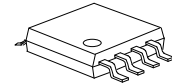


**U74HC2G32****CMOS IC****2-INPUT OR GATE****DESCRIPTION**

The U74HC2G32 is a 2-input OR gate which provides the Function $Y=A+B$.

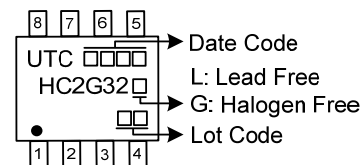
FEATURES

- * Operation Voltage Range: 2.0~6.0V
- * Low Power Dissipation: $I_{CC}=10\mu A$ (Max.)
- * High Speed: $t_{PD}=9ns$ ($V_{CC}=4.5V$, $C_L=50pF$)
- * Specified from -40 to +85°C and -40 to +125°C

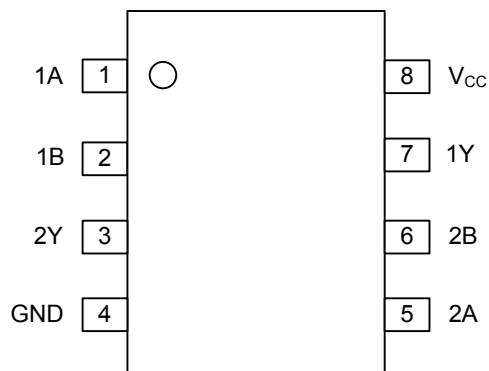
**MSOP-8****ORDERING INFORMATION**

Order Number		Package	Packing
Lead Free	Halogen Free		
U74HC2G32L-SM1-R	U74HC2G32G-SM1-R	MSOP-8	Tape Reel

U74HC2G32G-SM1-R	(1) Packing Type (2) Package Type (3) Green Package	(1) R: Tape Reel (2) SM1: MSOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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MARKING

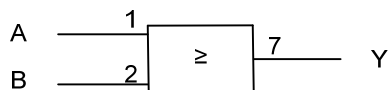
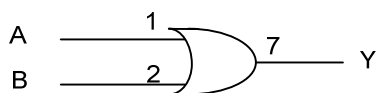
■ PIN CONFIGURATION



■ FUNCTION TABLE (each gate)

INPUT		OUTPUT
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	H

■ LOGIC DIAGRAM (positive logic)



■ **ABSOLUTE MAXIMUM RATING** (unless otherwise specified)(Note 1)

PARAMETER	SYMBOL	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 ~ $V_{CC}+0.5$	V
Input Clamp Current	I_{IK}	±20	mA
Output Clamp Current	I_{OK}	±20	mA
Output Current	I_{OUT}	25	mA
V_{CC} or GND Current	I_{CC}	±50	mA
Power Dissipation	P_D	300	mW
Storage Temperature	T_{STG}	-65 ~ +150	°C

Note 1. The input and output voltage ratings may be exceeded if the input and output current ratings are observed.

2. 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}		2.0	5.0	6.0	V
Input Voltage	V_{IN}		0		V_{CC}	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Input Transition Rise or Fall Times	t_R, t_F	$V_{CC}=2.0V$			1000	ns
		$V_{CC}=4.5V$		6	500	ns
		$V_{CC}=6V$			400	ns
Operating Temperature	T_A		-40	+25	+125	°C

■ **STATIC CHARACTERISTICS**

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A=25^{\circ}C$			-40~85°C		-40~125°C		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
High-Level Input Voltage	V_{IH}	$V_{CC}=2.0V$	1.5	1.2		1.5		1.5		V
		$V_{CC}=4.5V$	3.15	2.4		3.15		3.15		
		$V_{CC}=6.0V$	4.2	3.2		4.2		4.2		
Low-Level Input Voltage	V_{IL}	$V_{CC}=2.0V$		0.8	0.5		0.5		0.5	V
		$V_{CC}=4.5V$		2.1	1.35		1.35		1.35	
		$V_{CC}=6.0V$		2.8	1.8		1.8		1.8	
High-Level Output Voltage	V_{OH}	$V_{CC}=2.0V, I_{OH}=-20\mu A$	1.9	2.0		1.9		1.9		V
		$V_{CC}=4.5V, I_{OH}=-20\mu A$	4.4	4.5		4.4		4.4		
		$V_{CC}=6.0V, I_{OH}=-20\mu A$	5.9	6.0		5.9		5.9		
		$V_{CC}=4.5V, I_{OH}=-4mA$	4.18	4.32		4.13		3.7		
		$V_{CC}=6.0V, I_{OH}=-5.2mA$	5.68	5.81		5.63		5.2		
Low-Level Output Voltage	V_{OL}	$V_{CC}=2.0V, I_{OL}=20\mu A$		0	0.1		0.1		0.1	V
		$V_{CC}=4.5V, I_{OL}=20\mu A$		0	0.1		0.1		0.1	
		$V_{CC}=6.0V, I_{OL}=20\mu A$		0	0.1		0.1		0.1	
		$V_{CC}=4.5V, I_{OL}=4mA$		0.15	0.26		0.33		0.4	
		$V_{CC}=6.0V, I_{OL}=5.2mA$		0.16	0.26		0.33		0.4	
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=6.0V,$ $V_{IN}=V_{CC}$ or GND			±0.1		±1		±1	μA
Quiescent Supply Current	I_Q	$V_{CC}=6.0V,$ $V_{IN}=V_{CC}$ or GND, $I_{OUT}=0$			1		10		20	μA
Input Capacitance	C_{IN}	$V_{CC}=5.0V,$ $V_{IN}=V_{CC}$ or GND		1.5						pF

■ DYNAMIC CHARACTERISTICS (Input: $t_R, t_F \leq 6\text{ns}$; $\text{PRR} \leq 1\text{MHz}$)

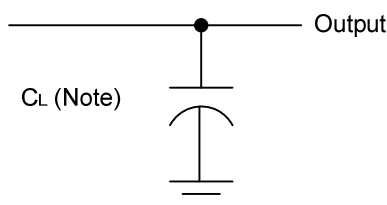
See Fig-1 and Fig-2 for test circuit and waveforms.

PARAMETER	SYMBOL	TEST CONDITIONS	$T_A = 25^\circ\text{C}$			$-40 \sim 85^\circ\text{C}$		$-40 \sim 125^\circ\text{C}$		UNIT
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
Propagation Delay From Input (A and B) to Output(Y)	t_{PHL} / t_{PLH}	$V_{CC} = 2.0\text{V}, C_L = 50\text{pF}$		24	75		95		110	ns
		$V_{CC} = 4.5\text{V}, C_L = 50\text{pF}$		9	15		19		22	
		$V_{CC} = 6.0\text{V}, C_L = 50\text{pF}$		7	13		16		20	
Output Transition Time	t_{THL} / t_{TLH}	$V_{CC} = 2.0\text{V}, C_L = 50\text{pF}$		18	75		95		125	ns
		$V_{CC} = 4.5\text{V}, C_L = 50\text{pF}$		6	15		19		25	
		$V_{CC} = 6.0\text{V}, C_L = 50\text{pF}$		5	13		16		20	

■ OPERATING CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	Cpd	No load, $f = 1\text{MHz}$, $V_{CC} = 5\text{V}$		10		pF

■ TEST CIRCUIT AND WAVEFORMS



Note: C_L includes probe and jig capacitance.

Fig.1 Load circuitry for switching times.

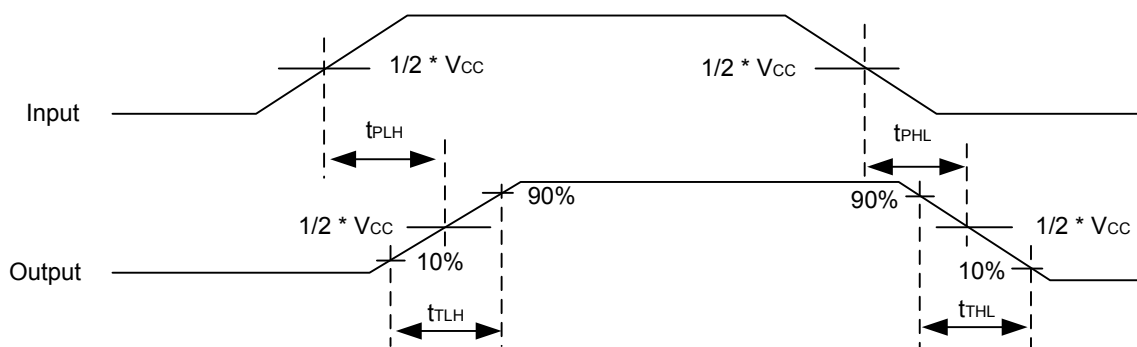


Fig. 2 Propagation delay from input(A and B) to output(Y) and Output transition time.

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