

Features

- Operate from 2V to 5.5V
- Max t_{PD} of 5.5ns at 5 V
- ESD Protection Exceeds JESD 22
 - 2000-V Human-Body Model (A114-A)
 - 1000-V Charged-Device Model (C101)
- SOT23-5 Package Available
- SOT353 Package Available

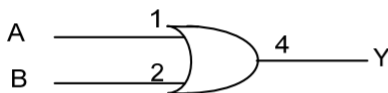
General Description

The 74AHC1G32 is a single 2-input positive-or gate, which provides the function $Y=A+B$ in positive logic.

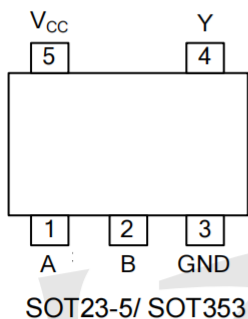
Ordering Information

ORDER NUMBER	PACKAGE DESCRIPTION	PACKAGE OPTION
74AHC1G32GV	SOT23-5	Tape and Reel,3000
74AHC1G32GW	SOT353	Tape and Reel,3000

Logic Diagram



Pin Configuration



Marking

74AHC1G32GV Marking:A32

74AHC1G32GW Marking:AG

Function Table

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

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



Absolute Maximum Ratings

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
Power Dissipation	SOT-23-5	P_D	300	mW
	SOT-25		360	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	$\Delta t/\Delta v$	$V_{CC}=3.3V\pm 0.3V$			100	ns/V
		$V_{CC}=5.0V\pm 0.5V$			20	
Operating Temperature	T_A		-40		+125	°C

Electrical Characteristics

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}	$V_{CC}=2.0V, I_{OH}=-50\mu A$	1.9	2.0		V
		$V_{CC}=3.0V, I_{OH}=-50\mu A$	2.9	3.0		V
		$V_{CC}=4.5V, I_{OH}=-50\mu A$	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}	$V_{CC}=2.0V, I_{OL}=50\mu A$			0.1	V
		$V_{CC}=3.0V, I_{OL}=50\mu A$			0.1	V
		$V_{CC}=4.5V, I_{OL}=50\mu A$			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	$I_{I(LEAK)}$	$V_{CC}=0\sim 5.5V, V_{IN}=5.5V$ 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 (Input: $t_R, t_F \leq 3ns$; $P_{RR} \leq 1MHz$)

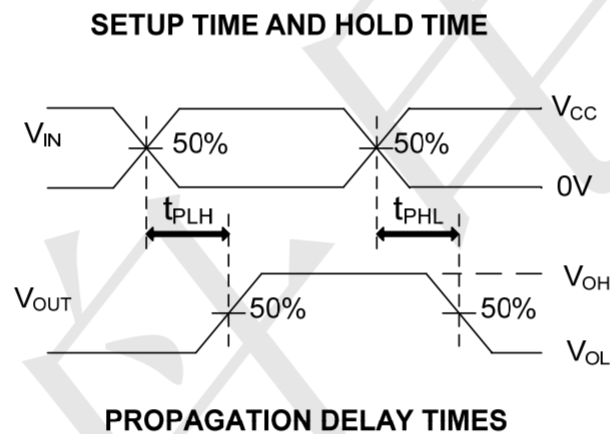
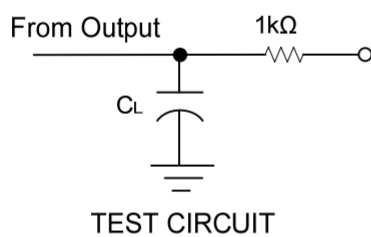
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation Delay Time Input(A or B) to Output(Y)	t_{PLH}	$V_{CC}=3.3V \pm 0.3V, C_L=15pF$		5.5	7.9	ns
	t_{PHL}			5.5	7.9	
	t_{PLH}	$V_{CC}=3.3V \pm 0.3V, C_L=50pF$		8	12	
	t_{PHL}			8	12	
Propagation Delay Time Input(A or B) to Output(Y)	t_{PLH}	$V_{CC}=5V \pm 0.5V, C_L=15pF$		3.8	5.5	ns
	t_{PHL}			3.8	5.5	
	t_{PLH}	$V_{CC}=5V \pm 0.5V, C_L=50pF$		5.3	7.5	
	t_{PHL}			5.3	7.5	



Operating Characteristics

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.
 $P_{RR} \leq 1MHz$, $Z_O=50\Omega$, $t_R \leq 3ns$, $t_F \leq 3ns$



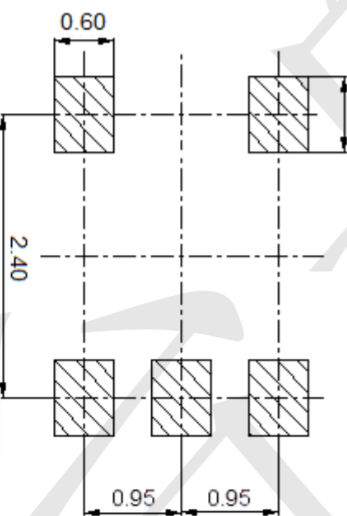
Package Outline Dimensions (Unit: mm)

SOT23-5



Dimension	Min.	Max.
A	2.80	3.00
B	1.50	1.70
C	1.00	1.20
D	0.35	0.45
E	0.35	0.55
F	1.80	2.00
G	0.90	1.00
H	0.02	0.10
J	0.10	0.20
K	2.60	3.00

Mounting Pad Layout (Unit: mm)





Package Outline Dimensions (Unit: mm)

SOT353



Dimension	Min.	Max.
A	2.00	2.20
B	1.15	1.35
C	0.85	1.05
D	0.15	0.35
E	0.25	0.40
F	1.20	1.40
G	0.60	0.70
H	0.02	0.10
J	0.05	0.15
K	2.20	2.40

Mounting Pad Layout (Unit: mm)

