM)	±2000	V
		Machine Model (MM)	±300	V

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

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

5.3 Recommended Operating Conditions

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

Symbol	Parameters	Min	Max	Unit
V _{CC}	Single-Supply, V _S =(V ₊) - (V ₋)	1.65	5.5	V
T _A	Operating Temperature	-40	125	°C

6 Electrical Specifications

$V_{CC} = 5.0\text{ V or }3.3\text{V}$, FULL= $-40^{\circ}\text{C to }+125^{\circ}\text{C}$, Typical values are at $T_A = +25^{\circ}\text{C}$. (unless otherwise noted)

DC Electrical Characteristics

Symbol	Parameter	Conditions	V_{CC} (V)	T_A	Min	Typ	Max	Unit
$I_{D(OFF)}, I_{S(OFF)}$	Source, Drain OFF Leakage Current	$V_D=0.3, V_{CC}/2, V_S=V_{CC}/2, 0.3\text{V}$	1.8 to 5.5V	FULL			1	μA
$I_{D(ON)}, I_{S(ON)}$	Channel ON Leakage Current	$V_D=0.3, \text{OPEN}, V_S=\text{OPEN}, 0.3\text{V}$	1.8 to 5.5V	FULL			1	μA
I_{IN}	Control Input Leakage	$V_{IN} = \text{GND or } V_{IO}$	1.8 to 5.5V	FULL			1	μA
I_{CC}	Quiescent Supply Current	$V_{IN} = \text{GND or } V_{CC}$	5.5V	FULL			1	μA
V_{IH}	Input Voltage High		5V	FULL	1.5			V
			3.3V	FULL	1.3			
V_{IL}	Input Voltage Low		5V	FULL			0.6	V
			3.3V	FULL			0.5	
R_{ON}	On-Resistance	$V_{SW}=V_{CC}/2, I_{ON}=-10\text{mA}, \text{Switch ON}$	5V	+25°C	4.5	8	Ω	
				FULL		8.5		
			3.3V	+25°C	7	10		
				FULL		10.5		
ΔR_{ON}	Delta R_{ON}	$V_{SW}=V_{CC}/2, I_{ON}=-10\text{mA}, \text{Switch ON}$	5V	+25°C	0.15	0.3	Ω	
				FULL		0.4		
			3.3V	+25°C	0.15	0.3		
				FULL		0.4		
$R_{FLAT(ON)}$	On-Resistance Flatness	$0 \leq (V_S) \leq V_{CC}/2, I_{ON}=-10\text{mA}, \text{Switch ON}$	5V	+25°C	2	3	Ω	
				FULL		3.3		
			3.3V	+25°C	3	4		
				FULL		4.3		

6 Electrical Specifications (Continued)

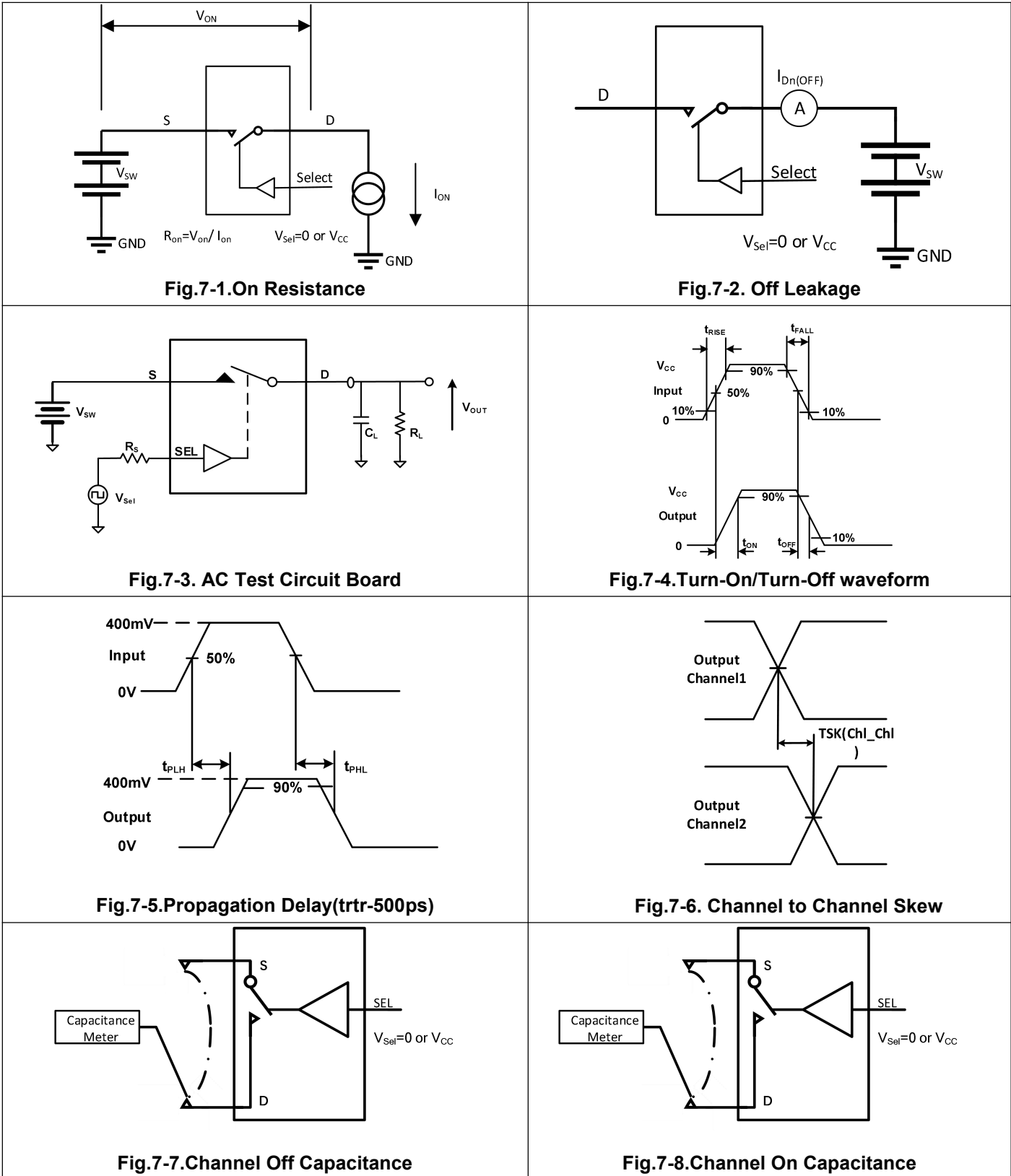
AC Electrical Characteristics

Symbol	Parameter	Conditions	Vcc (V)	Min	Typ	Max	Units
O _{IRR}	Off Isolation	R _L =50Ω	f=10MHz	3.3		-52	dB
			f=1MHz	3.3		-71	
BW	-3 db Bandwidth	C _L =0pF, R _T =50Ω	5		300		MHz
t _{ON}	Turn-On Time	C _L =35pF, V _{SW} =V _{CC}	5		30		ns
			3.3		40		
t _{OFF}	Turn-Off Time	C _L =5pF, V _{SW} =V _{CC}	5		25		ns
			3.3		30		

Capacitance

Symbol	Parameter	Conditions	Min	Typ	Max	Units
C _{S(ON)} , C _{D(ON)}	Source, Drain OFF Capacitance	V _S = V _{CC} /2 or GND, Switch OFF		5		pF
C _{S(OFF)} , C _{D(OFF)}	Source, Drain ON Capacitance	V _S = V _{CC} /2 or GND, Switch ON		15		pF

7 Measurement Information



7 Measurement Information (Continued)

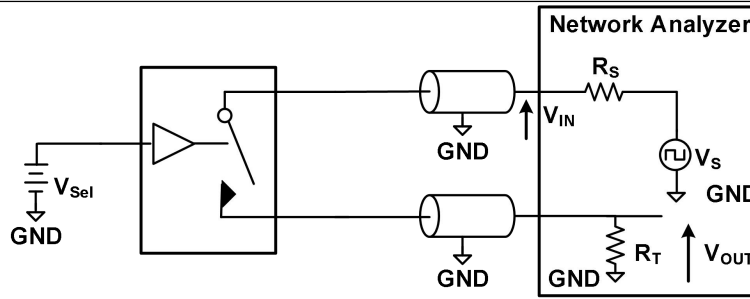


Fig.7-9. Bandwidth

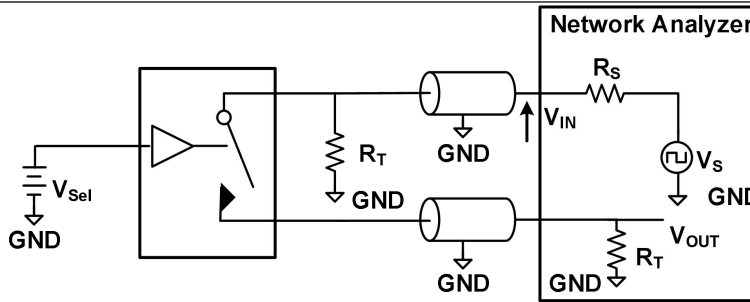
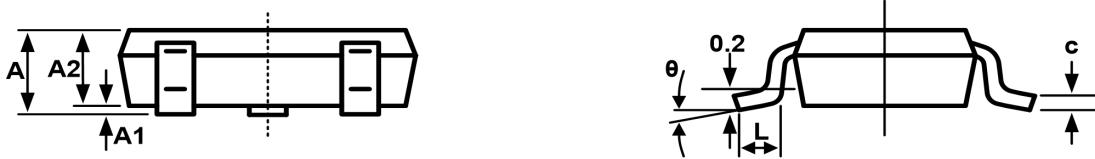
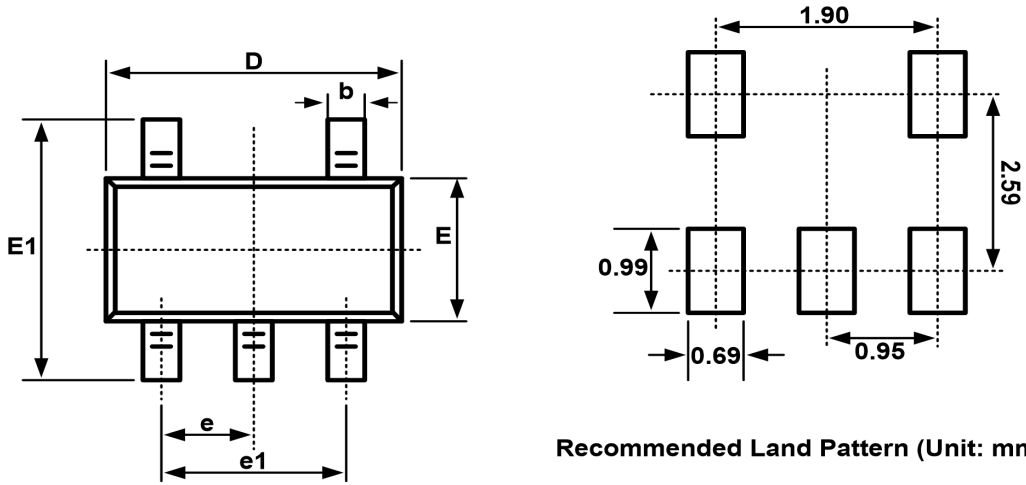


Fig.7-10. Channel Off isolation

8 Package Outline Dimension

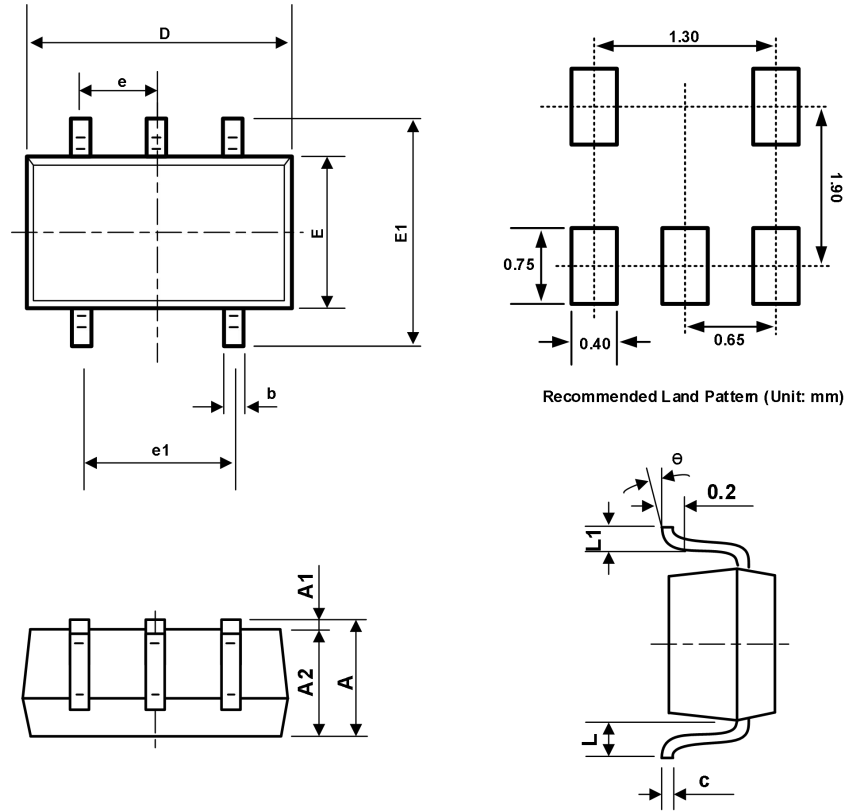
SOT23-5



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	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

8 Package Outline Dimension (Continued)

SC70-5



Symbol	Dimensions 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
θ	0°	8°	0°	8°