



U74LVC2G19

CMOS IC

1-OF-2 DECODER/DEMULTIPLEXER

DESCRIPTION

The **U74LVC1G19** is a 1-of-2 decoder / demultiplexer with a common output enable. This device buffers the data on input A and passes it to the outputs 1Y and 2Y when the enable input signal is LOW.

This device is fully specified for partial power-down applications using Ioff. The Ioff circuitry disables the outputs, preventing the damaging backflow current through the device when it is powered down.

FEATURES

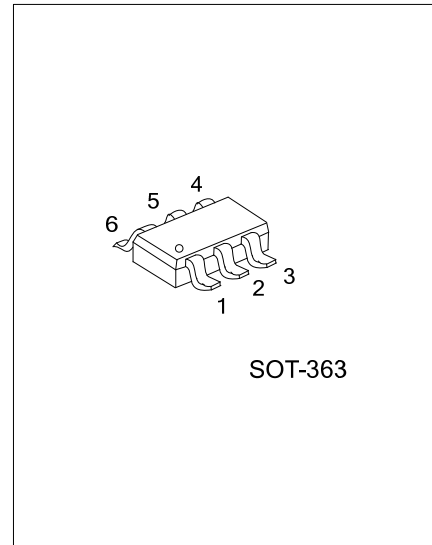
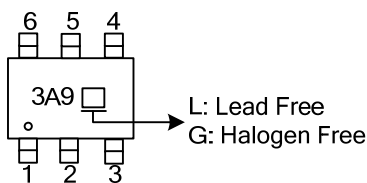
- * Operate from 1.65V to 5.5V
- * Inputs accept voltages to 5.5V
- * Low power dissipation, I_{CC}=10μA (Max)
- * ±24mA output drive(V_{CC}=3V)

ORDERING INFORMATION

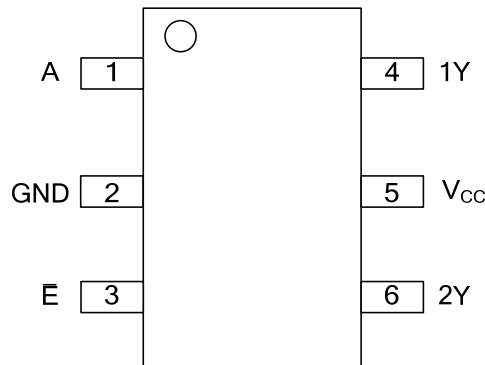
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC1G19L-AL6-R	U74LVC1G19G-AL6-R	SOT-363	Tape Reel

<p>U74LVC1G19L-AL6-R</p> <p>(1) Packing Type (2) Package Type (3) Lead Free</p>	<p>(1) R: Tape Reel (2) AL6: SOT-363 (3) Halogen Free, L: Lead Free</p>
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MARKING



■ PIN CONFIGURATION



■ PIN DESCRIPTION

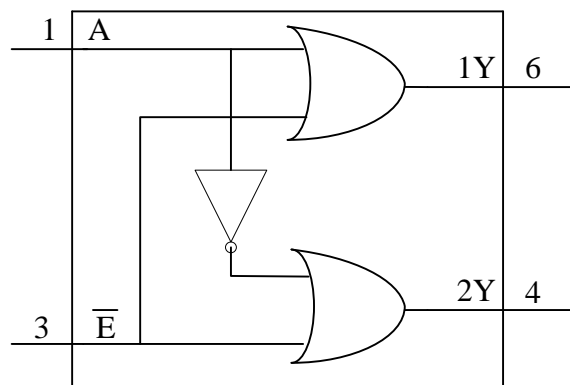
SYMBOL	PIN	DESCRIPTION
A	1	Data input
GND	2	Ground(0V)
\bar{E}	3	Enable input
2Y	4	Data output
Vcc	5	Supply voltage
1Y	6	Data output

■ FUNCTION TABLE

INPUT		OUTPUT	
\bar{E}	A	1Y	2Y
L	L	L	H
L	H	H	L
H	X	H	H

Note: H: HIGH voltage level; L: LOW voltage level

■ LOGIC DIAGRAM (positive logic)



IEC logic symbol

■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	-0.5 ~ +6.5	V
Input Voltage		V_{IN}	-0.5 ~ +6.5	V
Output Voltage	Output in the high or low state	V_{OUT}	-0.5 ~ $V_{CC}+0.5$	V
	Output in the high-impedance or power-off state		-0.5 ~ +6.5	V
V_{CC} or GND Current		I_{CC}	±100	mA
Continuous Output Current ($V_{OUT}=0$ to V_{CC})		I_{OUT}	±50	mA
Input Clamp Current ($V_{IN}<0$)		I_{IK}	-50	mA
Output Clamp Current ($V_{OUT}<0$)		I_{OK}	-50	mA
Storage Temperature Range		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}	Operating	1.65		5.5	V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}	High or low state	0		V_{CC}	V
Operating Temperature	T_A		-40		85	°C
Input Transition Rise or Fall Rate	$\Delta t/\Delta v$	$V_{CC}=1.8V\pm 0.15V, 2.5V\pm 0.2V$			20	ns/V
		$V_{CC}=3.0V\pm 0.3V$			10	ns/V
		$V_{CC}=5V\pm 0.5V$			5	ns/V

■ 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} =1.65V ~ 1.95V	0.65*V _{CC}			V
		V _{CC} =2.3V ~ 2.7V	1.7			V
		V _{CC} =2.7V ~ 3.6V	2			V
		V _{CC} =4.5V ~ 5.5V	0.7*V _{CC}			V
Low-level Input Voltage	V _{IL}	V _{CC} =1.65V ~ 1.95V			0.35*V _{CC}	V
		V _{CC} =2.3V ~ 2.7V			0.7	V
		V _{CC} =2.7V ~ 3.6V			0.8	V
		V _{CC} =4.5V ~ 5.5V			0.3*V _{CC}	V
High-Level Output Voltage	V _{OH}	I _{OH} =-100μA V _{CC} =1.65 ~ 5.5V	V _{CC} -0.1			V
		I _{OH} =-4mA V _{CC} =1.65V	1.2	1.54		V
		I _{OH} =-8mA V _{CC} =2.3V	1.9	2.15		V
		I _{OH} =-16mA V _{CC} =3.0V	2.4	2.50		V
		I _{OH} =-24mA V _{CC} =3.0V	2.3	2.62		V
		I _{OH} =-32mA V _{CC} =4.5V	3.8	4.11		V
Low-Level Output Voltage	V _{OL}	I _{OL} =100μA V _{CC} =1.65 ~ 5.5V			0.1	V
		I _{OL} =4mA V _{CC} =1.65V		0.07	0.45	V
		I _{OL} =8mA V _{CC} =2.3V		0.12	0.30	V
		I _{OL} =16mA V _{CC} =2.7V		0.17	0.40	V
		I _{OL} =24mA V _{CC} =3.0V		0.33	0.55	V
		I _{OL} =32mA V _{CC} =4.5V		0.39	0.55	V
Input Leakage Current	I _{I(LEAK)}	V _{IN} =5.5V or GND, V _{CC} =0 ~ 5.5V		±0.1	±1	μA
Power OFF Leakage Current	I _{off}	V _{IN} or V _{OUT} =5.5V, V _{CC} =0V		±0.1	±10	μA
Quiescent Supply Current	I _{CC}	V _{IN} =5.5V or GND, I _{OUT} =0 V _{CC} =1.65 ~ 5.5V		0.1	10	μA
Additional Quiescent Supply Current Per Input Pin	ΔI _{CC}	V _{CC} =2.3 ~ 5.5V, One input at V _{CC} -0.6V, Other inputs at V _{CC} or GND		5	500	μA
Input Capacitance	C _I	V _{CC} =3.3V, V _{IN} =V _{CC} or GND		3.5		pF

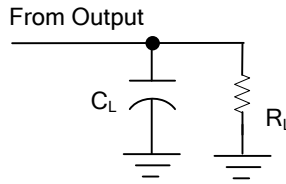
■ SWITCHING CHARACTERISTICS (T_A=25°C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input (A or \bar{E}) to output(Y)	t _{PLH} /t _{PHL}	V _{CC} =1.8V±0.15V, C _L =30 pF R _U =1KΩ	3.2	4.0	16.1	ns
		V _{CC} =2.5V±0.2V, C _L =30pF R _C =500Ω	1.5	2.5	65	ns
		V _{CC} =3.3V±0.3V, C _L =50 pF R _C =500Ω	1.1	2.5	5.2	ns
		V _{CC} =5V±0.5V, C _L =50pF R _C =500Ω	0.5	1.8	3.9	ns

■ OPERATING CHARACTERISTICS (T_A=25°C)

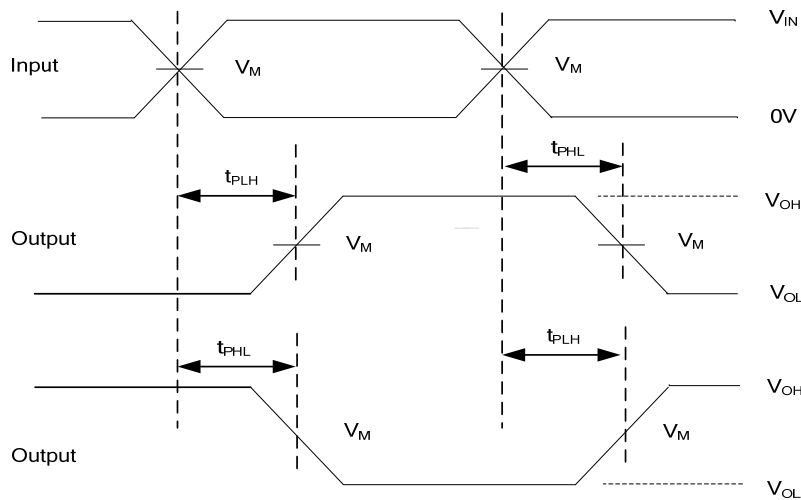
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C _{PD}	V _I = GND to V _{CC} , V _{CC} =3.3V		16		pF

■ TEST CIRCUIT AND WAVEFORMS



TEST CIRCUIT

V_{CC}	Inputs		V_M	C_L	R_L
	V_{IN}	t_R, t_F			
$1.8V \pm 0.15V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	30pF	1K Ω
$2.5V \pm 0.2V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	30pF	500 Ω
$3.3V \pm 0.3V$	2.7V	$\leq 2.5ns$	1.5V	50pF	500 Ω
$5V \pm 0.5V$	V_{CC}	$\leq 2.5ns$	$V_{CC}/2$	50pF	500 Ω



PROPAGATION DELAY TIMES

Note: C_L includes probe and jig capacitance.

All input pulses are supplied by generators having the following characteristics: PRR $\leq 10MHz$, $Z_o = 50\Omega$.

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