

Features

- Operation voltage range: 2.0~6.0V
- High noise immunity
- Balanced propagation delays
- Low Power Consumption, 10- μ A Max ICC
- ESD Protection Exceeds JESD 22
 - 2000-V Human-Body Model (A114-A)
 - 200-V Machine Model (A115-A)
 - 1000-V Charged-Device Model (C101)

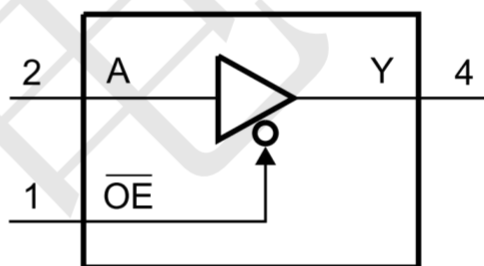
General Description

The 74HC1G125 is a dual buffer. Inputs include clamp diodes. This enables the use of current limiting resistors to interface inputs to voltages in excess of VCC.

Applications

- AV Receiver
- Audio Dock: Portable
- IP Phones: Wired and Wireless
- Embedded PC
- Personal Digital Assistant(PDA)
- Power: Telecom DC/DC Module: Analog and Digital

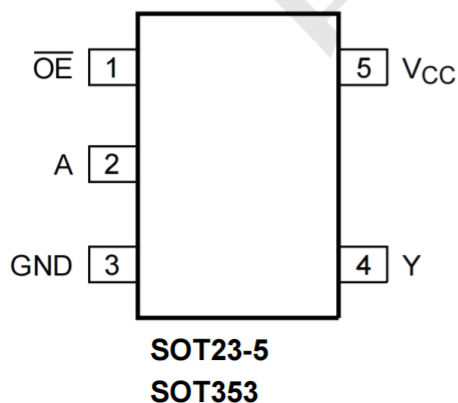
Logic Diagram



Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
74HC1G125GV	SOT23-5	Tape and Reel,3000
74HC1G125GW	SOT353	Tape and Reel,3000

Pin Configuratio



Function Table

INPUT($\overline{OE}$)	INPUT(A)	OUTPUT(Y)
L	L	L
L	H	H
H	X	Z

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

Absolute Maximum Ratings

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V _{CC}		-0.5 ~ +7.0	V
Input Voltage	V _{IN}		-0.5 ~ +7.0	V
Output Voltage	V _{OUT}		-0.5 ~ +7.0	V
V _{CC} or GND Current	I _{CC}		±70	mA
Continuous Output Current	I _{OUT}	V _{OUT} =0~V _{CC}	±35	mA
Input Clamp Current	I _{IK}	V _{IN} <0	±20	mA
Output Clamp Current	I _{OK}	(V _{OUT} >V _{CC} or V _{OUT} <0)	±20	mA
Storage Temperature Range	T _{STG}		-65 ~ +150	°C
Operating Junction Temperature	T _J		-40 ~ +125	°C
Junction to Ambient	θ _{JA}	SOT-23-5	230	°C/W
		SOT353	280	°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(T_A =25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V _{CC}	Operating	2.0	5.0	6.0	V
Input Voltage	V _{IN}		0	5.0	V _{CC}	V
Output Voltage	V _{OUT}		0	5.0	V _{CC}	V
input transition rise and fall rate	Δt/ΔV	V _{CC} =2.0V	--	--	625	ns/V
		V _{CC} =4.5V	--	--	139	ns/V
		V _{CC} =6.0V	--	--	83	ns/V

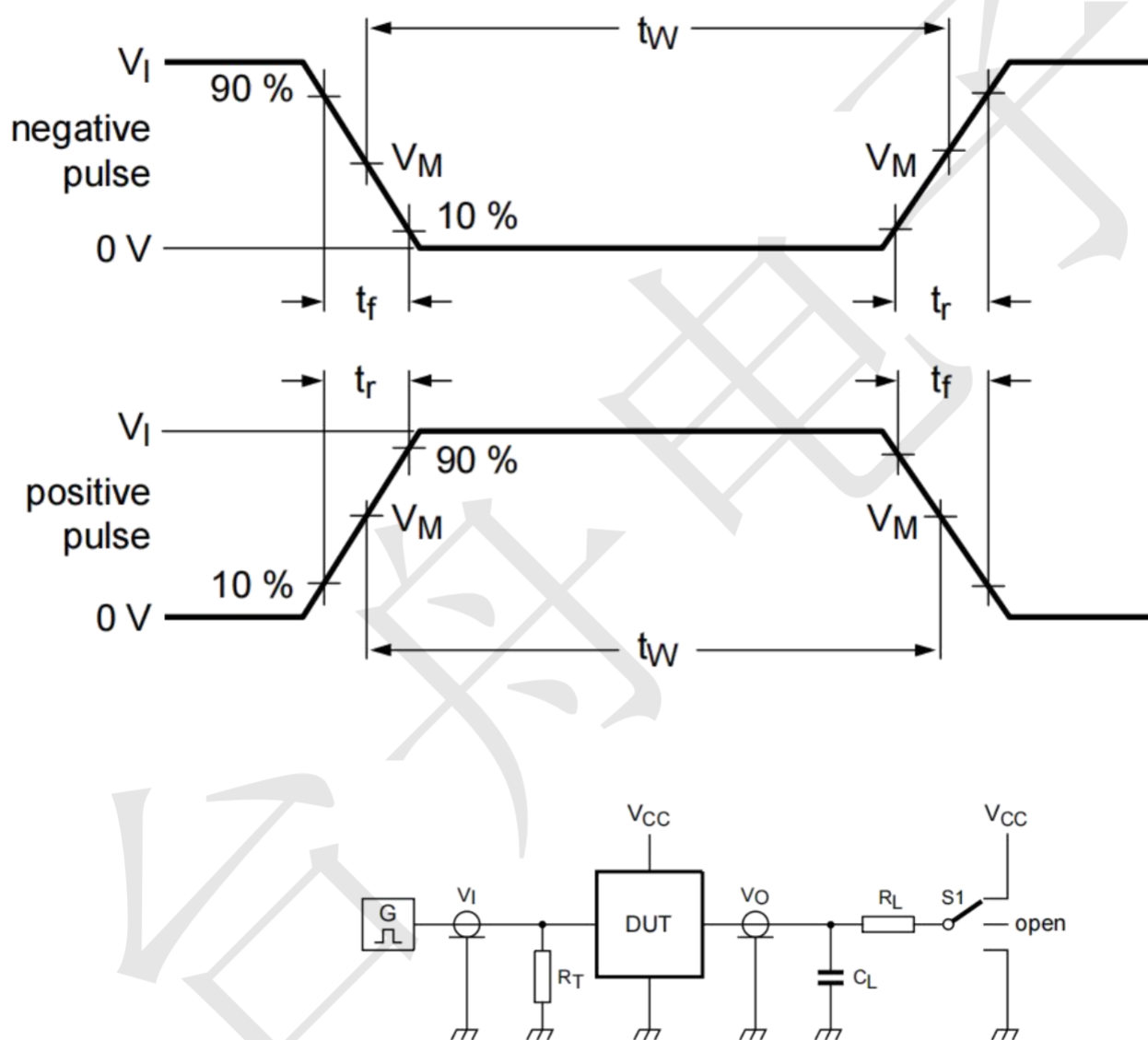
Electrical Characteristics (TA = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V _{IH}	V _{CC} =2.0V	1.5	1.2	--	V
		V _{CC} =4.5V	3.15	2.4	--	V
		V _{CC} =6.0V	4.2	3.2	--	V
Low-Level Input Voltage	V _{IL}	V _{CC} =2.0V	--	0.8	0.5	V
		V _{CC} =4.5V	--	2.1	1.35	V
		V _{CC} =6.0V	--	2.8	1.8	V
High-Level Output Voltage	V _{OH}	V _{CC} =2.0V, I _{OH} =-20μA	1.9	2.0	--	V
		V _{CC} =4.5V, I _{OH} =-20μA	4.4	4.5	--	V
		V _{CC} =6.0V, I _{OH} =-20μA	5.9	6.0	--	V
		V _{CC} =4.5V, I _{OH} =-6.0mA	3.84	4.32	--	V
		V _{CC} =6.0V, I _{OH} =-7.8mA	5.34	5.81	--	V
Low-Level Output Voltage	V _{OL}	V _{CC} =2.0V, I _{OL} = 20μA	--	0	0.1	V
		V _{CC} =4.5V, I _{OL} = 20μA	--	0	0.1	V
		V _{CC} =6.0V, I _{OL} = 20μA	--	0	0.1	V
		V _{CC} =4.5V, I _{OH} = 6.0mA	--	0.15	0.33	V
		V _{CC} =6.0V, I _{OH} = 7.8mA	--	0.16	0.33	V
Input Leakage Current	I _I	V _{IN} =6.0V or GND	--	--	1	uA
Supply current	I _{CC}	V _{IN} =V _{CC} or GND, I _{OUT} =0A	--	--	10	uA
input capacitance	C _I		--	1.5	--	pF

Dynamic characteristics (TA = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
propagation delay	tpd	CL=50pF	V _{CC} =2.0	--	24	125 nS
			V _{CC} =4.5	--	10	25 nS
			V _{CC} =6.0	--	8	21 nS
enable time	ten	CL=50pF	V _{CC} =2.0	--	19	155 nS
			V _{CC} =4.5	--	9	31 nS
			V _{CC} =6.0	--	7	26 nS
disable time	tdis	CL=50pF	V _{CC} =2.0	--	18	155 nS
			V _{CC} =4.5	--	12	31 nS
			V _{CC} =6.0	--	11	26 nS
power dissipation Cap	CPD	V _I = GND to V _{CC}	--	30	--	pF

TEST CIRCUIT AND WAVEFORMS



Definitions for test circuit:

R_T = Termination resistance should be equal to the output impedance Z_o of the pulse generator

C_L = Load capacitance including jig and probe capacitance

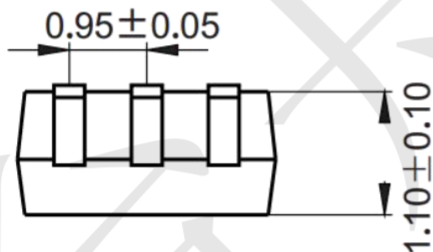
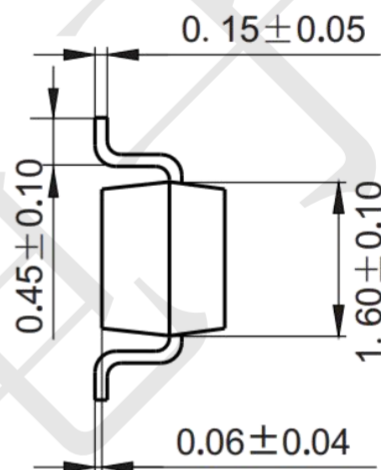
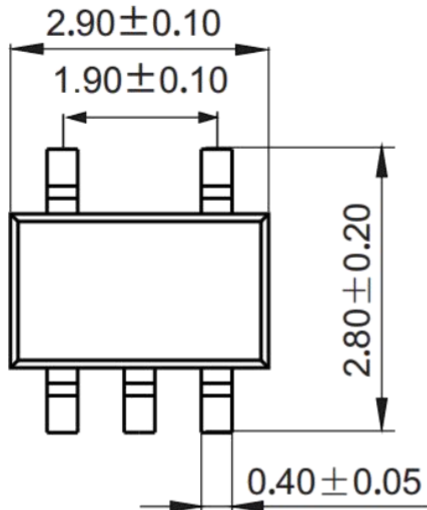
R_L = Load resistance

$S1$ = Test selection switch

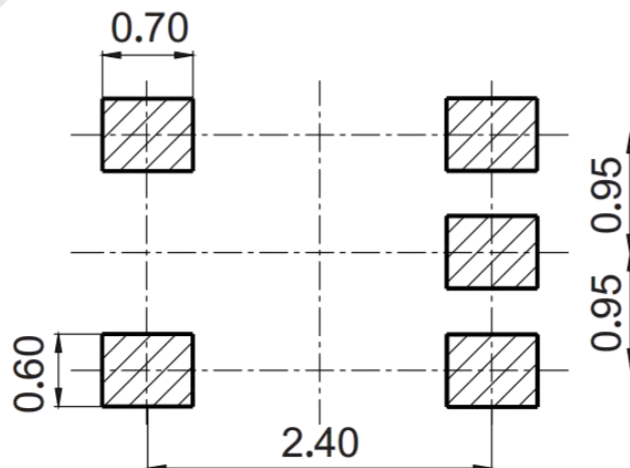
Testcircuitformeasuringswitchingtimes

Package information

SOT23-5 (Unit: mm)

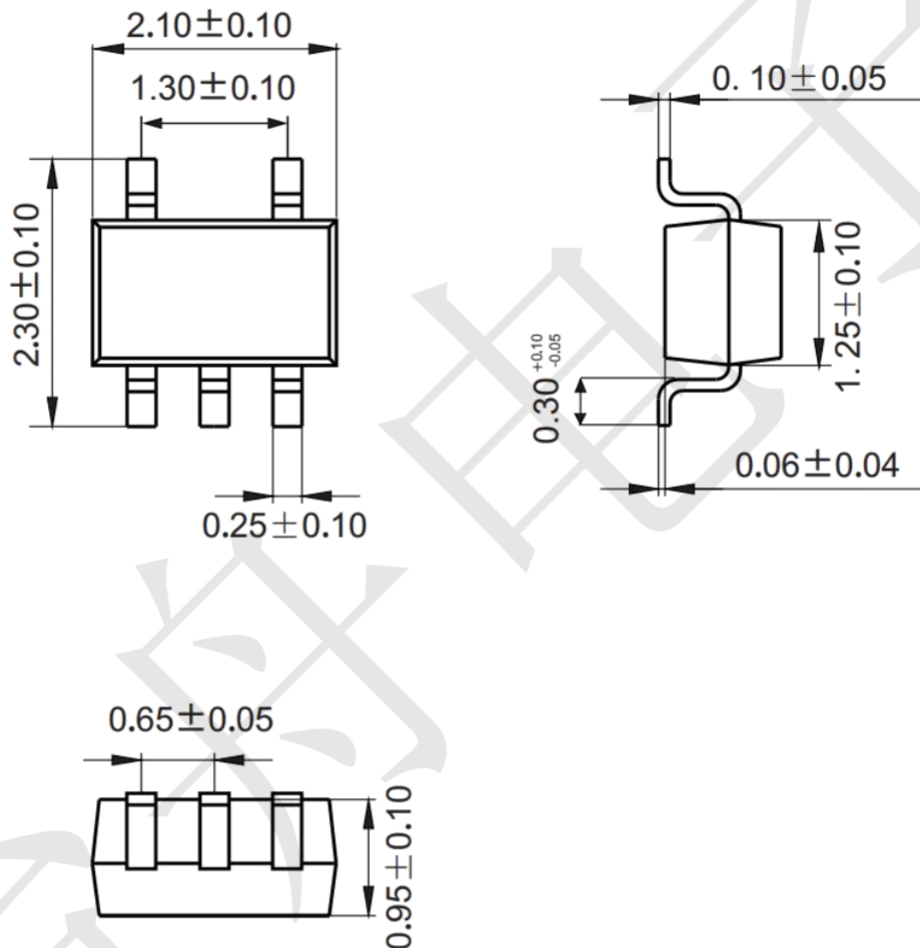


Mounting Pad Layout (unit: mm)



Package information

SOT353 (Unit: mm)



Mounting Pad Layout (unit: mm)

