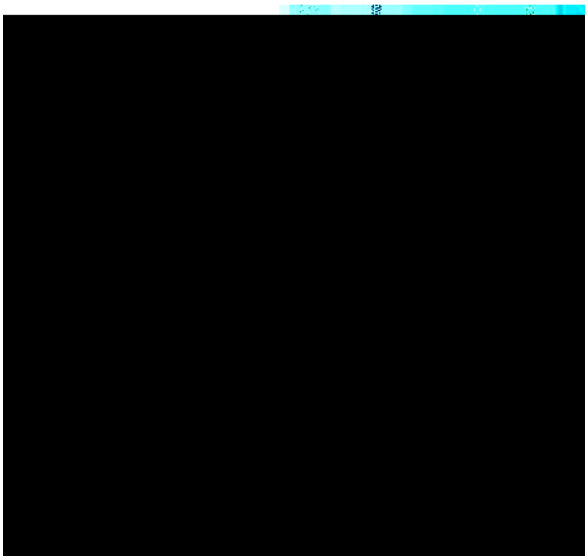
Is Now Part of



Functional Description

The LCX257 is a quad 2-input multiplexer with 3-STATE outputs. It selects four bits of data from two sources under control of a Common Data Select input. When the Select input is LOW, the I_{0x} inputs are selected and when Select is HIGH, the I_{1x} inputs are selected. The data on the selected inputs appears at the outputs in true (non inverted) form. The device is the logic implementation of a 4-pole, 2-position switch where the position of the switch is determined by the logic levels supplied to the Select input. The logic equations for the outputs are shown below:

$$Z_a = \overline{OE} \bullet (1_{1a} \bullet S + I_{0a} \bullet \overline{S})$$

$$Z_b = \overline{OE} \bullet (1_{1b} \bullet S + I_{0b} \bullet \overline{S})$$

$$Z_c = \overline{OE} \bullet (1_{1c} \bullet S + I_{0c} \bullet \overline{S})$$

$$Z_d = \overline{OE} \bullet (1_{1d} \bullet S + I_{0d} \bullet \overline{S})$$

When the Output Enable ($\overline{OE}$) is HIGH, the outputs are

Absolute Maximum Ratings(Note 1)

Recommended Operating Conditions (Note 4)

Note 2: The Absolute Maximum Ratings are those values beyond which the safety of the device cannot be guaranteed. The device should not be operated

DC Electrical Characteristics (Continued)

Symbol	Parameter	Conditions	V_{CC} (V)	$T_A = -40°C$ to $+85°C$ Min	Max	Units
I_{CC}	Quiescent Supply Current	$V_I = V_{CC}$ or GND	2.3 – 3.6		10	µA
		$3.6V \le V_I$, $V_O \le 5.5V$ (Note 5)	2.3 – 3.6		±10	
ΔI_{CC}	Increase in I_{CC} per Input	$V_{IH} = V_{CC} - 0.6V$	2.3 – 3.6		500	µA

Note 5: Outputs disabled or 3-STATE only.

AC Electrical Characteristics

Symbol	Parameter	$T_A = -40°C$ to $+85°C$, $R_L = 500\ \Omega$ $V_{CC} = 3.3V \pm 0.3V$ $C_L = 50$ pF Min	Max	$V_{CC} = 2.7V$ $C_L = 50$ pF Min	Max	$V_{CC} = 2.5V \pm 0.2V$ $C_L = 30$ pF Min	Max	Units
t_{PHL}	Propagation Delay	1.5	7.0	1.5	8.5	1.5	9.1	ns
t_{PLH}	$S \rightarrow Z_n$	1.5	7.0	1.5	8.5	1.5	9.1	
t_{PHL}	Propagation Delay	1.5	6.0	1.5	6.5	1.5	7.2	ns
t_{PLH}	$I_n \rightarrow Z_n$	1.5	6.0	1.5	6.5	1.5	7.2	
t_{PZL}	Output Enable Time	1.5	7.0	1.5	8.5	1.5	9.1	ns
t_{PZH}	$\overline{OE} \rightarrow Z_n$	1.5	7.0	1.5	8.5	1.5	9.1	
t_{PLZ}	Output Disable Time	1.5	5.5	1.5	6.0	1.5	6.6	ns
t_{PHZ}	$\overline{OE} \rightarrow Z_n$	1.5	5.5	1.5	6.0	1.5	6.6	
t_{OSHL}	Output to Output Skew (Note 6)		1.0					ns
t_{OSLH}			1.0					

Note 6: Skew is defined as the absolute value of the difference between the actual propagation delay for any two separate outputs of the same device. The specification applies to any outputs switching in the same direction, either HIGH-to-LOW (t_{OSHL}) or LOW-to-HIGH (t_{OSLH}).

Dynamic Switching Characteristics

Symbol	Parameter	Conditions	V_{CC} (V)	$T_A = 25°C$ Typical	Units
V_{OLP}	Quiet Output Dynamic Peak V_{OL}	$C_L = 50$ pF, $V_{IH} = 3.3V$, $V_{IL} = 0V$	3.3	0.8	V
		$C_L = 30$ pF, $V_{IH} = 2.5V$, $V_{IL} = 0V$	2.5	0.6	
V_{OLV}	Quiet Output Dynamic Valley V_{OL}	$C_L = 50$ pF, $V_{IH} = 3.3V$, V_{IL}			.8

Capacitance

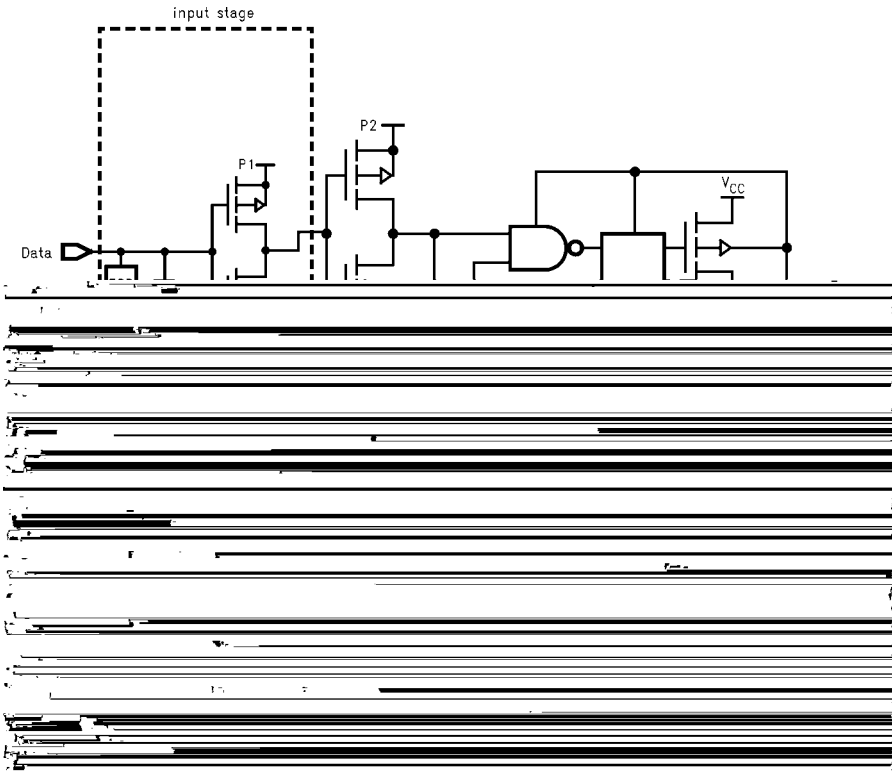
AC LOADING and WAVEFORMS Generic for LCX Family

FIGURE 1. AC Test Circuit (C_L includes probe and jig capacitance)

Waveform for Inverting and Non-Inverting Functions

Propagation Delay. Pulse Width and t_{rec} Waveforms

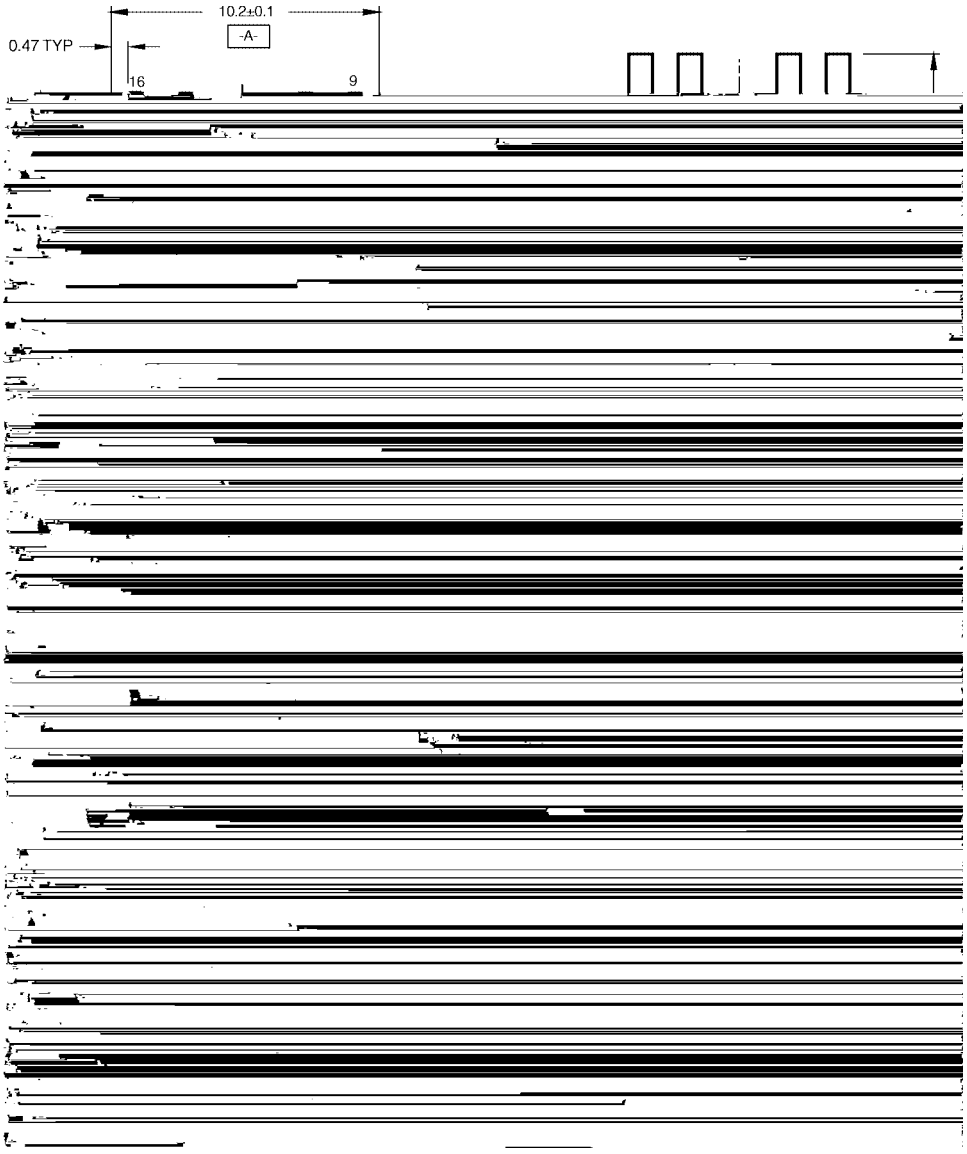
Schematic Diagram Generic for LCX Family



Physical Dimensions inches (millimeters) unless otherwise noted

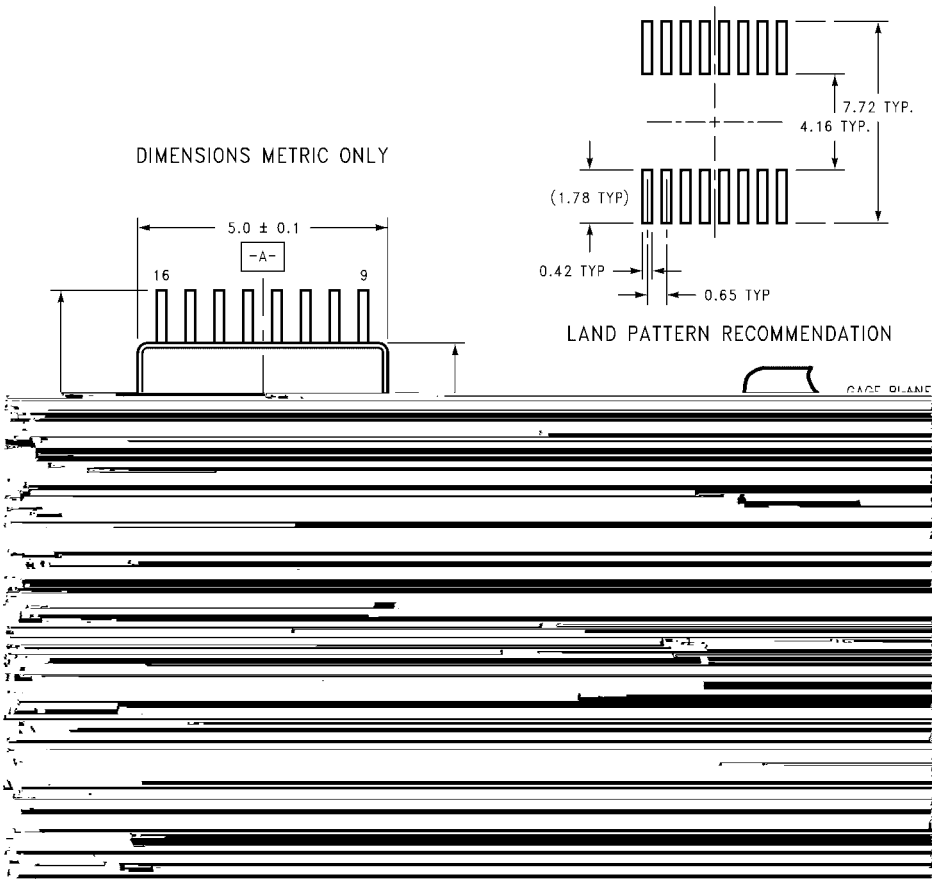
16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150 Narrow
Package Number M16A

Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



16-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
Package Number M16D

Physical Dimensions inches (millimeters) unless otherwise noted (Continued)



16-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
Package Number MTC16

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