

DESCRIPTION

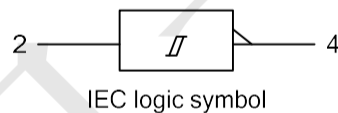
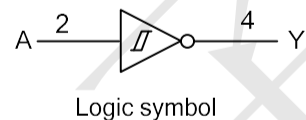
The TP74AHC1G14 contains one inverter with Schmitt-trigger, which provides the Function $Y = \overline{A}$.

They provide an inverting buffer function with Schmitt trigger action. These devices are capable of transforming slowly changing input signals into sharply defined, jitter-free output signals.

FEATURES

- * Operation Voltage Range: 2V ~ 5.5V
- * Low power consumption, $I_{CC} = 1\mu A$ (Max.) at 5.5V
- * $\pm 8mA$ output driver at 5V

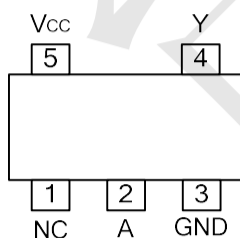
LOGIC DIAGRAM



Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
TP74AHC1G14S5	SOT23-5	Tape and Reel,3000
TP74AHC1G14C5	SOT353	Tape and Reel,3000

PIN CONFIGURATION



FUNCTION TABLE

INPUT(A)	OUTPUT(Y)
L	H
H	L

Note: H: high voltage level;
L: low voltage level

ABSOLUTE MAXIMUM RATING ($T_A=25^\circ$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 ~ 7	V
Input Voltage	V_{IN}	-0.5 ~ 7	V
Output Voltage	V_{OUT}	-0.5 ~ $V_{CC}+0.5$	V
V_{CC} or GND Current	I_{CC}	± 50	mA
Output Current	I_{OUT}	± 25	mA
Input Clamp Current	I_{IK}	-20	mA
Output Clamp Current	I_{OK}	± 20	mA
Storage Temperature	T_{STG}	-65 ~ +150	$^\circ\text{C}$

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 COMDITIONS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2		5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}	High or low state	0		V_{CC}	V
Operating Temperature	T_A		-40		+125	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40°C~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Positive-Going Threshold	V _{T+}	V _{CC} =3.0V	1.2		2.2	1.2		2.2	V
		V _{CC} =4.5V	1.75		3.15	1.75		3.15	V
		V _{CC} =5.5V	2.15		3.85	2.15		3.85	V
Negative-Going Threshold	V _{T-}	V _{CC} =3.0V	0.90		1.90	0.9		1.9	V
		V _{CC} =4.5V	1.35		2.75	1.35		2.75	V
		V _{CC} =5.5V	1.65		3.35	1.65		3.35	V
Hysteresis Voltage (V _{T+} -V _{T-})	V _H	V _{CC} =3.0V	0.3		1.2	0.3		1.2	V
		V _{CC} =4.5V	0.4		1.4	0.4		1.4	V
		V _{CC} =5.5V	0.5		1.6	0.4		1.6	V
High-Level Output Voltage	V _{OH}	V _{CC} =2.0V	1.9	2		1.9			V
		V _{CC} =3.0V	2.9	3		2.9			V
		V _{CC} =4.5V	4.4	4.5		4.4			V
		V _{CC} =3.0V, I _{OH} =-4mA	2.58			2.4			V
		V _{CC} =4.5V, I _{OH} =-8mA	3.94			3.7			V
Low-Level Output Voltage	V _{OL}	V _{CC} =2.0V			0.1			0.1	V
		V _{CC} =3.0V			0.1			0.1	V
		V _{CC} =4.5V			0.1			0.1	V
		V _{CC} =3.0V, I _{OL} =4mA			0.36			0.6	V
		V _{CC} =4.5V, I _{OL} =8mA			0.36			0.6	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0~5.5V, V _{IN} =5.5V or GND			±0.1			±2	μA
Quiescent Supply Current	I _Q	V _{CC} =5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0A			1			40	μA

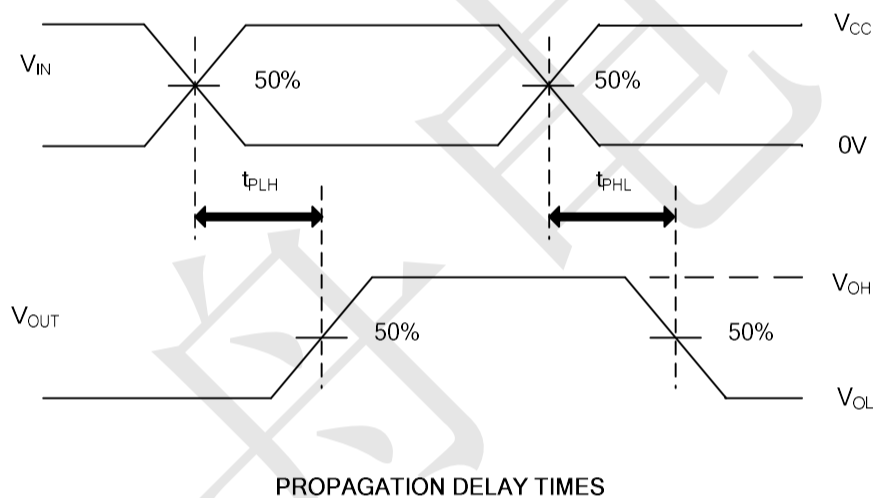
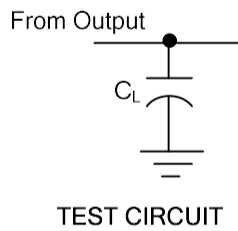
DYNAMIC CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	T _A =25°C			T _A =-40°C~+125°C			UNIT
			MIN	TYP	MAX	MIN	TYP	MAX	
Propagation Delay Time Input (A) to Output (Y)	t _{PLH}	V _{CC} =3.3V±0.3V		10.8	16.3	1		21	ns
		V _{CC} =5V±0.5V		10.8	16.3	1		14	ns
	t _{PHL}	V _{CC} =3.3V±0.3V		7	10.6	1		21	ns
		V _{CC} =5V±0.5V		7	10.6	1		14	ns
	t _{PLH}	V _{CC} =3.3V±0.3V		10.8	16.3	1		21	ns
		V _{CC} =5V±0.5V		10.8	16.3	1		14	ns
	t _{PHL}	V _{CC} =3.3V±0.3V		7	10.6	1		21	ns
		V _{CC} =5V±0.5V		7	10.6	1		14	ns

OPERATING CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Capacitance	C _I	V _{CC} =5.0V, V _{IN} =V _{CC} or GND		2	10	pF
Power Dissipation Capacitance	C _{PD}	V _{CC} =5V, f=1MHz, No load		9		pF

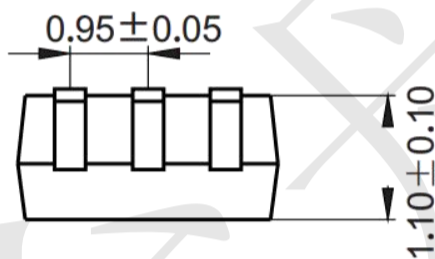
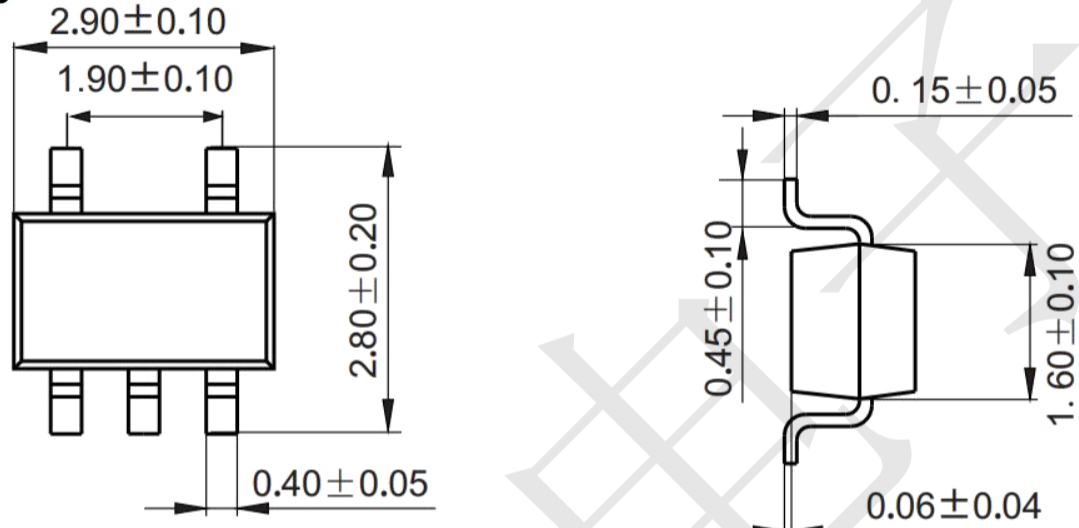
TEST CIRCUIT AND WAVEFORMS



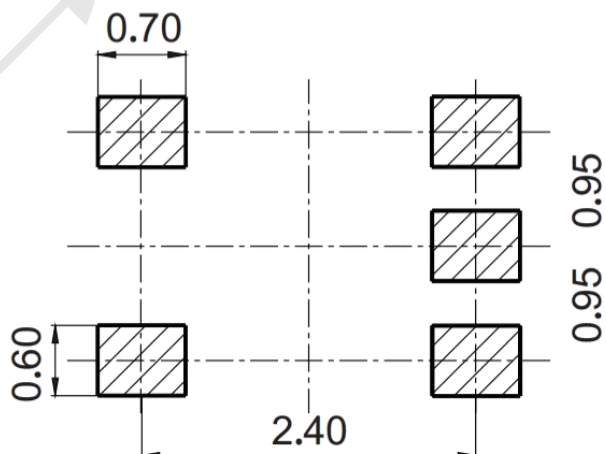
- Notes: 1. C_L includes probe and jig capacitance.
 2. $P_{RR} \leq 1\text{MHz}$, $Z_O = 50\ \Omega$, $t_r \leq 3\text{ns}$, $t_f \leq 3\text{ns}$.

Package information (Unit: mm)

SOT23-5

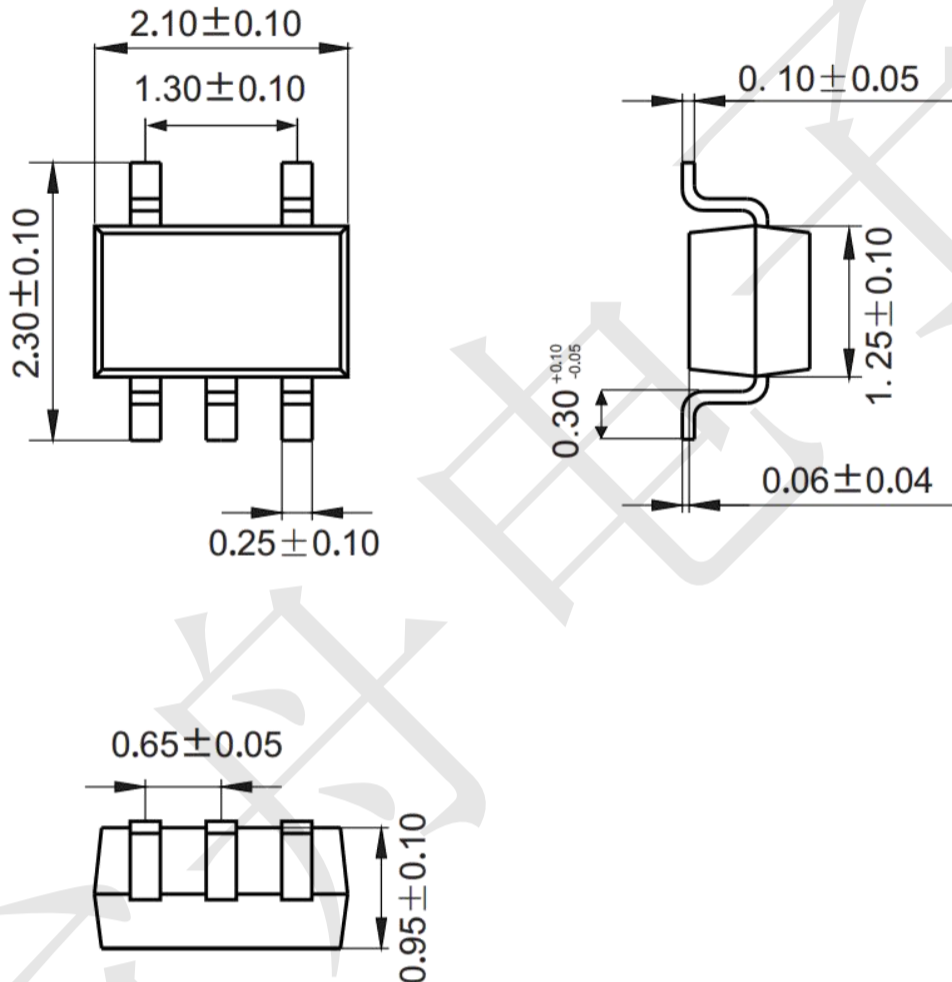


Mounting Pad Layout (Unit: mm)



Package information (Unit: mm)

SOT353



Mounting Pad Layout (Unit: mm)

