

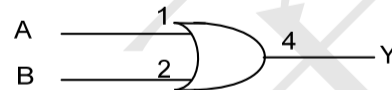
DESCRIPTION

The TP74AHC1G32 is a single 2-input positive-or gate, which provides the function $Y=A+B$ in positive logic.

FEATURES

- * Operate from 2V to 5.5V
- * Max t_{PD} of 5.5ns at 5V

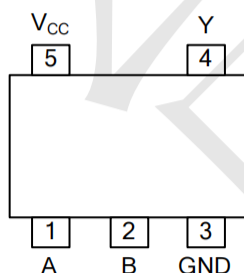
LOGIC DIAGRAM



Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
TP74AHC1G32S5	SOT23-5	Tape and Reel,3000
TP74AHC1G32C5	SOT353	Tape and Reel,3000

PIN CONFIGURATION



FUNCTION TABLE

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

H = High voltage level ; L = Low voltage level ; X = Don't care

ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	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}	V _{OUT} =0 ~ V _{CC}	±25	mA
Input Clamp Current	I _{IK}	V _{IN} <0	-20	mA
Output Clamp Current	I _{OK}	V _{OUT} <0 or V _{OUT} >V _{CC}	±20	mA
Power Dissipation	SOT23-5	P _D	300	mW
	SOT-353		250	mW
Storage Temperature	T _{STG}		-65 ~ +150	°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 CONDITIONS

PARAMETER	SYMBOL	TEST 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
Input Transition Rise or Fall Rate	Δt/Δv	V _{CC} =3.3V±0.3V			100	ns/V
		V _{CC} =5.0V±0.5V			20	ns/V
Operating Temperature	T _A		-40		+125	°C

ELECTRICAL CHARACTERISTICS (T_A=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			V
		V _{CC} =3.0V	2.1			V
		V _{CC} =5.5V	3.85			V
Low-Level Input Voltage	V _{IL}	V _{CC} =2.0V			0.5	V
		V _{CC} =3.0V			0.9	V
		V _{CC} =5.5V			1.65	V
High-Level Output Voltage	V _{OH}	V _{CC} =2.0V, I _{OH} =-50μA	1.9	2.0		V
		V _{CC} =3.0V, I _{OH} =-50μA	2.9	3.0		V
		V _{CC} =4.5V, I _{OH} =-50μA	4.4	4.5		V
		V _{CC} =3.0V, I _{OH} =-4mA	2.58			V
		V _{CC} =4.5V, I _{OH} =-8mA	3.94			V
Low-Level Output Voltage	V _{OL}	V _{CC} =2.0V, I _{OL} =50μA			0.1	V
		V _{CC} =3.0V, I _{OL} =50μA			0.1	V
		V _{CC} =4.5V, I _{OL} =50μA			0.1	V
		V _{CC} =3.0V, I _{OL} =4mA			0.36	V
		V _{CC} =4.5V, I _{OL} =8mA			0.36	V
Input Leakage Current	I _{I(LEAK)}	V _{CC} =0~5.5V, V _{IN} =5.5V or GND			±0.1	μA
Quiescent Supply Current	I _Q	V _{CC} =5.5V, V _{IN} =V _{CC} or GND, I _{OUT} =0A			1	μA
Input Capacitance	C _I	V _{CC} =5.0V, V _{IN} =V _{CC} or GND		2	10	pF

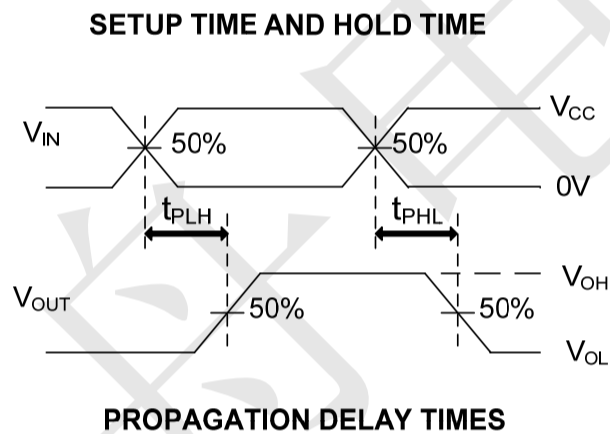
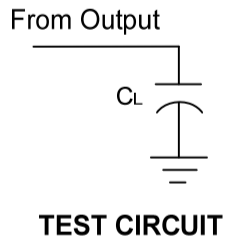
DYNAMIC CHARACTERISTICS (T_A=25°C, Input: R, t_f≤3ns; P_{RR}≤1MHz)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Time Input (A or B) to Output (Y)	t _{PLH}	V _{CC} =3.3V±0.3V, C _L =15pF		5.5	7.9	ns
	t _{PHL}			5.5	7.9	
	t _{PLH}	V _{CC} =3.3V±0.3V, C _L =50pF		8	12	ns
	t _{PHL}			8	12	
Propagation Delay Time Input (A or B) to Output (Y)	t _{PLH}	V _{CC} =5V±0.5V, C _L =15pF		3.8	5.5	ns
	t _{PHL}			3.8	5.5	
	t _{PLH}	V _{CC} =5V±0.5V, C _L =50pF		5.3	7.5	ns
	t _{PHL}			5.3	7.5	

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C _{PD}	No load, V _{CC} =5V, f=1MHz		14		pF

TEST CIRCUIT AND WAVEFORMS

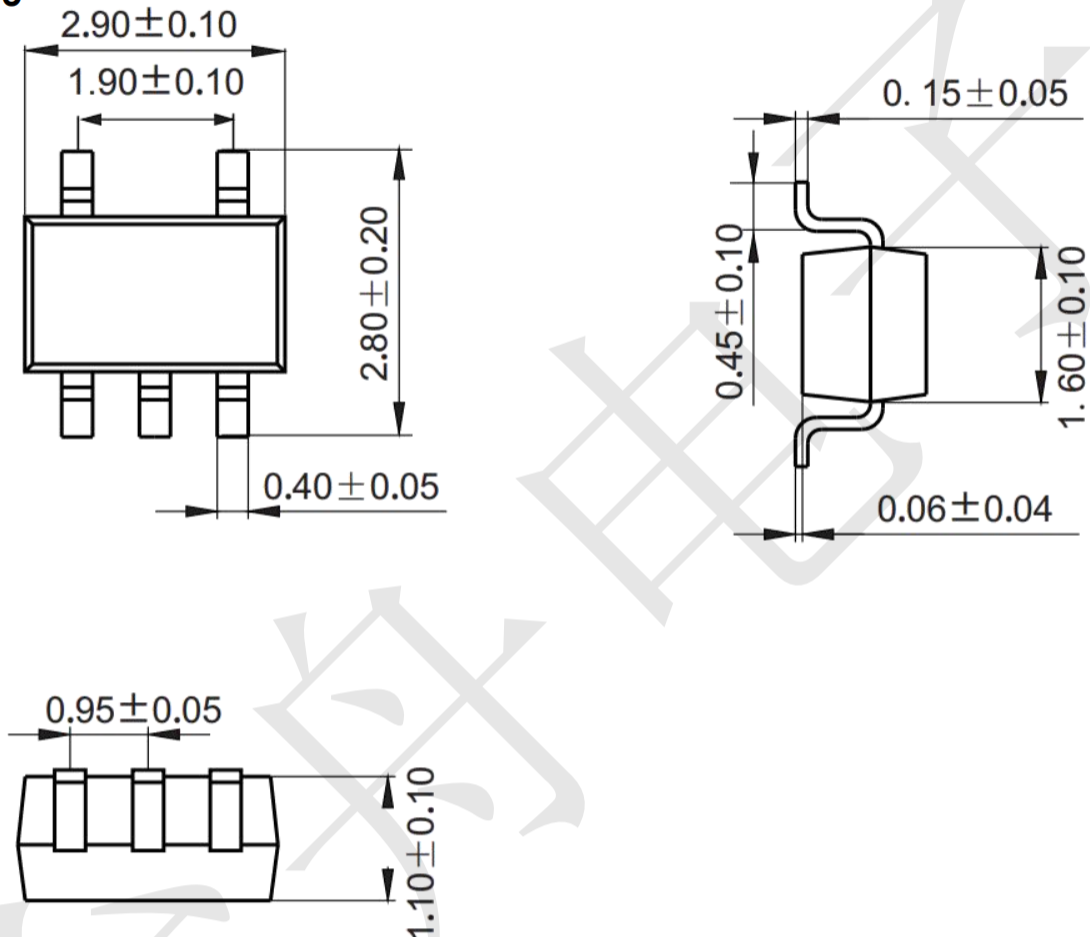


Note: C_L includes probe and jig capacitance.

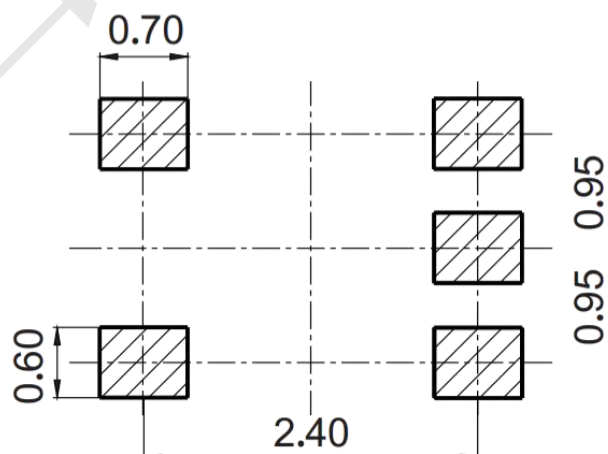
$P_{RR} \leq 1\text{MHz}$, $Z_O = 50\Omega$, $t_r \leq 3\text{ns}$, $t_f \leq 3\text{ns}$

Package information (Unit: mm)

SOT23-5

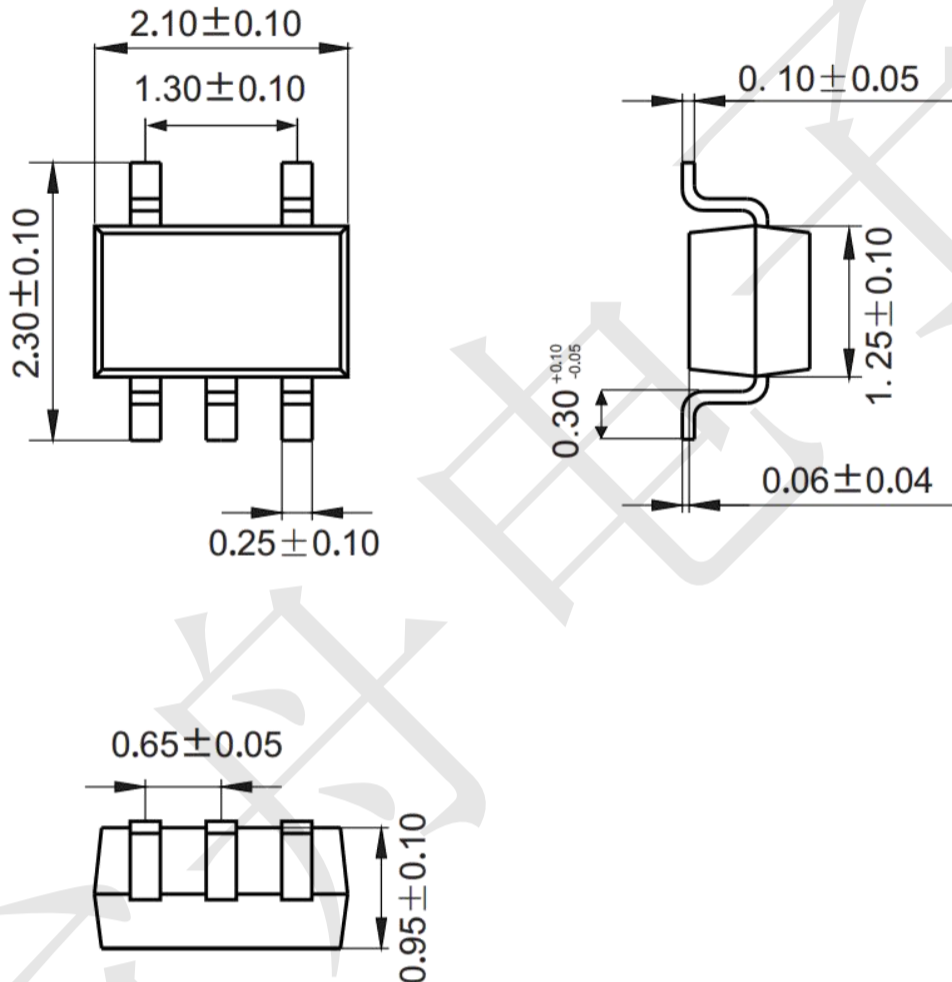


Mounting Pad Layout (Unit: mm)



Package information (Unit: mm)

SOT353



Mounting Pad Layout (Unit: mm)

