

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.

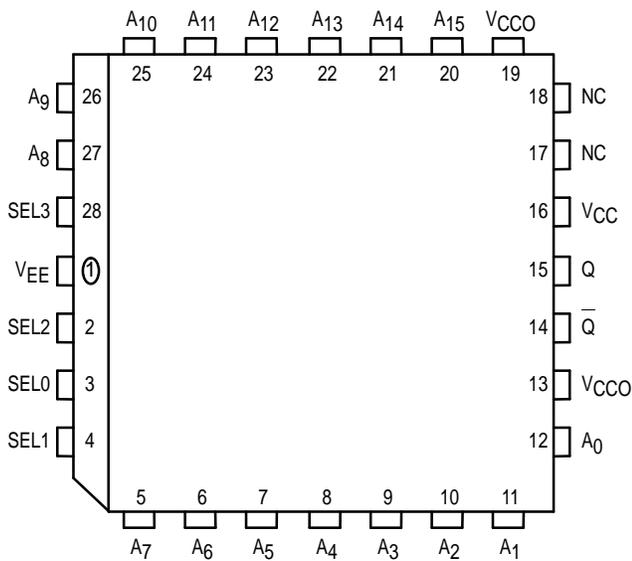
- 850ps Data Input to Output
- Differential Output
- Extended 100E V_{EE} Range of – 4.2V to – 5.46V
- Internal 75kΩ Input Pulldown Resistors

MC10E164
MC100E164

16:1 MULTIPLEXER



Pinout: 28-Lead PLCC (Top View)

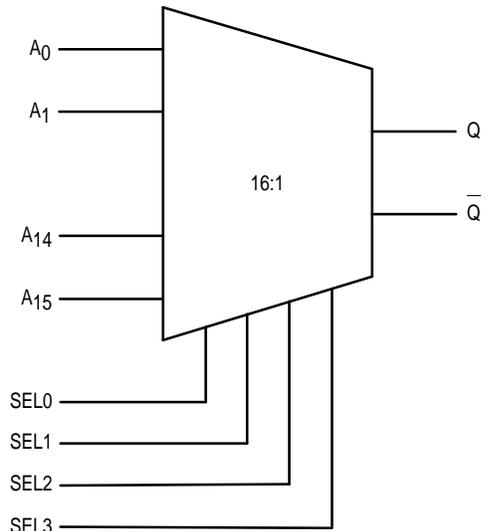


* All V_{CC} and V_{CCO} pins are tied together on the die.

PIN NAMES

Pin	Function
A ₀ – A ₁₅	Data Inputs
SEL _[0:3]	Select Inputs
Q, 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			μA	
I_{EE}	Power Supply Current										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	

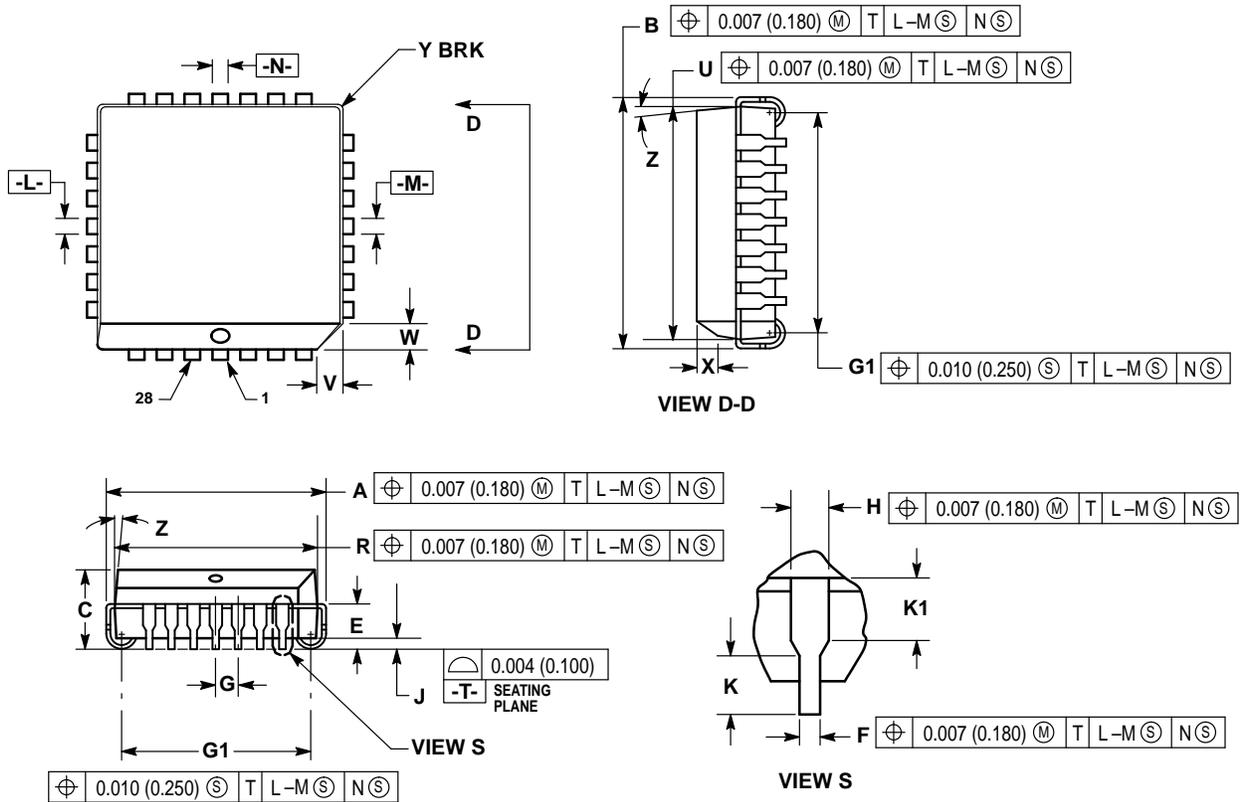
1. Within Device skew is defined as the difference in the A to Q delay between the 16 different A inputs.

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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