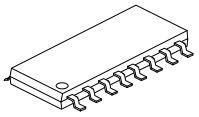
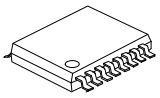
U74HC157

CMOS IC

QUADRUPLE 2-LINE TO 1-LINE DATA SELECTORS / MULTIPLEXERS



SOP-16



TSSOP-16

■ DESCRIPTION

The **U74HC157** is a quadruple 2-line to 1-line data selectors/multiplexers. When $\overline{G}$ is high all outputs are low. When $\overline{G}$ is low a 4-bit word is selected from one of two sources and is routed to the four outputs. The device provides true data.

■ FEATURES

* Wide supply voltage range from 2V to 6V
* Typical t_{PD} at 11ns from A or B to Y at 6V, C_L=50pF
* Low power consumption, I_{CC} = 8 μA (MAX) at 6V
* ±6 mA output driver at 5V
* Low Input Current of 0.1uA Max

■ ORDERING INFORMATION

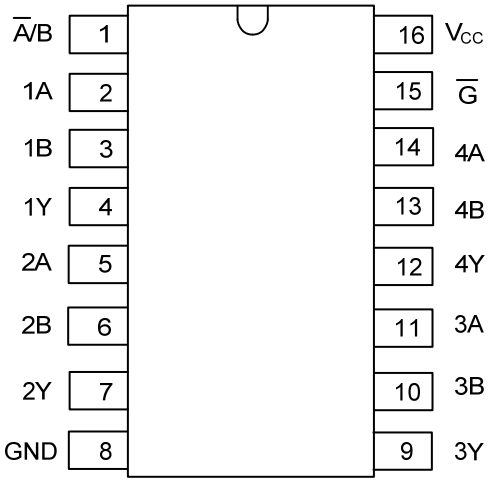
Ordering Number		Package	Packing
Lead Free	Halogen Free		
U74HC157L-S16-R	U74HC157G-S16-R	SOP-16	Tape Reel
U74HC157L-S16-T	U74HC157G-S16-T	SOP-16	Tube
U74HC157L-P16-R	U74HC157G-P16-R	TSSOP-16	Tape Reel
U74HC157L-P16-T	U74HC157G-P16-T	TSSOP-16	Tube

U74HC157L-S16-R
(1)Packing Type
(2)Package Type
(3)Lead Free

(1) R: Tape Reel, T: Tube
(2) S16: SOP-16, P16: TSSOP-16
(3) G: Halogen Free, L: Lead Free

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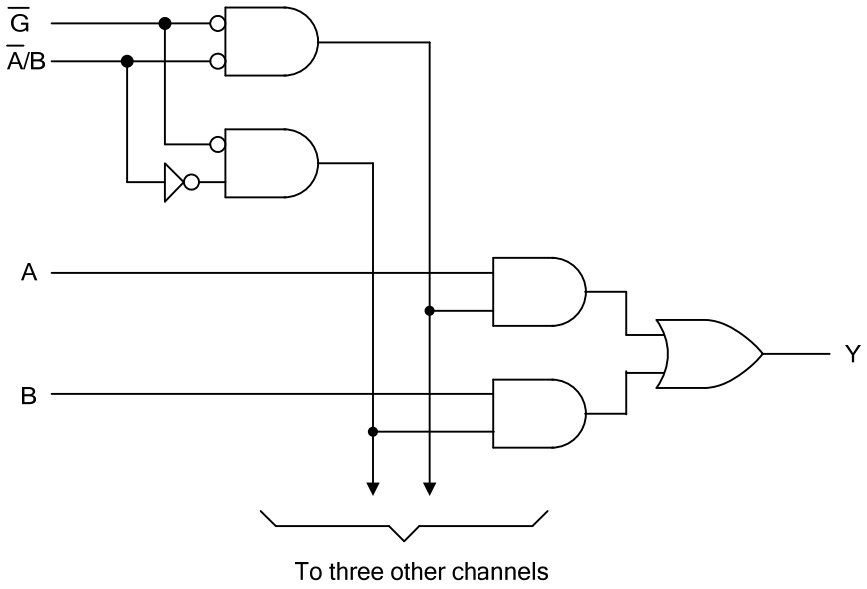
■ PIN CONFIGURATION



■ FUNCTION TABLE

INPUTS				OUTPUTS
$\overline{G}$	$\overline{A}/B$	A	B	Y
H	X	X	X	L
L	L	L	X	L
L	L	H	X	H
L	H	X	L	L
L	H	X	H	H

■ LOGIC DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A =25°C , unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage Range	V_{CC}	-0.5~7	V
Input Clamp Current (V_{IN}<0)	I_{IK}	±20	mA
Output Clamp Current (V_{OUT}<0, or V_{OUT}>V_{CC})	I_{OK}	±20	mA
Output Current	I_{OUT}	±35	mA
V_{CC} or GND Current	I_{CC}	±70	mA
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 CONDITIONS

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		2	5	6	V
High-Level Input Voltage	V_{IH}	V_{CC}=2V	1.5			V
		V_{CC}=4.5V	3.15			
		V_{CC}=6V	4.2			
Low-Level Input Voltage	V_{IL}	V_{CC}=2V			0.5	V
		V_{CC}=4.5V			1.35	
		V_{CC}=6V			1.8	
Input Voltage	V_{IN}		0		V_{CC}	V
Output Voltage	V_{OUT}		0		V_{CC}	V
Input Transition Rise or Fall Rate	$\Delta t/\Delta v$	V_{CC}=2V			1000	ns/V
		V_{CC}=4.5V			500	
		V_{CC}=6V			400	
Operating Temperature	T_A		-40		85	°C

■ ELECTRICAL CHARACTERISTICS (T_A =25°C , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
High-Level Output Voltage	V_{OH}	I_{OH}=-20 μA, V_{CC}=2V	1.9	1.998		V
		I_{OH}=-20 μA, V_{CC}=4.5V	4.4	4.499		
		I_{OH}=-20 μA, V_{CC}=6V	5.9	5.999		
		I_{OH}=-6 mA, V_{CC}=4.5V	3.98	4.3		
		I_{OH}=-7.8 mA, V_{CC}=6V	5.48	5.8		
Low-Level Output Voltage	V_{OL}	I_{OH}=20 μA, V_{CC}=2V		0.002	0.1	V
		I_{OH}=20 μA, V_{CC}=4.5V		0.001	0.1	
		I_{OH}=20 μA, V_{CC}=6V		0.001	0.1	
		I_{OH}=6 mA, V_{CC}=4.5V		0.17	0.26	
		I_{OH}=7.8 mA, V_{CC}=6V		0.15	0.26	
Input Leakage Current	$I_{I(LEAK)}$	V_{IN}=V_{CC} or GND, V_{CC}=6V		±0.1	±100	nA
Quiescent Supply Current	I_{CC}	V_{IN}=V_{CC} or GND, I_{OUT}=0, V_{CC}=6V			8	μA
Input Capacitance	C_{IN}	V_{CC}=6V		3	10	pF

■ SWITCHING CHARACTERISTICS

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

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Propagation delay from input A or B to output Y, t_{pd}	t_{pd}	V_{CC}=2V, C_L=50pF		63	125	ns
		V_{CC}=2V, C_L=150pF		81	190	
		V_{CC}=4.5V, C_L=50pF		13	25	
		V_{CC}=4.5V, C_L=150pF		23	38	
		V_{CC}=6V, C_L=50pF		11	21	
		V_{CC}=6V, C_L=150pF		18	33	
Propagation delay from input $\overline{A}$ / B to output Y, t_{pd}	t_{pd}	V_{CC}=2V, C_L=50pF		67	125	ns
		V_{CC}=2V, C_L=150pF		81	210	
		V_{CC}=4.5V, C_L=50pF		18	25	
		V_{CC}=4.5V, C_L=150pF		23	42	
		V_{CC}=6V, C_L=50pF		14	21	
		V_{CC}=6V, C_L=150pF		18	36	
Propagation delay from input $\overline{G}$ to output Y, t_{pd}	t_{pd}	V_{CC}=2V, C_L=50pF		59	115	ns
		V_{CC}=2V, C_L=150pF		91	190	
		V_{CC}=4.5V, C_L=50pF		16	23	
		V_{CC}=4.5V, C_L=150pF		24	38	
		V_{CC}=6V, C_L=50pF		13	20	
		V_{CC}=6V, C_L=150pF		18	33	
Output Transition Time	t_T	V_{CC}=2V, C_L=50pF		28	60	ns
		V_{CC}=2V, C_L=150pF		45	210	
		V_{CC}=4.5V, C_L=50pF		8	12	
		V_{CC}=4.5V, C_L=150pF		17	42	
		V_{CC}=6V, C_L=50pF		6	10	
		V_{CC}=6V, C_L=150pF		13	36	

Note: t_{PLH} and t_{PHL} is the same as t_{Pd}

■ OPERATING CHARACTERISTICS (T_A =25°C , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Power dissipation capacitance	C_{PD}	No load		40		pF

■ TEST CIRCUIT AND WAVEFORMS

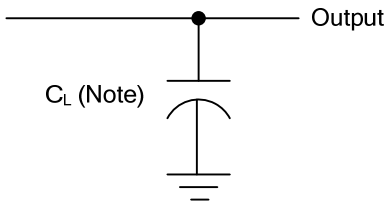
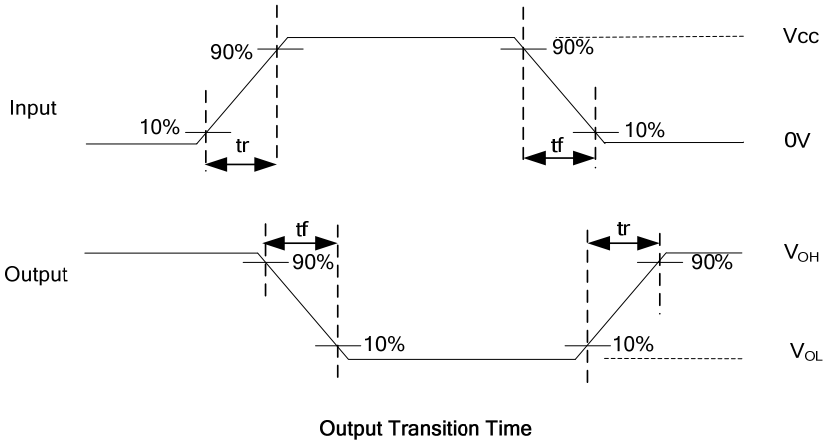
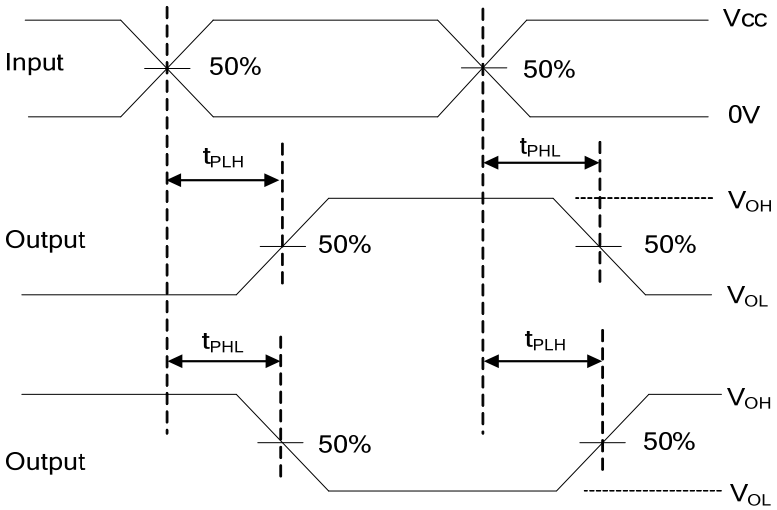


Fig. 1 Load circuitry for switching times.



Output Transition Time



Voltage Waveforms Propagation Delay Times

Fig. 2 Propagation delay from input to output and Output transition time.

Notes: 1. C_L includes probe and jig capacitance.
2. All input pulses are supplied by generators having the following characteristics: PRR ≤1MHz, Z_O=50Ω, t_R=6ns, t_F=6ns.

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