

# 16:1 Multiplexer

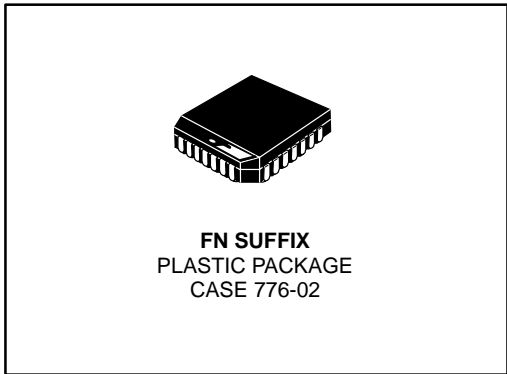
The MC10E/100E164 is a 16:1 multiplexer with a differential output. The select inputs (SEL0, 1, 2, 3) control which one of the sixteen data inputs (A0 – A15) is propagated to the output.

Special attention to the design layout results in a typical skew between the 16 inputs of only 50ps.

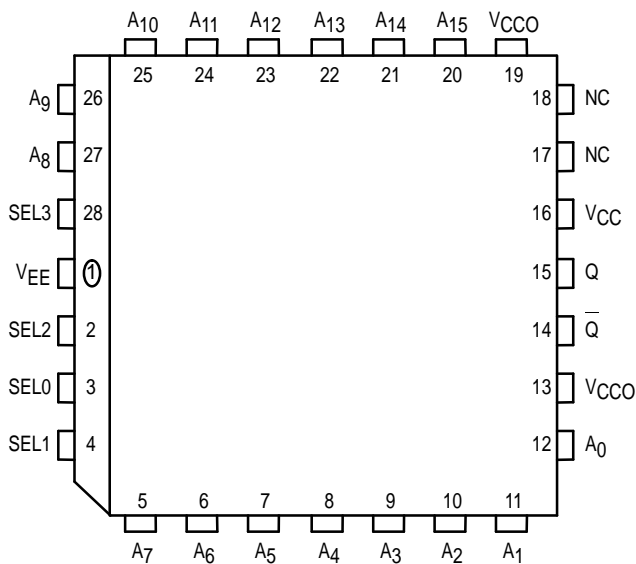
- 850ps Data Input to Output
- Differential Output
- Extended 100E  $V_{EE}$  Range of – 4.2V to – 5.46V
- Internal 75k $\Omega$  Input Pulldown Resistors

**MC10E164**  
**MC100E164**

**16:1 MULTIPLEXER**



Pinout: 28-Lead PLCC (Top View)

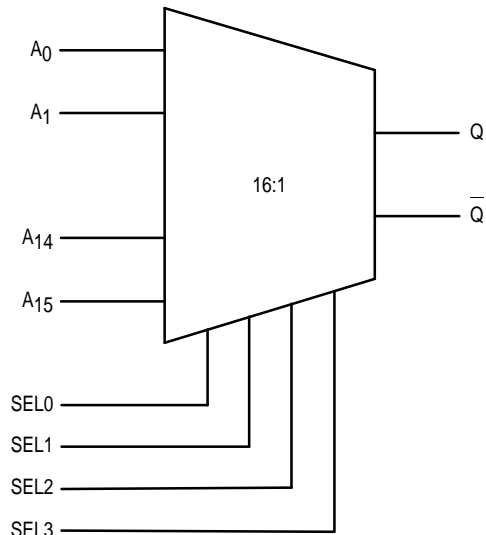


\* All  $V_{CC}$  and  $V_{CCO}$  pins are tied together on the die.

**PIN NAMES**

Pin	Function
A <sub>0</sub> – A <sub>15</sub>	Data Inputs
SEL <sub>[0:3]</sub>	Select Inputs
Q, $\bar{Q}$	Output

**LOGIC DIAGRAM**



# MC10E164 MC100E164

## DC CHARACTERISTICS ( $V_{EE} = V_{EE}(\min)$ to $V_{EE}(\max)$ ; $V_{CC} = V_{CCO} = \text{GND}$ )

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
$I_{IH}$	Input HIGH Current			150			150			150	$\mu\text{A}$	
$I_{EE}$	Power Supply Current										$\text{mA}$	
	10E		59	71		59	71		59	71		
	100E		59	71		59	71		68	81		

## AC CHARACTERISTICS ( $V_{EE} = V_{EE}(\min)$ to $V_{EE}(\max)$ ; $V_{CC} = V_{CCO} = \text{GND}$ )

Symbol	Characteristic	0°C			25°C			85°C			Unit	Condition
		min	typ	max	min	typ	max	min	typ	max		
$t_{PLH}$ $t_{PHL}$	Propagation Delay to Output A Input	350	600	850	350	600	850	350	600	850	ps	
	SEL0	500	700	900	500	700	900	500	700	900		
	SEL1	400	675	900	400	675	900	400	675	900		
	SEL2	400	675	900	400	675	900	400	675	900		
	SEL3	400	550	700	400	550	700	400	550	700		
$t_{SKEW}$	Within Device Skew		50			50			50		ps	1
$t_r$ $t_f$	Rise/Fall Times 20 - 80%	275	400	550	275	400	550	275	400	550	ps	

1. Within Device skew is defined as the difference in the A to Q delay between the 16 different A inputs.

## FUNCTION TABLE

SEL3	SEL2	SEL1	SEL0	Data
L	L	L	L	A0
L	L	L	H	A1
L	L	H	L	A2
L	L	H	H	A3
L	H	L	L	A4
L	H	L	H	A5
L	H	H	L	A6
L	H	H	H	A7
H	L	L	L	A8
H	L	L	H	A9
H	L	H	L	A10
H	L	H	H	A11
H	H	L	L	A12
H	H	L	H	A13
H	H	H	L	A14
H	H	H	H	A15

OUTLINE DIMENSIONS


FN SUFFIX  
 PLASTIC PLCC PACKAGE  
 CASE 776-02  
 ISSUE D



NOTES:

- DATUMS -L-, -M-, AND -N- DETERMINED WHERE TOP OF LEAD SHOULDER EXITS PLASTIC BODY AT MOLD PARTING LINE.
- DIM G1, TRUE POSITION TO BE MEASURED AT DATUM -T-, SEATING PLANE.
- DIM R AND U DO NOT INCLUDE MOLD FLASH. ALLOWABLE MOLD FLASH IS 0.010 (0.250) PER SIDE.
- DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
- CONTROLLING DIMENSION: INCH.
- THE PACKAGE TOP MAY BE SMALLER THAN THE PACKAGE BOTTOM BY UP TO 0.012 (0.300). DIMENSIONS R AND U ARE DETERMINED AT THE OUTERMOST EXTREMES OF THE PLASTIC BODY EXCLUSIVE OF MOLD FLASH, TIE BAR BURRS, GATE BURRS AND INTERLEAD FLASH, BUT INCLUDING ANY MISMATCH BETWEEN THE TOP AND BOTTOM OF THE PLASTIC BODY.
- DIMENSION H DOES NOT INCLUDE DAMBAR PROTRUSION OR INTRUSION. THE DAMBAR PROTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE GREATER THAN 0.037 (0.940). THE DAMBAR INTRUSION(S) SHALL NOT CAUSE THE H DIMENSION TO BE SMALLER THAN 0.025 (0.635).

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.485	0.495	12.32	12.57
B	0.485	0.495	12.32	12.57
C	0.165	0.180	4.20	4.57
E	0.090	0.110	2.29	2.79
F	0.013	0.019	0.33	0.48
G	0.050 BSC		1.27 BSC	
H	0.026	0.032	0.66	0.81
J	0.020	—	0.51	—
K	0.025	—	0.64	—
R	0.450	0.456	11.43	11.58
U	0.450	0.456	11.43	11.58
V	0.042	0.048	1.07	1.21
W	0.042	0.048	1.07	1.21
X	0.042	0.056	1.07	1.42
Y	—	0.020	—	0.50
Z	2°		10°	
G1	0.410	0.430	10.42	10.92
K1	0.040	—	1.02	—

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