

BUS BUFFER/LINE DRIVER 3-STATE

Features

- Operate from 1.65V to 5.5V
- Inputs Accept Voltages to 5.5V
- High Noise Immunity
- Low Power Dissipation
- ESD Protection Exceeds JESD 22
 - 2000-V Human-Body Model (A114-A)
 - 200-V Machine Model (A115-A)
 - 1000-V Charged-Device Model (C101)
- SOT23-5 Package Available
- SOT-353 Package Available
- SOT-553 Package Available

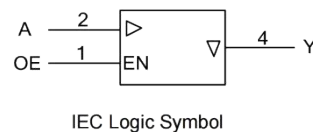
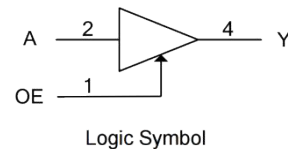
General Description

The FC74V1G126 is a single bus buffer/line driver with 3-state output. When the output enable (OE) is high the output will be disabled. In contrast, when the OE is low, true data will pass from A input to the Y output. This device has power-down protective circuit to prevent the device from destruction when it is powered down.

Applications

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

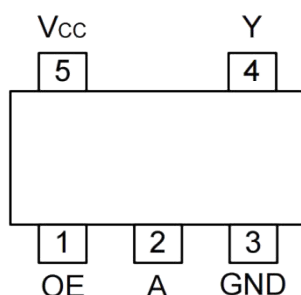
Logic Diagram



Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION	Marking
FC74LVC1G126S5	SOT23-5	Tape and Reel,3000	S126
FC74LVC1G126C5	SOT-353	Tape and Reel,3000	C126
FC74LVC1G126C7	SOT-553	Tape and Reel,3000	CN7

Pin Configuratio



Function Table

INPUT(OE)	INPUT(A)	OUTPUT(Y)
H	L	L
H	H	H
L	X	Z

Note: H: HIGH voltage level; L: LOW voltage level; X=don't care; Z=high-impedance OFF-state.

SOT23-5 / SOT-353 / SOT-553



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Absolute Maximum Ratings

PARAMETER		SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage		VCC		-0.5 ~ +6.5	V
Input Voltage		VIN		-0.5 ~ +6.5	V
Output Voltage	Enable mode	VOUT		-0.5 ~ VCC + 0.5	V
	Disable mode			-0.5 ~ +6.5	V
	Power-down mode			-0.5 ~ +6.5	V
VCC or GND Current		ICC	Output in the Power-off state	±100	mA
Continuous Output Current		IOUT	VOUT=0~VCC	±50	mA
Input Clamp Current		IIK	VIN<0	-50	mA
Output Clamp Current		IOK	VOUT<0	-50	mA
Storage Temperature Range		TSTG		-65 ~ +150	°C
Junction to Ambient		θ_{Jc}	SOT-23-5	280	°C/W
			SOT353	350	°C/W
			SOT553	480	°C/W

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

Recommended Operating Conditions

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	VCC	Operating	1.65	--	5.5	V
Input Voltage	VIN		0	--	5.5	V
Output Voltage	VOUT	VCC=1.65V ~ 5.5V; Enable mode	0	--	VCC	V
		VCC=1.65V ~ 5.5V; Disable mode	0	--	5.5	V
		VCC=0V; Power-down mode	0	--	5.5	V
Input Transition Rise or Fall Rate	t_R/t_F	VCC=1.65V ~ 2.7V	--	--	20	ns/V
		VCC=2.7V ~ 5.5V	--	--	10	ns/V
Operating Temperature	TA		-40	--	125	°C



BUS BUFFER/LINE DRIVER 3-STATE

Electrical Characteristics (unless otherwise specified)

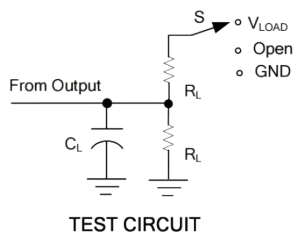
PARAMETER	SYMBOL	TEST Conditions	TA=25°C			TA=-40°C~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
High-Level Input Voltage	V _{IH}	V _{CC} =1.65V ~ 1.95V	0.65×V _{CC}	--	--	0.65×V _{CC}	--	--	V
		V _{CC} =2.3V ~ 2.7V	1.7	--	--	1.7	--	--	V
		V _{CC} =3V ~ 3.6V	2	--	--	2	--	--	V
		V _{CC} =4.5V ~ 5.5V	0.7×V _{CC}	--	--	0.7×V _{CC}	--	--	V
Low-Level Input Voltage	V _{IL}	V _{CC} =1.65V ~ 1.95V	--	--	0.35×V _{CC}	--	--	0.35×V _{CC}	V
		V _{CC} =2.3V ~ 2.7V	--	--	0.7	--	--	0.7	V
		V _{CC} =3V ~ 3.6V	--	--	0.8	--	--	0.8	V
		V _{CC} =4.5V ~ 5.5V	--	--	0.35×V _{CC}	--	--	0.35×V _{CC}	V
High-Level Output Voltage	V _{OH}	V _{CC} =1.65 ~ 5.5V, I _{OH} =-100μA	V _{CC} -0.1	--	--	V _{CC} -0.1	--	--	V
		V _{CC} =1.65V, I _{OH} =-4mA	1.2	--	--	0.95	--	--	V
		V _{CC} =2.3V, I _{OH} =-8mA	1.9	--	--	1.7	--	--	V
		V _{CC} =2.7V, I _{OH} =-12mA	2.2	--	--	1.9	--	--	V
		V _{CC} =3.0V, I _{OH} =-24mA	2.3	--	--	2	--	--	V
		V _{CC} =4.5V, I _{OH} =-32mA	3.8	--	--	3.4	--	--	V
Low-Level Output Voltage	V _{OL}	V _{CC} =1.65 ~ 5.5V, I _{OL} =100μA	--	--	0.1	--	--	0.1	V
		V _{CC} =1.65V, I _{OL} =4mA	--	--	0.45	--	--	0.7	V
		V _{CC} =2.3V, I _{OL} =8mA	--	--	0.3	--	--	0.45	V
		V _{CC} =3.0V, I _{OL} =-16mA	--	--	0.4	--	--	0.6	V
		V _{CC} =3.0V, I _{OL} =-24mA	--	--	0.55	--	--	0.8	V
		V _{CC} =4.5V, I _{OL} =-32mA	--	--	0.55	--	--	0.8	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0 ~ 5.5V, V _{IN} =5.5V or GND	--	±0.1	±5	--	--	±5	uA
Power OFF Leakage Current	I _{OFF}	V _{CC} =0V, V _{IN} or V _{OUT} =5.5V	--	±0.1	±10	--	--	±10	uA
Quiescent Supply Current	I _Q	V _{CC} =1.65 ~ 5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0A	--	±0.1	10	--	--	±10	uA
Additional Quiescent Supply Current Per Input Pin	ΔI _Q	V _{CC} =3 ~ 5.5V, One input at V _{CC} -0.6V, Other inputs at V _{CC} or GND	--	5	500	--	--	500	uA

BUS BUFFER/LINE DRIVER 3-STATE

SWITCHING CHARACTERISTICS (unless otherwise specified)

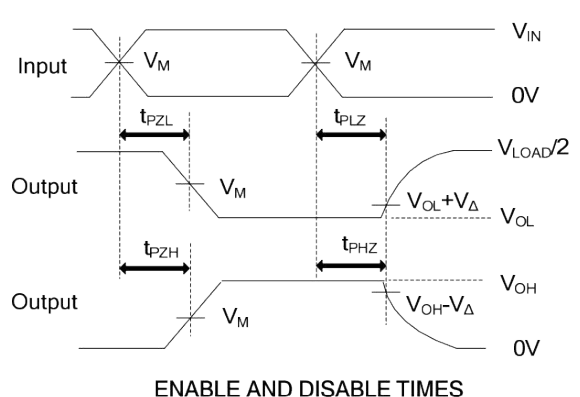
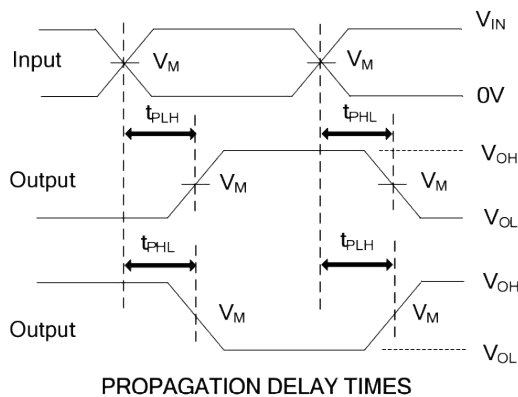
PARAMETER	SYMBOL	TEST Conditions	TA=25°C			TA=-40°C~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation Delay From Input A to Output Y	t _{PLH} / t _{PHL}	CL=30pF	V _{CC} =1.8±0.15V, R _L =1KΩ		1	--	--	20	nS
			V _{CC} =2.5±0.2V, R _L =500Ω		0.5	--	--	14	nS
		CL=50pF R _L =500Ω	V _{CC} =2.7V		0.5	--	--	14	nS
			V _{CC} =3.3±0.3V		0.5	--	--	11	nS
			V _{CC} =5±0.5V		0.5	--	--	9	nS
3-State Output Enable Time From Input OE to Output Y	t _{PZH} / t _{PZL}	CL=30pF	V _{CC} =1.8±0.15V, R _L =1KΩ		1	--	--	22	nS
			V _{CC} =2.5±0.2V, R _L =500Ω		0.5	--	--	14	nS
		CL=50pF R _L =500Ω	V _{CC} =2.7V		0.5	--	--	14	nS
			V _{CC} =3.3±0.3V		0.5	--	--	11	nS
			V _{CC} =5±0.5V		0.5	--	--	9	nS
3-State Output Disable Time From Input OE to Output Y	t _{PLZ} / t _{PHZ}	CL=30pF	V _{CC} =1.8±0.15V, R _L =1KΩ		1	--	--	13	nS
			V _{CC} =2.5±0.2V, R _L =500Ω		0.5	--	--	10	nS
		CL=50pF R _L =500Ω	V _{CC} =2.7V		0.5	--	--	9	nS
			V _{CC} =3.3±0.3V		0.5	--	--	8	nS
			V _{CC} =5±0.5V		0.5	--	--	7	nS

TEST CIRCUIT AND WAVEFORMS



TEST	S
t _{PLH} /t _{PHL}	Open
t _{PHZ} /t _{PZH}	GND
t _{PLZ} /t _{PZL}	V _{LOAD}

V _{CC}	INPUTS		V _M	V _{LOAD}	V _Δ	C _L	R _L
	V _{IN}	t _r , t _f					
1.8V±0.15V	V _{CC}	≤2ns	V _{CC} /2	2 x V _{CC}	0.15V	30pF	1KΩ
2.5V±0.2V	V _{CC}	≤2ns	V _{CC} /2	2 x V _{CC}	0.15V	30pF	500Ω
2.7V	2.7V	≤2.5ns	1.5V	6V	0.3V	50pF	500Ω
3.3V±0.3V	2.7V	≤2.5ns	1.5V	6V	0.3V	50pF	500Ω
5V±0.5V	V _{CC}	≤2.5ns	V _{CC} /2	2 x V _{CC}	0.3V	50pF	500Ω



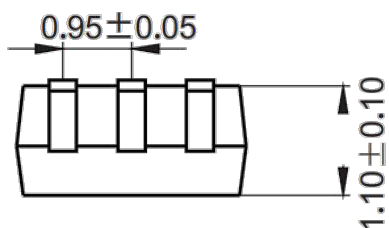
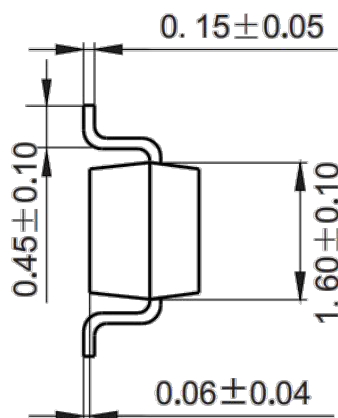
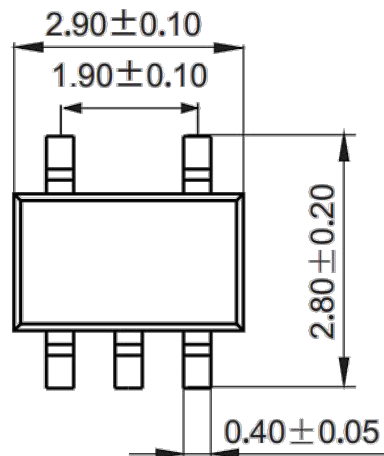
Notes: 1. C_L includes probe and jig capacitance.

2. All input pulses are supplied by generators having the following characteristics: P_{RR} ≤10MHz, Z_O = 50Ω.

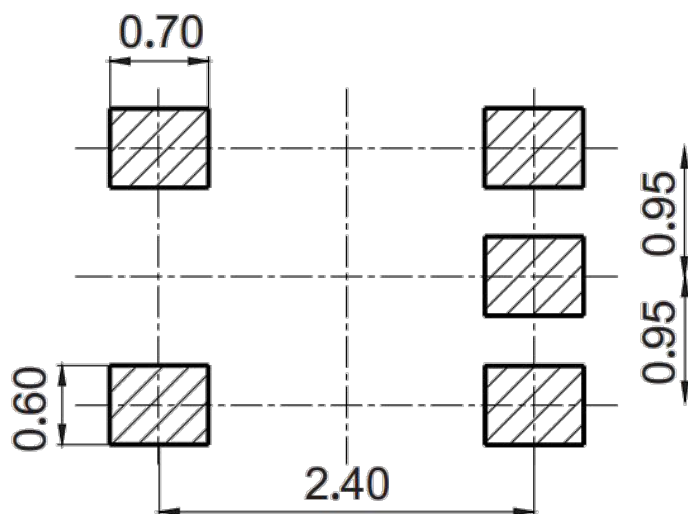
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Package information (Unit: mm)

SOT23-5



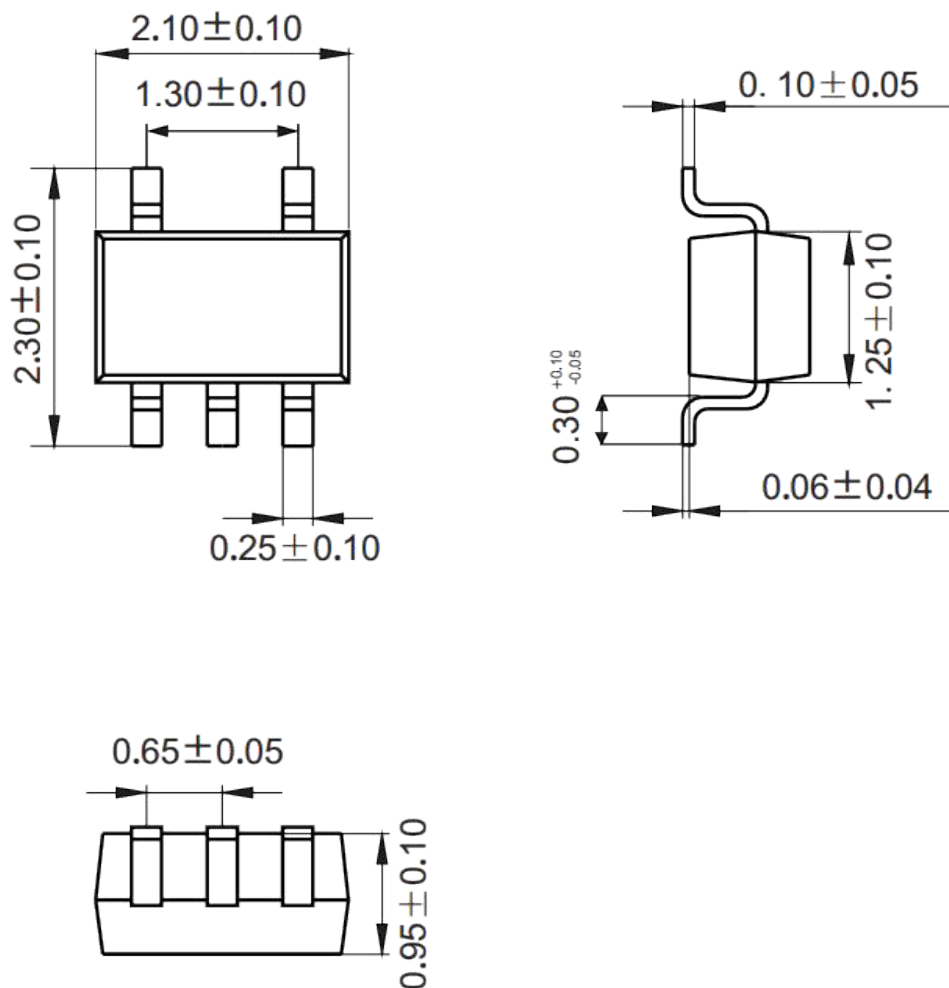
Mounting Pad Layout (Unit: mm)



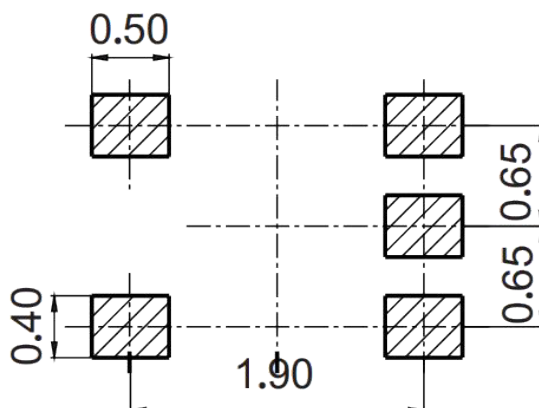
BUS BUFFER/LINE DRIVER 3-STATE

Package information (Unit: mm)

SOT-353



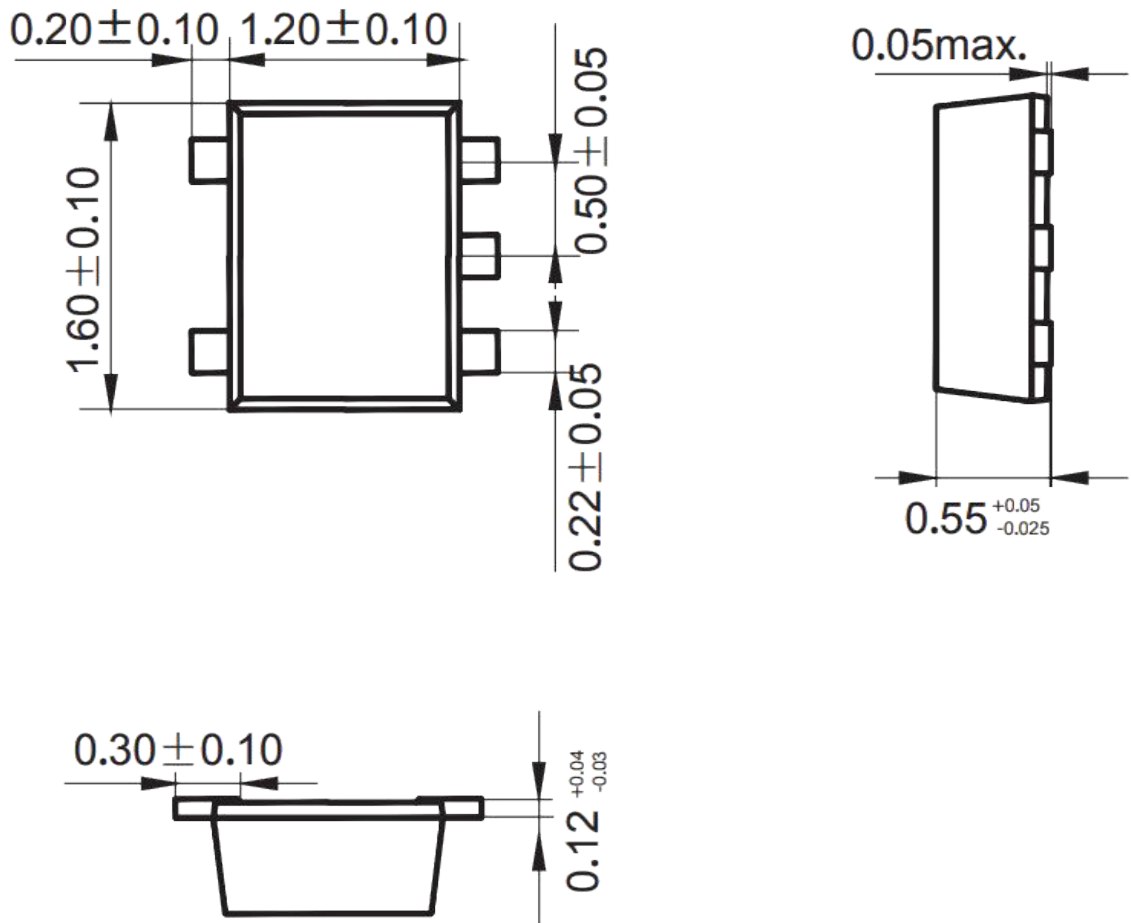
Mounting Pad Layout (Unit: mm)



BUS BUFFER/LINE DRIVER 3-STATE

Package information (Unit: mm)

SOT-553



Mounting Pad Layout (Unit: mm)

