TECH PUBLIC
台舟电子

74HC2G14 Series
Dual inverting Schmitt trigger

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Features

- Operation voltage range: 2.0~6.0V
- High noise immunity
- Balanced propagation delays
- Low Power Consumption, 10-μA 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)

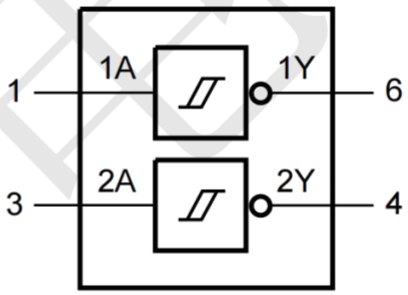
Applications

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

General Description

The 74HC2G14 is a dual inverter. Inputs include clamp diodes that enable the use of current limiting resistors to interface inputs to voltages in excess of VCC.

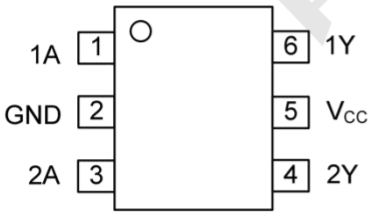
Logic Diagram



Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
74HC2G14GV	SOT23-6	Tape and Reel,3000
74HC2G14GW	SOT363	Tape and Reel,3000

Pin Configuratio



SOT23-6
SOT363

Function Table

INPUT(nA)	OUTPUT(nY)
H	L
L	H

Note:H: HIGH voltage level;L: LOW voltage level.

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
VCC or GND Current	I_{CC}		±50	mA
Continuous Output Current	I_{OUT}	V_{OUT}=0~V_{CC}	±25	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	℃
Operating Junction Temperature	T_J		-40 ~ +125	℃
Junction to Ambient	θ_{JA}	SOT-23-6	230	℃/W
		SOT363	280	℃/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(TA =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	VCC	V
Output Voltage	V_{OUT}		0	5.0	VCC	V

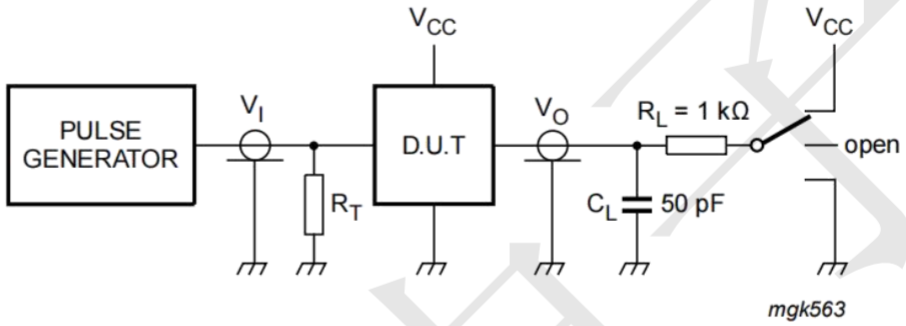
Electrical Characteristics (TA =25°C， unless otherwise specified)

PARAMETER	SYMBOL	TEST Conditions	MIN	TYP	MAX	UNIT
positive-going threshold voltage	V_{T+}	VCC=2.0V	1.0	--	1.5	V
		VCC=4.5V	2.3	--	3.15	V
		VCC=6.0V	3.0	--	4.2	V
negative-going threshold voltage	V_{T-}	VCC=2.0V	0.3	--	0.9	V
		VCC=4.5V	1.13	--	2.0	V
		VCC=6.0V	1.5	--	2.6	V
hysteresis voltage	V_H	VCC=2.0V	0.3	--	1.0	V
		VCC=4.5V	0.6	--	1.4	V
		VCC=6.0V	0.8	--	1.7	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}=-4.0mA	4.18	4.32	--	V
		V_{CC}=6.0V, I_{OH}=-5.2mA	5.68	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}= 4.0mA	--	0.15	0.26	V
		V_{CC}=6.0V,I_{OH}= 5.2mA	--	0.16	0.26	V
Input Leakage Current	I_I	V_{IN}=6.0V or GND	--	--	±0.1	uA
Quiescent Supply current	I_Q	VIN=VCC or GND, IOUT=0A	--	--	1.0	uA
input capacitance	C_I		--	2.0	--	pF

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

PARAMETER	SYMBOL	TEST Conditions		MIN	TYP	MAX	UNIT
propagation delay	tpd	CL=50pF	Vcc=2.0	--	22	75	nS
			Vcc=4.5	--	8.0	15	nS
			Vcc=6.0	--	6.0	13	nS
transition time	tt	CL=50pF	Vcc=2.0	--	18	75	nS
			Vcc=4.5	--	6.0	15	nS
			Vcc=6.0	--	5.0	13	nS
power dissipation Cap	CPD	VI = GND to VCC		--	9.0	--	pF

TEST CIRCUIT AND WAVEFORMS



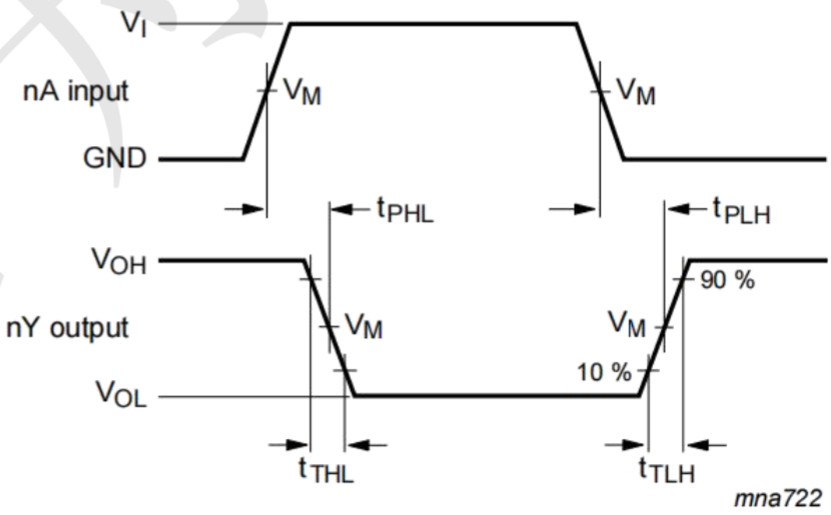
Definitions test circuit:

R_L = Load resistance.

C_L = Load capacitance including jig and probe capacitance.

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

Testcircuitformeasuringswitchingtimes

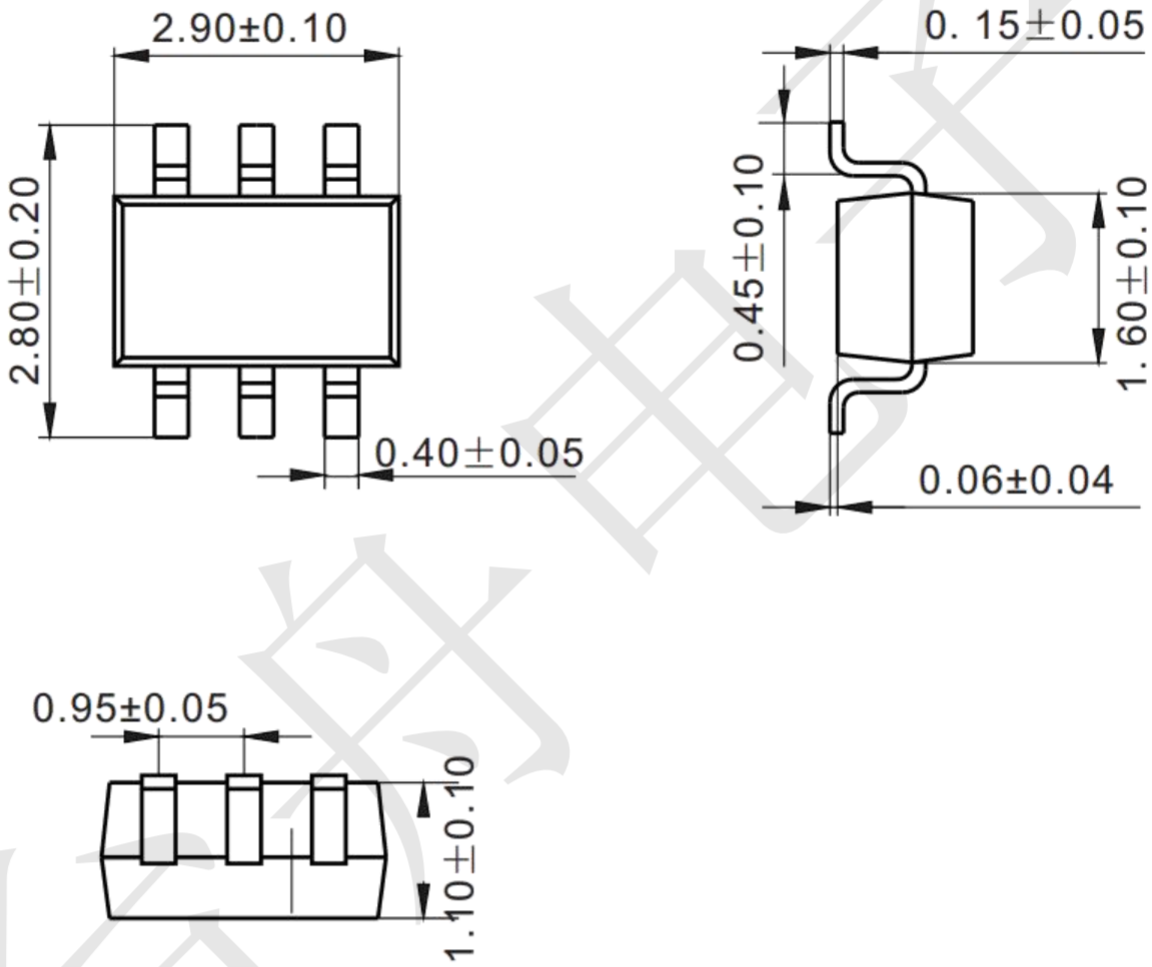


V_{OL} and V_{OH} are typical voltage output levels that occur with the output load.

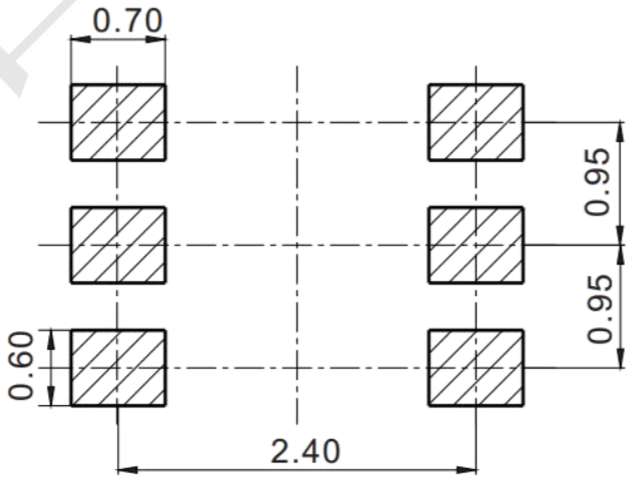
The data input (nA) to output (nY) propagation delays and output transition times

Package information

SOT23-6 (Unit: mm)

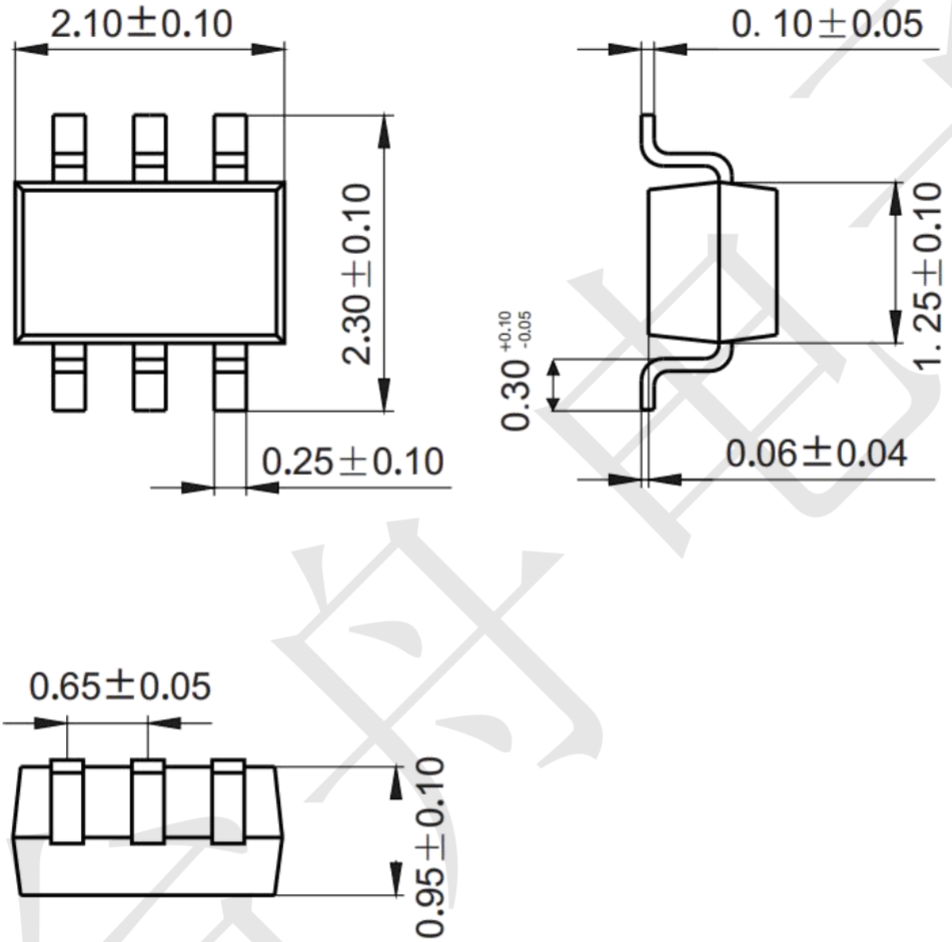


Mounting Pad Layout (unit: mm)



Package information

SOT363 (Unit: mm)



Mounting Pad Layout (unit: mm)