

# MC10H158

## Quad 2-Input Multiplexer (Non-Inverting)

### Description

The MC10H158 is a quad two channel multiplexer with common input select. A “high” level select enables input D00, D10, D20 and D30 and a “low” level select enables input D01, D11, D21 and D31. This MECL 10H™ part is a functional/pinout duplication of the standard MECL 10K™ family part, with 100% improvement in propagation delay and no increase in power-supply current.

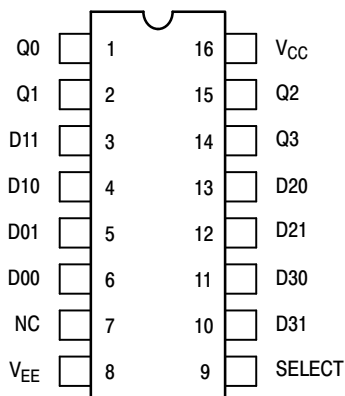
### Features

- Propagation Delay, 1.5 ns Typical
- Power Dissipation, 197 mW Typical
- Improved Noise Margin 150 mV (Over Operating Voltage and Temperature Range)
- Voltage Compensated
- MECL 10K Compatible
- These Devices are Pb-Free, Halogen Free and are RoHS Compliant

TRUTH TABLE

Select	D0	D1	Q
L	X	L	L
L	X	H	H
H	L	X	L
H	H	X	H

DIP  
PIN ASSIGNMENT

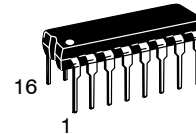


Pin assignment is for Dual-in-Line Package.  
For PLCC pin assignment, see the Pin Conversion Tables on page 18 of the ON Semiconductor MECL Data Book (DL122/D).



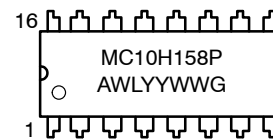
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PDIP-16  
P SUFFIX  
CASE 648-08

### MARKING DIAGRAM\*



A = Assembly Location  
WL, L = Wafer Lot  
YY, Y = Year  
WW, W = Work Week  
G = Pb-Free Package

\*For additional marking information, refer to Application Note [AND8002/D](#).

### ORDERING INFORMATION

Device	Package	Shipping
MC10H158PG	PDIP-16 (Pb-Free)	25 Units/Tube

# MC10H158

**Table 1. MAXIMUM RATINGS**

Symbol	Characteristic	Rating	Unit
$V_{EE}$	Power Supply ( $V_{CC} = 0$ )	-8.0 to 0	Vdc
$V_I$	Input Voltage ( $V_{CC} = 0$ )	0 to $V_{EE}$	Vdc
$I_{out}$	Output Current Continuous Surge	50 100	mA
$T_A$	Operating Temperature Range	0 to +75	°C
$T_{stg}$	Storage Temperature Range Plastic Ceramic	-55 to +150 -55 to +165	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

**Table 2. ELECTRICAL CHARACTERISTICS** ( $V_{EE} = -5.2\text{ V} \pm 5\%$ )

Symbol	Characteristic	0°		25°		75°		Unit
		Min	Max	Min	Max	Min	Max	
$I_E$	Power Supply Current	-	53	-	48	-	53	mA
$I_{inH}$	Input Current High Pin 9 Pins 3-6 and 10-13	-	475 515	-	295 320	-	295 320	$\mu\text{A}$
$I_{inL}$	Input Current Low	0.5	-	0.5	-	0.3	-	$\mu\text{A}$
$V_{OH}$	High Output Voltage	-1.02	-0.84	-0.98	-0.81	-0.92	-0.735	Vdc
$V_{OL}$	Low Output Voltage	-1.95	-1.63	-1.95	-1.63	-1.95	-1.60	Vdc
$V_{IH}$	High Input Voltage	-1.17	-0.84	-1.13	-0.81	-1.07	-0.735	Vdc
$V_{IL}$	Low Input Voltage	-1.95	-1.48	-1.95	-1.48	-1.95	-1.45	Vdc

- Each MECL 10H series circuit has been designed to meet the dc specifications shown in the test table, after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse air flow greater than 500 linear fpm is maintained. Outputs are terminated through a 50  $\Omega$  resistor to -2.0 V.

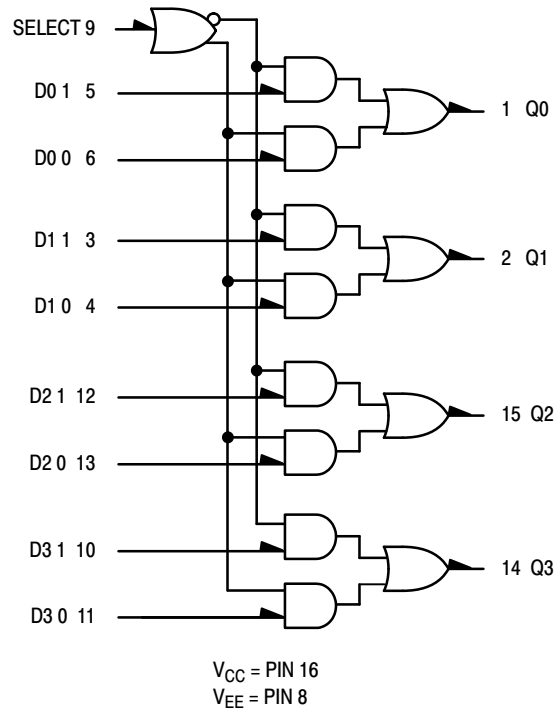
**Table 3. AC PARAMETERS**

Symbol	Characteristic	0°		25°		75°		Unit
		Min	Max	Min	Max	Min	Max	
$t_{pd}$	Propagation Delay Data Select	0.5 1.0	1.9 2.9	0.5 1.0	1.9 2.9	0.5 1.0	2.0 2.9	ns
$t_r$	Rise Time	0.7	2.2	0.7	2.2	0.7	2.2	ns
$t_f$	Fall Time	0.7	2.2	0.7	2.2	0.7	2.2	ns

NOTE: Device will meet the specifications after thermal equilibrium has been established when mounted in a test socket or printed circuit board with maintained transverse airflow greater than 500 lfm. Electrical parameters are guaranteed only over the declared operating temperature range. Functional operation of the device exceeding these conditions is not implied. Device specification limit values are applied individually under normal operating conditions and not valid simultaneously.

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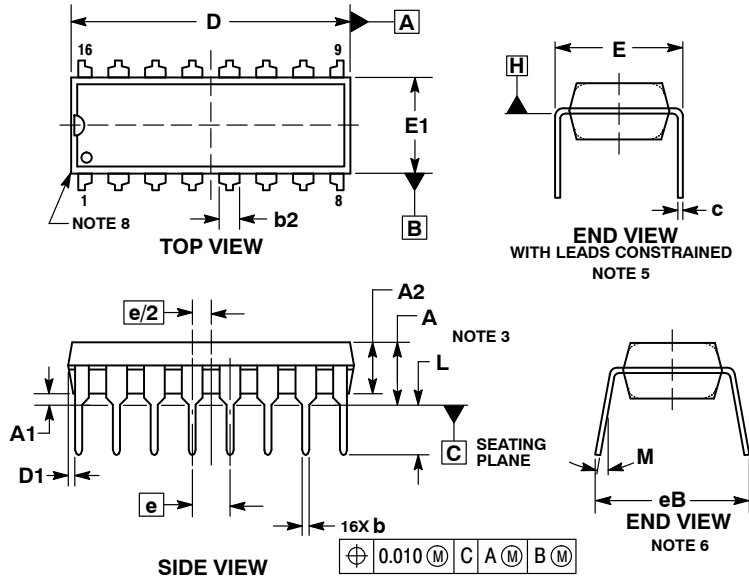
## LOGIC DIAGRAM



# MC10H158

## PACKAGE DIMENSIONS

### PDIP-16 CASE 648-08 ISSUE V



#### NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSIONS A, A1 AND L ARE MEASURED WITH THE PACKAGE SEATED IN JEDEC SEATING PLANE GAUGE GS-3.
4. DIMENSIONS D, D1 AND E1 DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS. MOLD FLASH OR PROTRUSIONS ARE NOT TO EXCEED 0.10 INCH.
5. DIMENSION E IS MEASURED AT A POINT 0.015 BELOW DATUM PLANE H WITH THE LEADS CONSTRAINED PERPENDICULAR TO DATUM C.
6. DIMENSION eB IS MEASURED AT THE LEAD TIPS WITH THE LEADS UNCONSTRAINED.
7. DATUM PLANE H IS COINCIDENT WITH THE BOTTOM OF THE LEADS, WHERE THE LEADS EXIT THE BODY.
8. PACKAGE CONTOUR IS OPTIONAL (ROUNDED OR SQUARE CORNERS).

#### STYLE 1:

- PIN 1. CATHODE
- CATHODE
- CATHODE
- CATHODE
- CATHODE
- CATHODE
- CATHODE
- CATHODE
- ANODE
- ANODE
- ANODE
- ANODE
- ANODE
- ANODE
- ANODE
- ANODE

#### STYLE 2:

- PIN 1. COMMON DRAIN
- COMMON DRAIN
- COMMON DRAIN
- COMMON DRAIN
- COMMON DRAIN
- COMMON DRAIN
- COMMON DRAIN
- COMMON DRAIN
- GATE
- SOURCE
- GATE
- SOURCE
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- SOURCE
- GATE
- SOURCE

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