L -V a CMOS Q a 2-I M

With 5 V−Tolerant Inputs (Non−Inverting)

MC74LCX157A

The MC74LCX157A is a high performance, quad 2−input multiplexer operating from a 1.65 to 3.6 V supply. High impedance TTL compatible inputs significantly reduce current loading to input drivers while TTL compatible outputs offer improved switching noise performance. A V_I specification of 5.5 V allows MC74LCX157A inputs to be safely driven from 5 V devices.

Four bits of data from two sources can be selected using the Select and Enable inputs. The four outputs present the selected data in the true (non−inverted) form. The MC74LCX157A can also be used as a function generator. Current drive capability is 24 mA at the outputs.

Features

- Designed for 1.65 to 3.6 V V_{CC} Operation
- 5 V Tolerant Inputs − Interface Capability With 5 V TTL Logic
- LVTTL Compatible
- LVCMOS Compatible
- 24 mA Balanced Output Sink and Source Capability
- Near Zero Static Supply Current (10 □A) Substantially Reduces System Power Requirements
- Latchup Performance Exceeds 100 mA
- ESD Performance:
  - Human Body Model >2000 V
- These Devices are Pb−Free, Halogen Free/BFR Free and are RoHS Compliant

MARKING DIAGRAMS

SOIC−16
D SUFFIX
CASE 751B

TSSOP−16

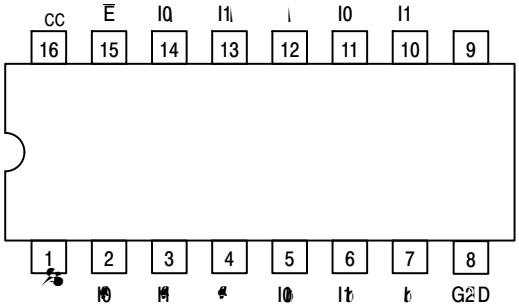

Figure 1. 16−Lead Pinout (Top View)

PIN NAMES

Pins	Function
I0n	Source 0 Data Inputs
I1n	Source 1 Data Inputs
$\overline{E}$	Enable Input
S	Select Input
Zn	Outputs

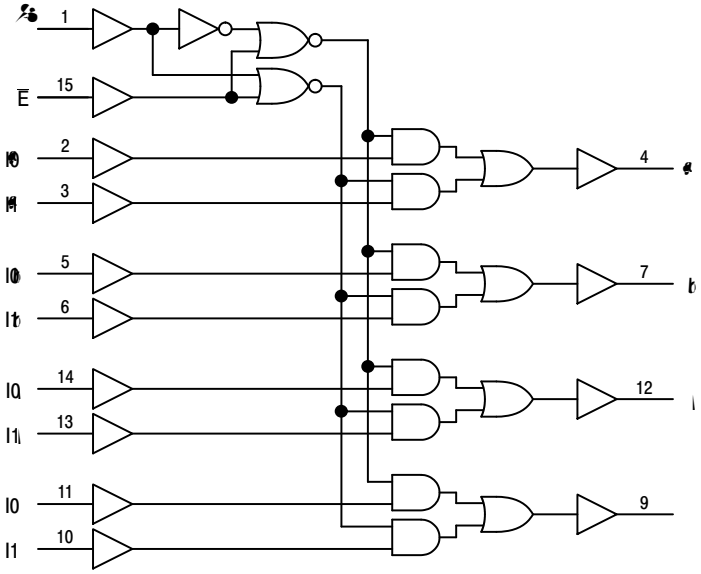

Figure 2. Logic Diagram

TRUTH TABLE

Inputs				Outputs
$\overline{E}$	S	I0n	I1n	Zn
H	X	X	X	L
L	H	X	L	L
L	H	X	H	H
L	L	L	X	L
L	L	H	X	H

H = High Voltage Level; L = Low Voltage Level; X = High or Low Voltage Level ; For I_{CC} Reasons DO NOT FLOAT Inputs

ORDERING INFORMATION

Device	Package	Shipping†
MC74LCX157ADR2G (Contact ON Semiconductor)	SOIC−16 (Pb−Free)	2500 Tape & Reel
MC74LCX157ADTR2G	TSSOP−16 (Pb−Free)	2500 Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

Table 1. MAXIMUM RATINGS

Symbol	Parameter		Value	Unit
V_{CC}	DC Supply Voltage		−0.5 to +6.5	V
V_I	DC Input Voltage (Note 1)		−0.5 to +6.5	V
V_O	DC Output Voltage (Note 1)	Active−Mode (High or Low State) Tri−State Mode Power−Down Mode (V_{CC} = 0 V)	−0.5 to V_{CC} + 0.5 −0.5 to +6.5 −0.5 to +6.5	V
I_{IK}	DC Input Diode Current	V_{IN} < GND	−50	mA
I_{OK}	DC Output Diode Current	V_{OUT} < GND	−50	mA
I_O	DC Output Source/Sink Current		±50	mA

Table 3. DC ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Conditions	V_{CC} (V)	T_A = −40° C to +85° C		T_A = −40° C to +125° C		Unit
				Min	Max	Min	Max	
V_{IH}	High−Level Input Voltage		1.65 to 1.95	0.65 x V_{CC}	−	0.65 x V_{CC}	−	V
			2.3 to 2.7	1.7	−	1.7	−	
			2.7 to 3.6	2.0	−	2.0	−	
V_{IL}	Low−Level Input Voltage		1.65 to 1.95	−	0.35 x V_{CC}	−	0.35 x V_{CC}	V
			2.3 to 2.7	−	0.7	−	0.7	
			2.7 to 3.6	−	0.8	−	0.8	
V_{OH}	High−Level Output Voltage	V_I = V_{IH} or V_{IL}						V
		I_{OH} = −100 μA	1.65 to 3.6	V_{CC} – 0.2	−	V_{CC} – 0.2	−	
		I_{OH} = −4 mA	1.65	1.2	−	1.2	−	
		I_{OH} = −8 mA	2.3	1.8	−	1.8	−	
		I_{OH} = −12 mA	2.7	2.2	−	2.2	−	
		I_{OH} = −16 mA	3.0	2.4	−	2.4	−	
		I_{OH} = −24 mA	3.0	2.2	−	2.2	−	
V_{OL}	Low−Level Output Voltage	V_I = V_{IH} or V_{IL}						V
		I_{OL} = 100 μA	1.65 to 3.6	−	0.2	−	0.2	
		I_{OL} = 4 mA	1.65	−	0.45	−	0.45	
		I_{OL} = 8 mA	2.3	−	0.6	−	0.6	
		I_{OL} = 12 mA	2.7	−	0.4	−	0.4	
		I_{OL} = 16 mA	3.0	−	0.4	−	0.4	
		I_{OL} = 24 mA	3.0	−	0.55	−	0.6	
I_I	Input Leakage Current	V_I = 0 to 5.5 V	3.6	−	±5.0	−	±5.0	μA
I_{OFF}	Power Off Leakage Current	V_I = 5.5 V or V_O = 5.5 V	0	−	10	−	20	μA
I_{CC}	Quiescent Supply Current	V_I = 5.5 V or GND	3.6	−	10	−	10	μA
ΔI_{CC}	Increase in I_{CC} per Input	V_{IH} = V_{CC} – 0.6 V	2.3 to 3.6	−	500	−	500	μA

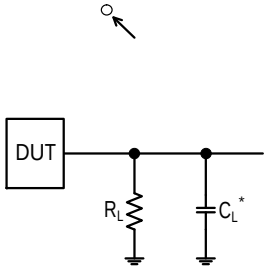

Figure 3. Test Circuit

PACKAGE DIMENSIONS

TSSOP−16
DT SUFFIX
CASE 948F
ISSUE B

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETER.
3. DIMENSION A DOES NOT INCLUDE MOLD FLASH. PROTRUSIONS OR GATE BURRS. MOLD FLASH OR GATE BURRS SHALL NOT EXCEED 0.15 (0.006) PER SIDE.
4. DIMENSION B DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSION. INTERLEAD FLASH OR PROTRUSION SHALL NOT EXCEED 0.25 (0.010) PER SIDE.
5. DIMENSION K DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.08 (0.003) TOTAL IN EXCESS OF THE K DIMENSION AT MAXIMUM MATERIAL CONDITION.
6. TERMINAL NUMBERS ARE SHOWN FOR

	MILLIMETERS		INCHES	
DIM	**MIN**	**MAX**	**MIN**	**MAX**
A	4.90	5.10	0.193	0.200
B	4.30	4.50	0.169	0.177
C	−−−	1.20	−−−	0.047
D	0.05	0.15	0.002	0.006
F	0.50	0.75	0.020	0.030
G	0.65 BSC		0.026 BSC	
H	0.18	0.28	0.007	0.011
J	0.09	0.20	0.004	0.008
J1	0.09	0.16	0.004	0.006
K	0.19	0.30	0.007	0.012
K1	0.19	0.25	0.007	0.010
L	6.40 BSC		0.252 BSC	
M	0	8	0	8

PACKAGE DIMENSIONS

SOIC−16
D SUFFIX
CASE 751B−05
ISSUE K