

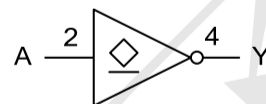
DESCRIPTION

The TP74AHC1G06 is an inverter with open-drain output and it provides the Function $Y = \bar{A}$.

FEATURES

- * Operation Voltage Range: 2V~5.5V
- * High noise immunity
- * Low Power Dissipation

LOGIC DIAGRAM



Logic symbol

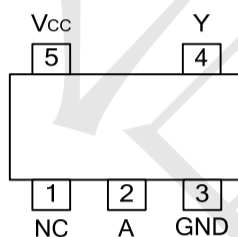


IEC logic symbol

Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
TP74AHC1G06S5	SOT23-5	Tape and Reel,3000
TP74AHC1G06C5	SOT353	Tape and Reel,3000

PIN CONFIGURATION



FUNCTION TABLE

INPUT A	OUTPUT Y
H	L
L	Z

Note: H: High Voltage Level

L: Low Voltage Level

Z: High-Impedance OFF-State

ABSOLUTE MAXIMUM RATING (unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	-0.5 ~ +7.0	V
Input Voltage	V_{IN}	-0.5 ~ +7.0	V
Input Clamp Current ($V_{IN} < -0.5V$)	I_{IK}	-20	mA
Output Clamp Current ($V_{OUT} < -0.5V$) (Note 2)	I_{OK}	±20	mA
Output Current ($V_{OUT} > -0.5V$)	I_{OUT}	±25	mA
V_{CC} or GND Current	I_{CC}	±75	mA
Power Dissipation	P_D	250	mW
Derate above $T_a > 87.5^\circ C$		4.0	mW/K
Operating Temperature	T_{OPR}	-40 ~ +125	$^\circ C$
Storage Temperature	T_{STG}	-65 ~ +150	$^\circ C$

Notes: 1. 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.

2. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

RECOMMENDED OPERATING COMDITIONS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2.0		5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Input Transition Rise or Fall Rate	$\Delta t / \Delta v$	$V_{CC} = 3.3 \pm 0.3V$			100	ns/V
		$V_{CC} = 5.0 \pm 0.5V$			20	ns/V

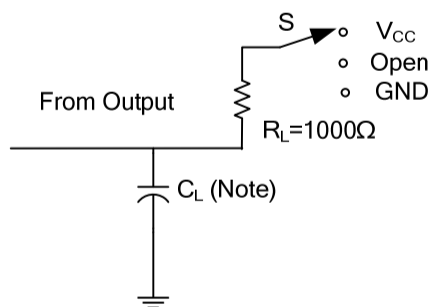
STATIC CHARACTERISTICS ($T_A=25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Input Voltage	V_{IH}	$V_{CC}=2.0\text{V}$	1.5			V
		$V_{CC}=3.0\text{V}$	2.1			V
		$V_{CC}=5.5\text{V}$	3.85			V
Low-Level Input Voltage	V_{IL}	$V_{CC}=2.0\text{V}$			0.5	V
		$V_{CC}=3.0\text{V}$			0.9	V
		$V_{CC}=5.5\text{V}$			1.65	V
Low-Level Output Voltage	V_{OL}	$V_{CC}=2.0\text{V}$	$I_{OL}=50\mu\text{A}$		0.1	V
		$V_{CC}=3.0\text{V}$			0.1	V
		$V_{CC}=4.5\text{V}$			0.1	V
		$V_{CC}=3.0\text{V}, I_{OL}=4\text{mA}$			0.36	V
		$V_{CC}=4.5\text{V}, I_{OL}=8\text{mA}$			0.36	V
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=0\sim 5.5\text{V}, V_{IN}=V_{CC} \text{ or GND}$			± 0.1	μA
3-state output OFF-state current	I_{OZ}	$V_{CC}=5.5\text{V}, V_{IN}=V_{IH} \text{ or } V_{IL}, V_{OUT}=V_{CC} \text{ or GND}$			± 0.25	μA
Quiescent Supply Current	I_{CC}	$V_{CC}=5.5\text{V}, V_{IN}=V_{CC} \text{ or GND}, I_{OUT}=0\text{A}$			1.0	μA
Input Capacitance	C_{IN}	$V_{IN}=V_{CC} \text{ or GND}$		1.5	10	pF

DYNAMIC CHARACTERISTICS (Input: $t_R, t_F \leq 3\text{ns}$; $\text{PRR} \leq 1\text{MHz}$, $T_A=25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Propagation delay from input (A) to output(Y)	t _{PZL}	V _{CC} =3.3±0.3 V	C _L = 15 pF		3.7	7.0	ns
			C _L =50 pF		5.2	10.0	ns
	t _{PLZ}		C _L =15 pF		4.8	6.4	ns
			C _L =50 pF		6.9	10.0	ns
	t _{PZL}	V _{CC} =5±0.5 V	C _L = 15 pF		2.7	4.9	ns
			C _L =50 pF		3.8	7.0	ns
	t _{PLZ}		C _L = 15 pF		3.0	4.1	ns
			C _L =50 pF		4.3	6.5	ns

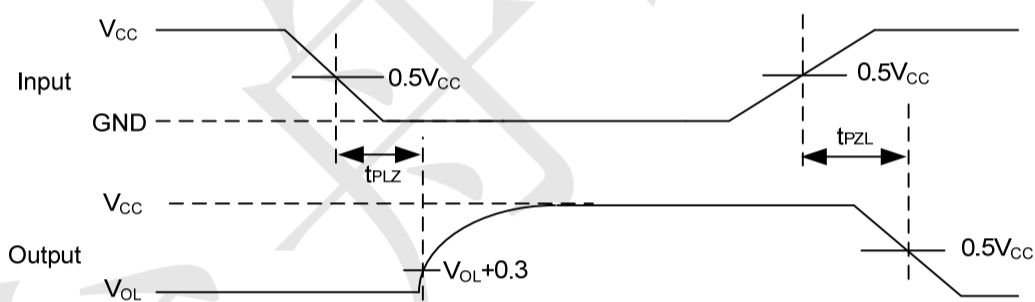
TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT

TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	GND
t_{PLZ}/t_{PZL}	V_{CC}

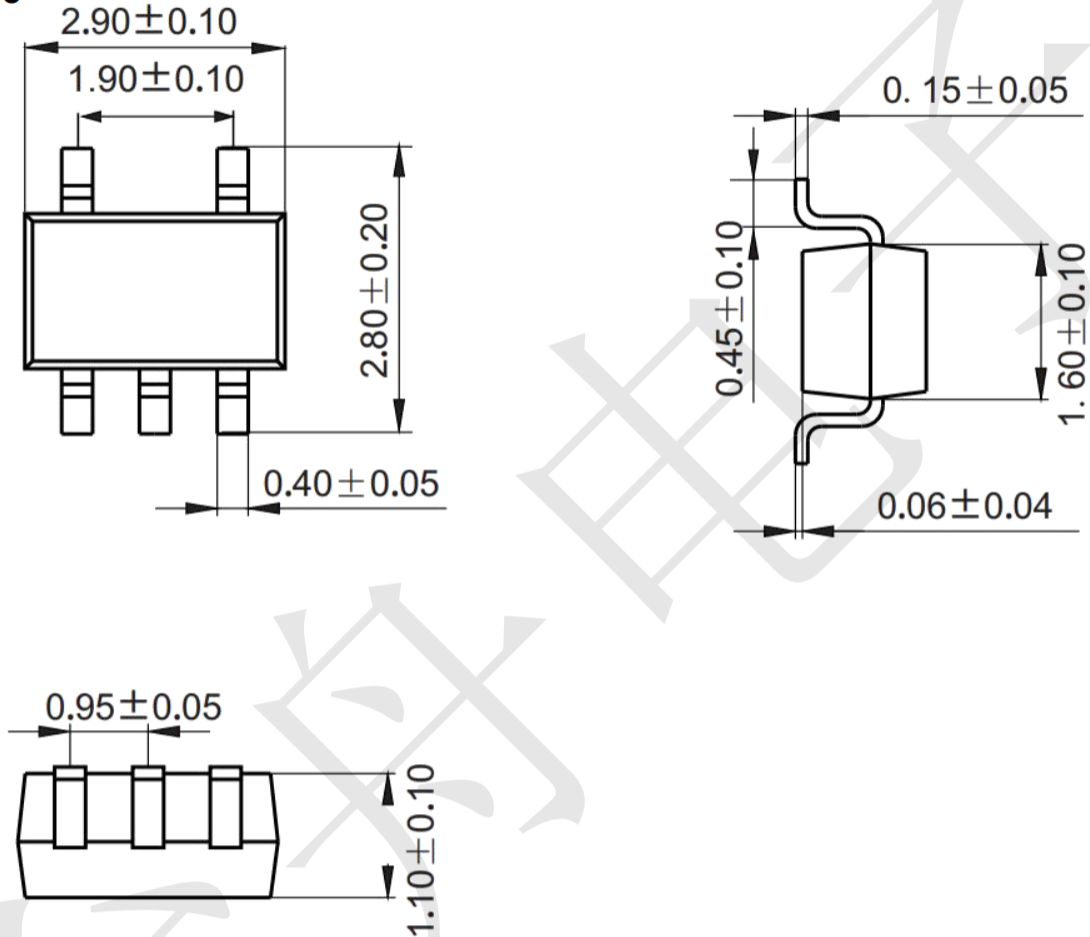
Note: C_L includes probe and jig capacitance.



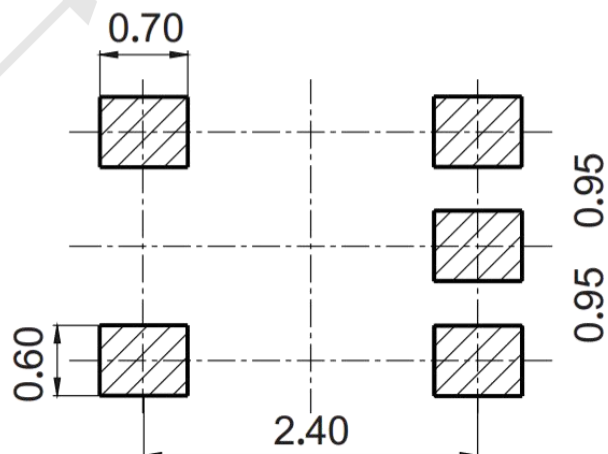
PROPAGATION DELAY TIMES

Package information (Unit: mm)

SOT23-5

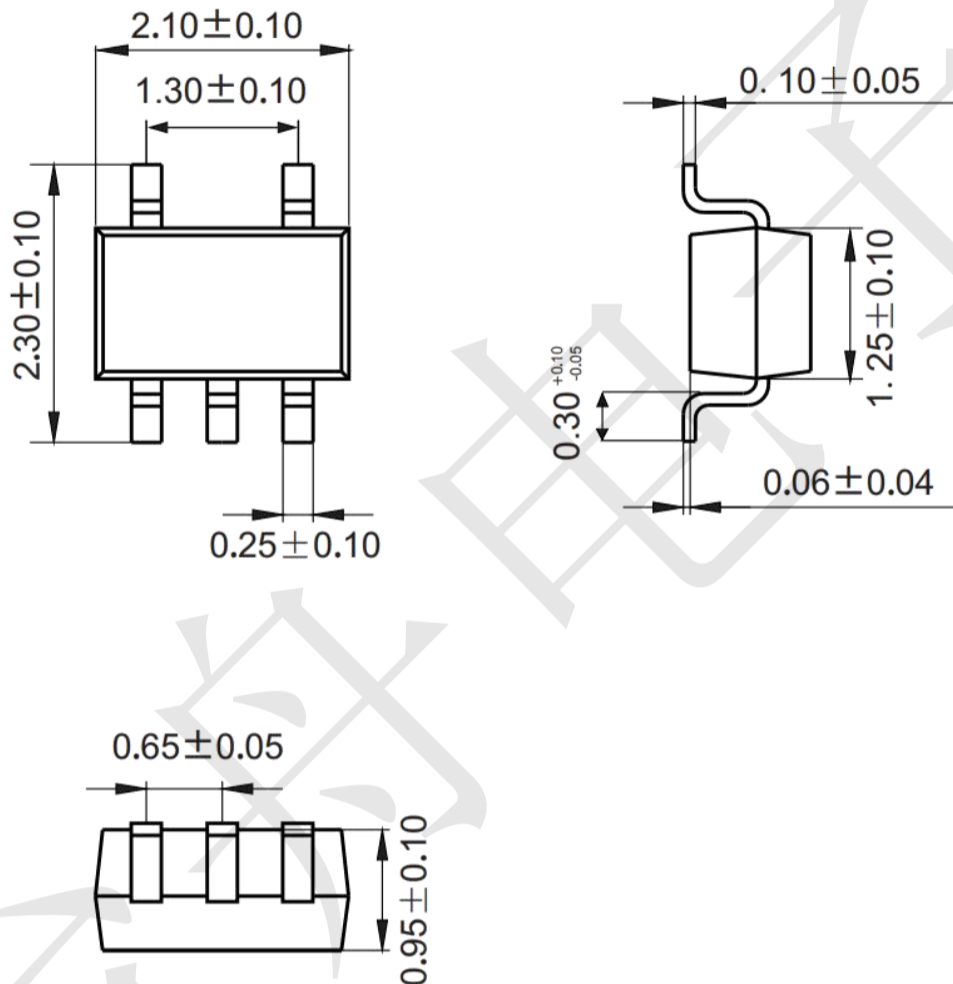


Mounting Pad Layout (Unit: mm)



Package information (Unit: mm)

SOT353



Mounting Pad Layout (Unit: mm)

