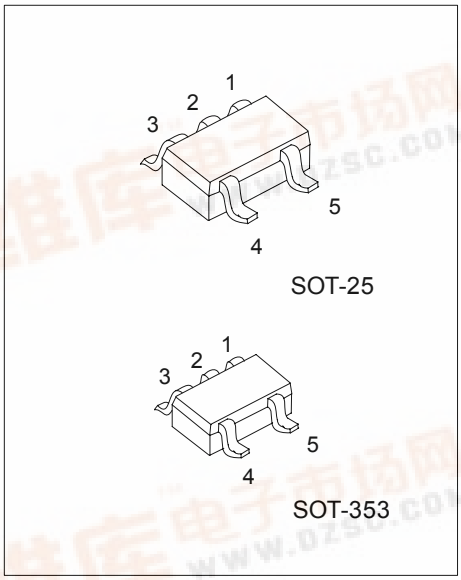
2-INPUT OR GATE



*Pb-free plating product number: U7SH32L

■ DESCRIPTION

The U7SH32 is a 2-input OR gate, it provides the Function Y=A+B.

■ FEATURES

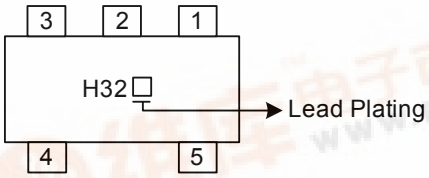
* Operation Voltage Range: 2~5.5V
* Low Power Dissipation: I_{CC}=2μA(Max)
* High Speed: tpd=3.8ns(Typ)
* High Noise Immunity

■ ORDERING INFORMATION

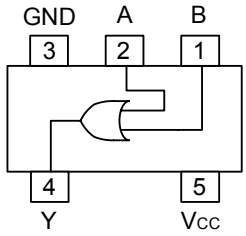
Order Number		Package	Packing
Normal	Lead Free Plating		
U7SH32-AF5-R	U7SH32L-AF5-R	SOT-25	Tape Reel
U7SH32-AL5-R	U7SH32L-AL5-R	SOT-353	Tape Reel

U7SH32L-AF5-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AF5: SOT-25, AL5: SOT-353
	(3)Lead Plating	(3) L: Lead Free Plating, Blank: Pb/Sn

■ MARKING



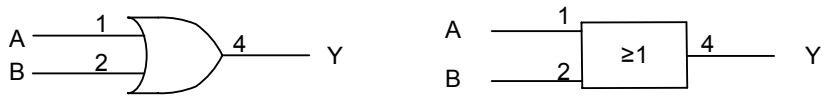
■ PIN CONFIGURATION



■ 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	V
Input Voltage	V_{IN}	-0.5~7	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	200	mW
Storage Temperature	T_{STG}	-65 ~ +150	℃

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 CONDITIONS

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}		0		V_{CC}	V
Input Transition Rise or Fall Rate	dt/dv	V_{CC}=3.3+0.3V			100	ns/V
		V_{CC}=5.0+0.5V			20	
Operating Temperature	T_A		-40		85	℃

■ STATIC CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	T_A=25℃			-40~85℃		UNIT
			MIN	TYP	MAX	MIN	MAX	
High-Level Input Voltage	V_{IH}	V_{CC}=2.0V	1.5			1.5		V
		V_{CC}=3.0V	2.1			2.1		
		V_{CC}=5.5V	3.85			3.85		
Low-Level Input Voltage	V_{IL}	V_{CC}=2.0V			0.5		0.5	V
		V_{CC}=3.0V			0.9		0.9	
		V_{CC}=5.5V			1.65		1.65	
High-Level Output Voltage	V_{OH}	V_{CC}=2.0V, I_{OH}=-50μA	1.9	2.0		1.9		V
		V_{CC}=3.0V, I_{OH}=-50μA	2.9	3.0		2.9		
		V_{CC}=4.5V, I_{OH}=-50μA	4.4	4.5		4.4		
		V_{CC}=3.0V, I_{OH}=-4mA	2.58			2.48		
		V_{CC}=4.5V, I_{OH}=-8mA	3.94			3.8		
Low-Level Output Voltage	V_{OL}	V_{CC}=2.0V, I_{OL}=50μA			0.1		0.1	V
		V_{CC}=3.0V, I_{OL}=50μA			0.1		0.1	
		V_{CC}=4.5V, I_{OL}=50μA			0.1		0.1	
		V_{CC}=3.0V, I_{OL}=4mA			0.36		0.44	
		V_{CC}=4.5V, I_{OL}=8mA			0.36		0.44	
Input Leakage Current	$I_{I(LEAK)}$	V_{CC}=0~5.5V, V_{IN}=V_{CC} or GND			±0.1		±1	μA
Quiescent Supply Current	I_{CC}	V_{CC}=5.5V, V_{IN}=V_{CC} or GND, I_{OUT}=0			2		20	μA
Input Capacitance	C_{IN}	V_{CC}=5V, V_{IN}=V_{CC} or GND		4	10		10	pF

■ DYNAMIC CHARACTERISTICS (Input: t_R, t_F=3ns)

PARAMETER	SYMBOL	TEST CONDITIONS	T_A=25°C			-40~85°C		UNIT
			MIN	TYP	MAX	MIN	MAX	
Propagation Delay From Input (A or B) to Output(Y)	t_{PLH}	V_{CC}=3.3±0.3, C_L=15pF		5.5	7.9	1.0	9.5	ns
	t_{PHL}			5.5	7.9	1.0	9.5	
	t_{PLH}	V_{CC}=3.3±0.3, C_L=50pF		8.0	11.4	1.0	13.0	
	t_{PHL}			8.0	11.4	1.0	13.0	
Propagation Delay From Input (A or B) to Output(Y)	t_{PLH}	V_{CC}=5±0.5, C_L=15pF		3.8	5.5	1.0	6.5	ns
	t_{PHL}			3.8	5.5	1.0	6.5	
	t_{PLH}	V_{CC}=5±0.5, C_L=50pF		5.3	10	1.0	8.5	
	t_{PHL}			5.3	10	1.0	8.5	
Power Dissipation Capacitance	Cpd	No load		15				pF