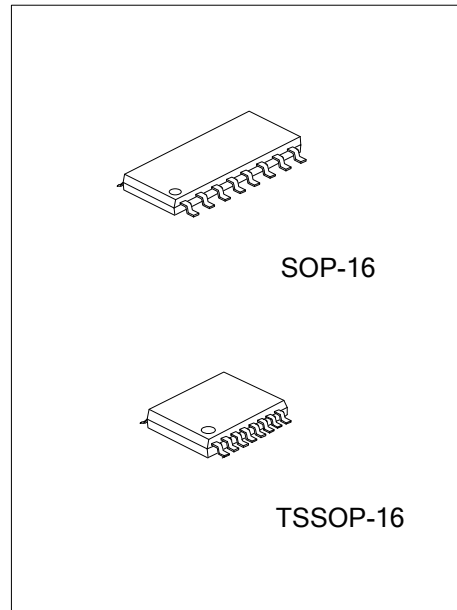




U74LVC258

CMOS IC

QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS/MULTIPLEXERS 3-STATE OUTPUTS



DESCRIPTION

The **U74LVC258** is designed for 1.65V to 3.6V V_{CC} operation.

The **U74LVC258** devices are designed to multiplex signals from 4-bit data sources to 4-output data lines in bus-organized systems. The 3-state outputs do not load the data lines when the output-enable (\overline{OE}) input is at a high logic level.

FEATURES

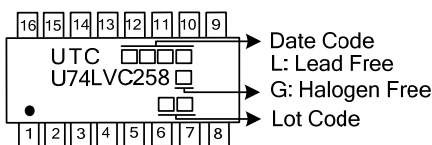
- * Operate From 1.65V to 3.6V
- * Input Accept Voltages to 5.5V
- * Partial-Power-Down Mode Operation
- * Max tpd is 4.6ns at 3.3V

ORDERING INFORMATION

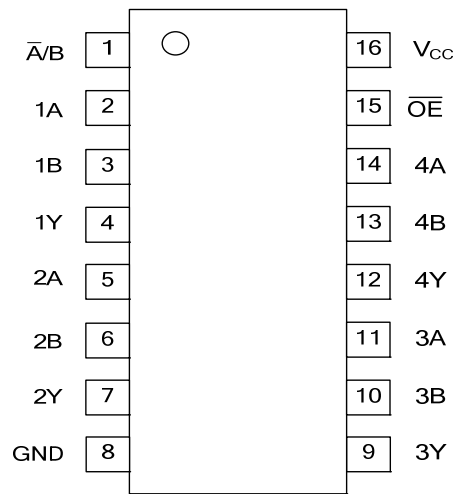
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74LVC258L-S16-R	U74LVC258G-S16-R	SOP-16	Tape Reel
U74LVC258L-P16-R	U74LVC258G-P16-R	TSSOP-16	Tape Reel

<p>U74LVC258G-S16-R</p> <p>(1)Packing Type (2)Package Type (3)Green Package</p>	<p>(1) R: Tape Reel (2) S16: SOP-16, P16: TSSOP-16 (3) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING



■ PIN CONFIGURATION

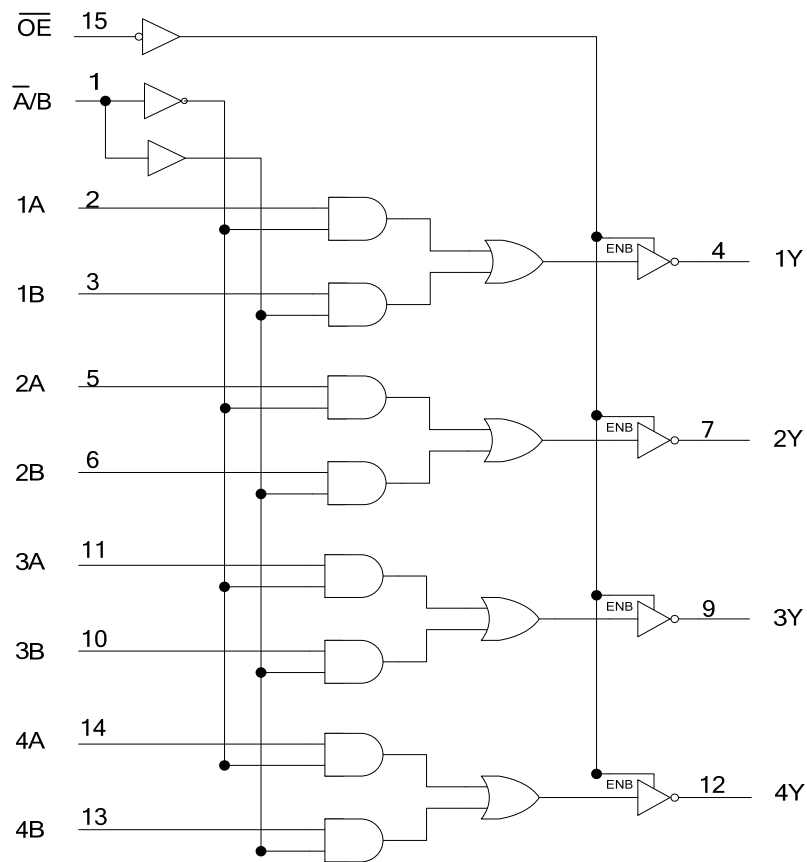


■ FUNCTION TABLE (each gate)

INPUTS				OUTPUT(Y)
INPUT(\overline{OE})	INPUT($\overline{A/B}$)	A	B	
H	X	X	X	Z
L	L	L	X	H
L	L	H	X	L
L	H	X	L	H
L	H	X	H	L

H = High voltage level ; L = Low voltage level ; X = Don't care ; Z = High-impedance OFF-state

■ LOGIC DIAGRAM (Positive Logic)



■ ABSOLUTE MAXIMUM RATING (Unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	RATINGS	UNIT
Supply Voltage	V_{CC}		-0.5 ~ +6.5	V
Input Voltage	V_{IN}		-0.5 ~ +6.5	V
Output Voltage	V_{OUT}	Output in the high or low state	-0.5 ~ $V_{CC} + 0.5$	V
		Output in the power-off state	-0.5 ~ +6.5	V
Continuous V_{CC} or GND Current	I_{CC}		±100	mA
Continuous Output Current	I_{OUT}	$V_{OUT}=0V \sim V_{CC}$	±50	mA
Input Clamp Current	I_{IK}	$V_{IN}<0V$	-50	mA
Output Clamp Current	I_{OK}	$V_{OUT}>V_{CC}$ or $V_{OUT}<0V$	-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 (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}	Operating	1.65		3.6	V
		Data retention only	1.5			V
Input Voltage	V_{IN}		0		5.5	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Input Transition Rise or Fall Rate	$\Delta t/\Delta v$	$V_{CC}=1.65V \sim 2.7V$	0		20	ns/V
		$V_{CC}=2.7V \sim 3.6V$	0		10	ns/V
Operating Temperature	T_A		-40		+125	°C

■ ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-level Input Voltage	V_{IH}	$V_{CC}=1.8V \pm 0.15V$	$0.65 \times V_{CC}$			V
		$V_{CC}=2.5V \pm 0.2V$	1.7			V
		$V_{CC}=3.3V \pm 0.3V$	2			V
Low-level Input Voltage	V_{IL}	$V_{CC}=1.8V \pm 0.15V$			$0.35 \times V_{CC}$	V
		$V_{CC}=2.5V \pm 0.2V$			0.7	V
		$V_{CC}=3.3V \pm 0.3V$			0.8	V
High-Level Output Voltage	V_{OH}	$V_{CC}=1.65V \sim 3.6V, I_{OH}=-100\mu A$	$V_{CC}-0.2$			V
		$V_{CC}=1.65V, I_{OH}=-4mA$	1.2			V
		$V_{CC}=2.3V, I_{OH}=-8mA$	1.8			V
		$V_{CC}=2.7V, I_{OH}=-12mA$	2.2			V
		$V_{CC}=3.0V$				
		$I_{OH}=-12mA$	2.4			V
		$I_{OH}=-24mA$	2.2			V
Low-Level Output Voltage	V_{OL}	$V_{CC}=1.65V \sim 3.6V, I_{OL}=100\mu A$			0.2	V
		$V_{CC}=1.65V, I_{OL}=4mA$			0.45	V
		$V_{CC}=2.3V, I_{OL}=8mA$			0.7	V
		$V_{CC}=2.7V, I_{OL}=12mA$			0.4	V
		$V_{CC}=3.0V, I_{OL}=24mA$			0.55	V
Input Leakage Current	$I_{I(LEAK)}$	$V_{CC}=3.6V, V_{IN}=5.5V$ or GND			±5	μA
Power OFF Leakage Current	I_{off}	$V_{CC}=0V, V_{IN}$ or $V_{OUT}=5.5V$			±10	μA
OFF-state output current	I_{OZ}	$V_{CC}=3.6V, V_{IN} = V_{IH}$ or $V_{IL}, V_{OUT}=V_{CC}$ or GND			±10	μA

■ ELECTRICAL CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Supply Current	I_{CC}	$V_{CC}=3.6V, V_{IN}=V_{CC}$ or GND, $I_{OUT}=0A$			10	μA
Additional Quiescent Supply Current Per Input Pin	ΔI_{CC}	$V_{CC}=2.7V\sim 3.6V$, One input at $V_{CC}-0.6V$, Other inputs at V_{CC} or GND			500	μA
Input Capacitance	C_I	$V_{CC}= 3.3V, V_{IN}= V_{CC}$ or GND		5.0		pF
Output Capacitance	C_O	$V_{CC}= 3.3V, V_{IN}= V_{CC}$ or GND		5.0		pF

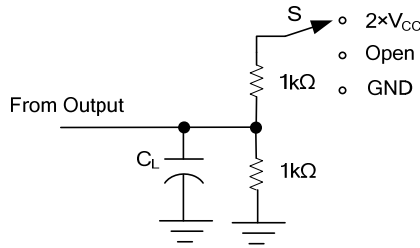
■ SWITCHING CHARACTERISTICS (Unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Propagation delay from input (A or B) to output(Y)	t_{PD}	$C_L=30pF$	$V_{CC}=1.8V\pm 0.15V$	1		13.5	ns
			$V_{CC}=2.5V\pm 0.2V$	1		7.4	ns
		$C_L=50pF$	$V_{CC}=2.7V$	1		5.7	ns
			$V_{CC}=3.3V\pm 0.3V$	1		4.6	ns
Propagation delay from input (\bar{A} / \bar{B}) to output(Y)	t_{en}	$C_L=30pF$	$V_{CC}=1.8V\pm 0.15V$	1		15.5	ns
			$V_{CC}=2.5V\pm 0.2V$	1		9.6	ns
		$C_L=50pF$	$V_{CC}=2.7V$	1		7.5	ns
			$V_{CC}=3.3V\pm 0.3V$	1		6.4	ns
Propagation delay from input (\overline{OE}) to output(Y)	t_{en}	$C_L=30pF$	$V_{CC}=1.8V\pm 0.15V$	1		14.6	ns
			$V_{CC}=2.5V\pm 0.2V$	1		8.7	ns
		$C_L=50pF$	$V_{CC}=2.7V$	1		6.7	ns
			$V_{CC}=3.3V\pm 0.3V$	1		5.6	ns
Propagation delay from input (\overline{OE}) to output(Y)	t_{dis}	$C_L=30pF$	$V_{CC}=1.8V\pm 0.15V$	1		15.4	ns
			$V_{CC}=2.5V\pm 0.2V$	1		6.7	ns
		$C_L=50pF$	$V_{CC}=2.7V$	1		4.7	ns
			$V_{CC}=3.3V\pm 0.3V$	1		4.3	ns

■ OPERATING CHARACTERISTICS (f=10MHz, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power Dissipation Capacitance	C_{PD}	$V_{CC}=1.8V\pm 0.15V$		13.5		pF
		$V_{CC}=2.5V\pm 0.2V$		14.5		pF
		$V_{CC}=3.3V\pm 0.3V$		15.5		pF

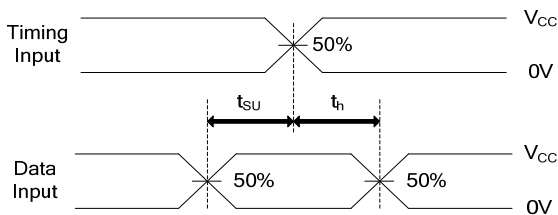
TEST CIRCUIT AND WAVEFORMS



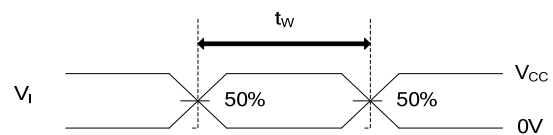
TEST CIRCUIT

TEST	S
t_{PLH}/t_{PHL}	Open
t_{PHZ}/t_{PZH}	GND
t_{PLZ}/t_{PZL}	$2 \times V_{CC}$

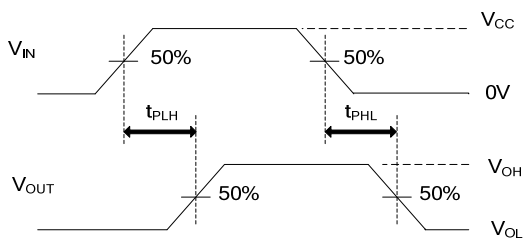
V_{CC}	INPUTS		V_M	V_{Δ}	C_L	R_L
	V_{IN}	t_R/t_F				
$1.8V \pm 0.15V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	0.15V	30pF	1KΩ
$2.5V \pm 0.2V$	V_{CC}	$\leq 2ns$	$V_{CC}/2$	0.15V	30pF	500Ω
2.7V	2.7V	$\leq 2.5ns$	1.5V	0.3V	50pF	500Ω
$3.3V \pm 0.3V$	2.7V	$\leq 2.5ns$	1.5V	0.3V	50pF	500Ω



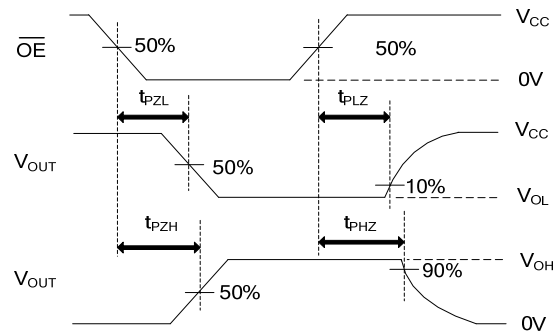
SETUP TIME AND HOLD TIME



PULSE WIDTH



PROPAGATION DELAY TIMES



ENABLE AND DISABLE TIMES

Notes: 1. C_L includes probe and jig capacitance.

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

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