

**FAIRCHILD**  
SEMICONDUCTOR™

September 1983  
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## MM74HC157 Quad 2-Input Multiplexer

### General Description

The MM74HC157 high speed Quad 2-to-1 Line data selector/Multiplexers utilizes advanced silicon-gate CMOS technology. It possesses the high noise immunity and low power consumption of standard CMOS integrated circuits, as well as the ability to drive 10 LS-TTL loads.

This device consists of four 2-input digital multiplexers with common select and STROBE inputs. When the STROBE input is at logical "0" the four outputs assume the values as selected from the inputs. When the STROBE input is at a logical "1" the outputs assume logical "0".

The 74HC logic family is functionally as well as pin-out compatible with the standard 74LS logic family. All inputs are protected from damage due to static discharge by internal diode clamps to  $V_{CC}$  and ground.

### Features

- Typical propagation delay: 14 ns data to any output
- Wide power supply range: 2–6V
- Low power supply quiescent current: 80  $\mu$ A maximum (74HC Series)
- Fan-out of 10 LS-TTL loads
- Low input current: 1  $\mu$ A maximum

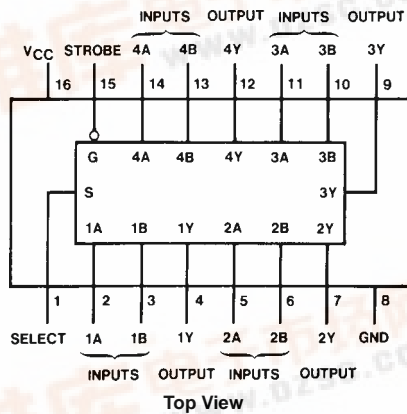
### Ordering Code:

Order Number	Package Number	Package Description
MM74HC157M	M16A	16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150" Narrow
MM74HC157SJ	M16D	16-Lead Small Outline Package (SOP), EIAJ TYPE II, 5.3mm Wide
MM74HC157MTC	MTC16	16-Lead Thin Shrink Small Outline Package (TSSOP), JEDEC MO-153, 4.4mm Wide
MM74HC157N	N16E	16-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide

Devices also available in Tape and Reel. Specify by appending the suffix letter "X" to the ordering code.

### Connection Diagram

Pin Assignments for DIP, SOIC, SOP and TSSOP



### Function Table

Strobe	Inputs		Output
	Select	A B	
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

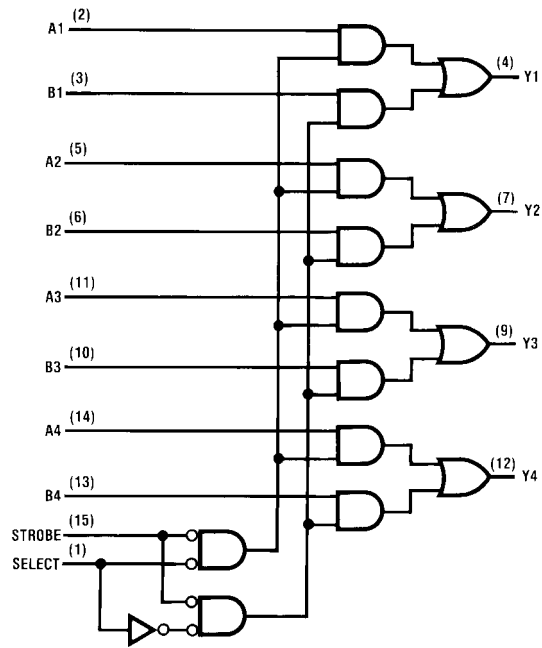
H = HIGH Level,  
L = LOW Level  
X = Irrelevant

MM74HC157 Quad 2-Input Multiplexer



MM74HC157

### Logic Diagram





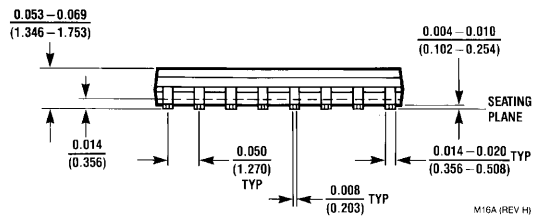
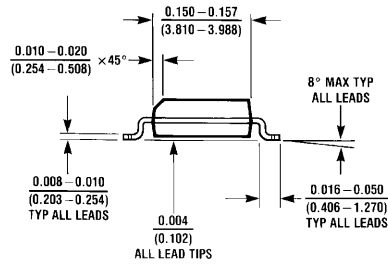
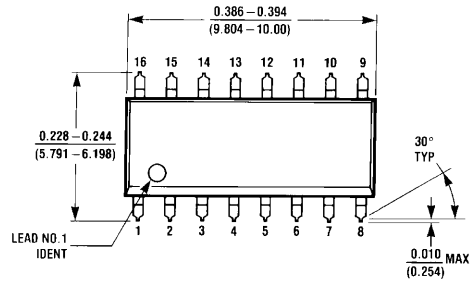
AC Electrical Characteristics					
$V_{CC} = 5V, T_A = 25^\circ C, C_L = 15 \text{ pF}, t_r = t_f = 6 \text{ ns}$					
Symbol	Parameter	Conditions	Typ	Guaranteed Limit	Units
$t_{PHL}, t_{PLH}$	Maximum Propagation Delay, Data to Output		14	20	ns
$t_{PHL}, t_{PLH}$	Maximum Propagation Delay, Select to Output		14	20	ns
$t_{PHL}, t_{PLH}$	Maximum Propagation Delay, Strobe to Output		12	18	ns

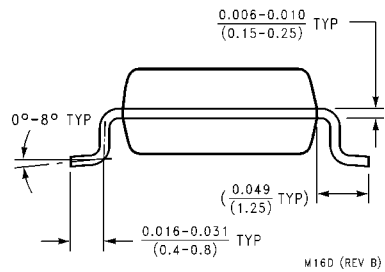
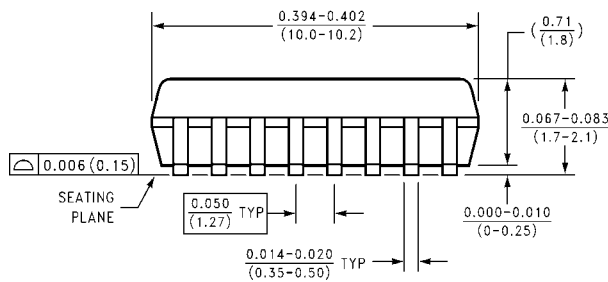
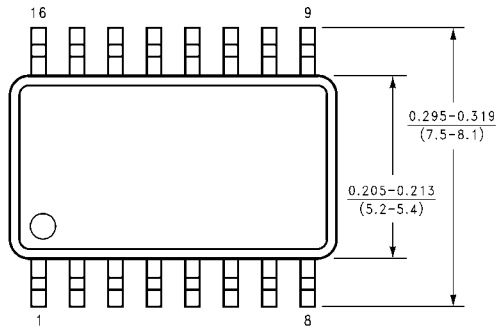
AC Electrical Characteristics								
$C_L = 50 \text{ pF}, t_r = t_f = 6 \text{ ns}$ (unless otherwise specified)								
Symbol	Parameter	Conditions	$V_{CC}$	$T_A = 25^\circ C$	$T_A = -40 \text{ to } 85^\circ C$	$T_A = -55 \text{ to } 125^\circ C$	Units	
				Typ	Guaranteed Limits			
$t_{PHL}, t_{PLH}$	Maximum Propagation Delay, Data to Output		2.0V	63	125	158	186	ns
			4.5V	13	25	32	37	ns
			6.0V	11	21	27	32	ns
$t_{PHL}, t_{PLH}$	Maximum Propagation Delay, Select to Output		2.0V	63	125	158	186	ns
			4.5V	13	25	32	37	ns
			6.0V	11	21	27	32	ns
$t_{PHL}, t_{PLH}$	Maximum Propagation Delay, Strobe to Output		2.0V	58	115	145	171	ns
			4.5V	12	23	29	34	ns
			6.0V	10	20	25	29	ns
$t_{TLH}, t_{THL}$	Maximum Output Rise and Fall Time		2.0V	30	75	95	110	ns
			4.5V	8	15	19	22	ns
			6.0V	7	13	16	19	ns
$C_{IN}$	Maximum Input Capacitance			5	10	10	10	pF
$C_{PD}$	Power Dissipation Capacitance (Note 5)	(per Multiplexer)		57				pF

**Note 5:**  $C_{PD}$  determines the no load dynamic power consumption,  $P_D = C_{PD} V_{CC}^2 f + I_{CC} V_{CC}$ , and the no load dynamic current consumption,  $I_S = C_{PD} V_{CC} f + I_{CC}$ .

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

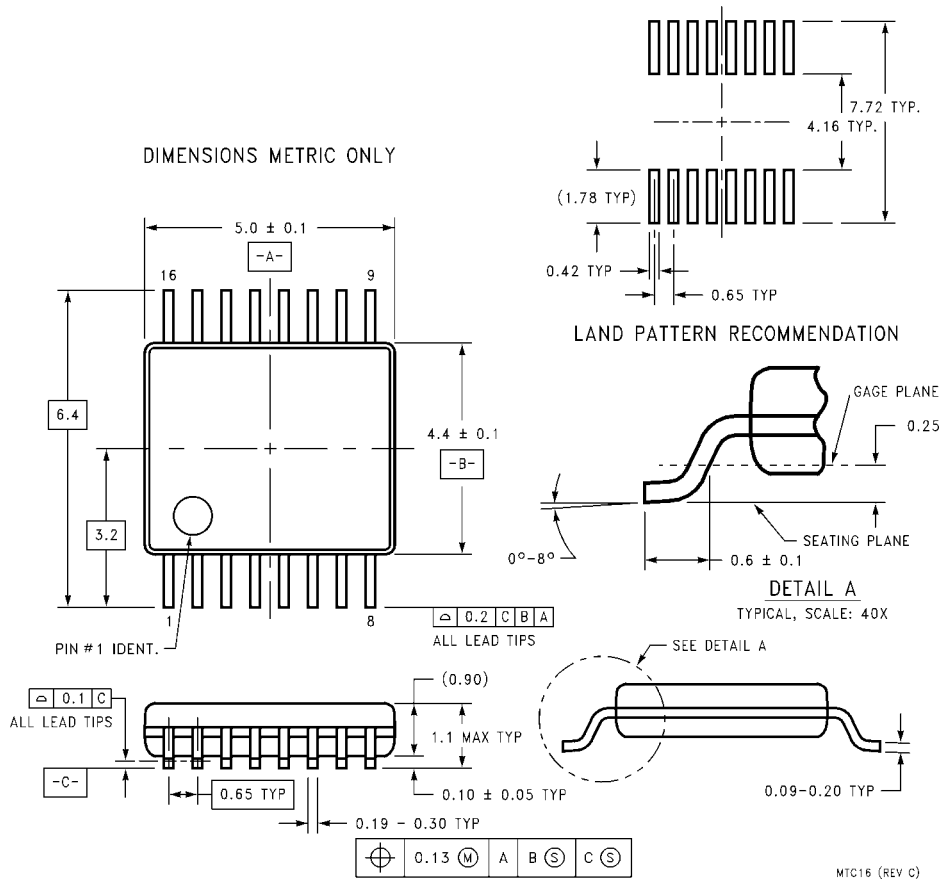


**16-Lead Small Outline Integrated Circuit (SOIC), JEDEC MS-012, 0.150" Narrow Package Number M16A**



**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**

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



**16-Lead Plastic Dual-In-Line Package (PDIP), JEDEC MS-001, 0.300" Wide  
Package Number N16E**

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2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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