



# 16:1 MULTIPLEXER

**SY10E164**  
**SY100E164**

## FEATURES

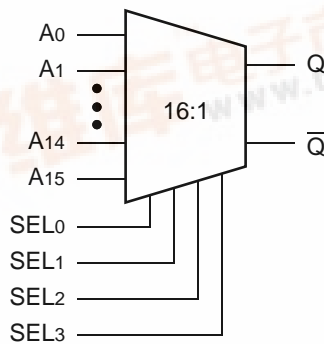
- 850ps Data Input to Output
- Extended 100E VEE range of -4.2V to -5.5V
- Differential output
- Fully compatible with industry standard 10KH, 100K ECL levels
- Internal 75KΩ input pull-down resistors
- Fully compatible with Motorola MC10E/100E164
- Available in 28-pin PLCC package

## DESCRIPTION

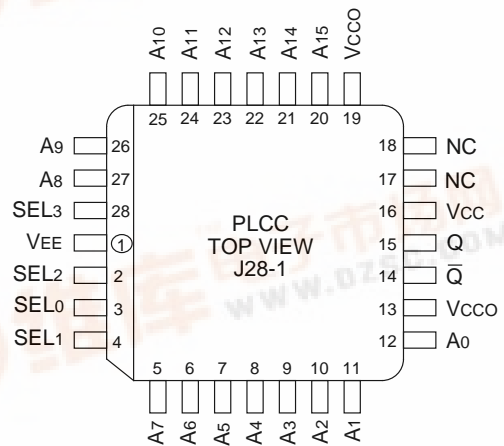
The SY10/100E164 are 16:1 multiplexers with a differential output. The select inputs (SEL<sub>0,1,2,3</sub>) control which one of the sixteen data inputs (A<sub>0</sub>-A<sub>15</sub>) is propagated to the output.

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

## BLOCK DIAGRAM



## PIN CONFIGURATION



## PIN NAMES

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



**TRUTH 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

SEL3	SEL2	SEL1	SEL0	Data
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

**DC ELECTRICAL CHARACTERISTICS**

VEE = VEE (Min.) to VEE (Max.); VCC = VCCO = GND

Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit	Condition	
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.			
I <sub>IH</sub>	Input HIGH Current	—	—	150	—	—	150	—	—	150	μA	—	
I <sub>EE</sub>	Power Supply Current	10E	—	59	71	—	59	71	—	59	71	mA	—
		100E	—	59	71	—	59	71	—	68	81		

**AC ELECTRICAL CHARACTERISTICS**

VEE = VEE (Min.) to VEE (Max.); VCC = VCCO = GND

Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay to Output A Input SEL0 SEL1 SEL2 SEL3	350 500 400 400 400	600 700 675 675 550	850 900 900 900 700	350 500 400 400 400	600 700 675 675 550	850 900 900 900 700	350 500 400 400 400	600 700 675 675 550	850 900 900 900 700	ps	—
t <sub>skew</sub>	Within-Device Skew	—	50	—	—	50	—	—	50	—	ps	1
t <sub>r</sub> t <sub>f</sub>	Rise/Fall Times 20–80%	275	400	550	275	400	550	275	400	550	ps	—

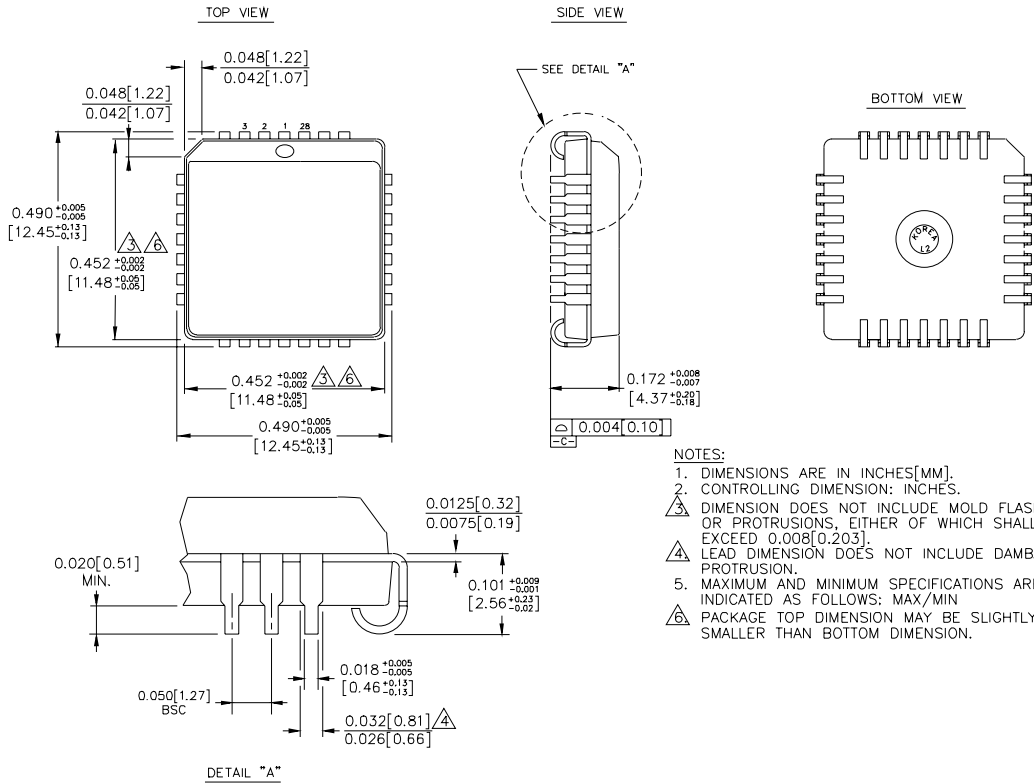
**NOTE:**

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

**PRODUCT ORDERING CODE**

Ordering Code	Package Type	Operating Range
SY10E164JC	J28-1	Commercial
SY10E164JCTR	J28-1	Commercial
SY100E164JC	J28-1	Commercial
SY100E164JCTR	J28-1	Commercial

**28 LEAD PLCC (J28-1)**



- NOTES:**
1. DIMENSIONS ARE IN INCHES[MM].
  2. CONTROLLING DIMENSION: INCHES.
  3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.008[0.203].
  4. LEAD DIMENSION DOES NOT INCLUDE DAMBAR PROTRUSION.
  5. MAXIMUM AND MINIMUM SPECIFICATIONS ARE INDICATED AS FOLLOWS: MAX/MIN
  6. PACKAGE TOP DIMENSION MAY BE SLIGHTLY SMALLER THAN BOTTOM DIMENSION.

