



## 2-BIT 8:1 MULTIPLEXER

**SY10E163**  
**SY100E163**

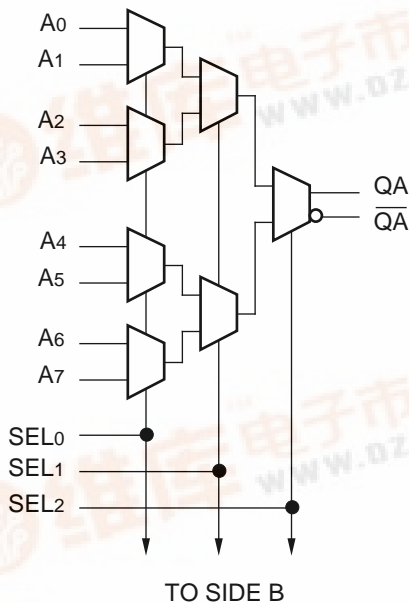
### FEATURES

- 850ps max. propagation delay
- Extended 100E VEE range of -4.2V to -5.5V
- Differential outputs
- Internal 75KΩ input pulldown resistors
- Fully compatible with industry standard 10KH, 100K ECL levels
- Fully compatible with Motorola MC10E/100E163
- Available in 28-pin PLCC package

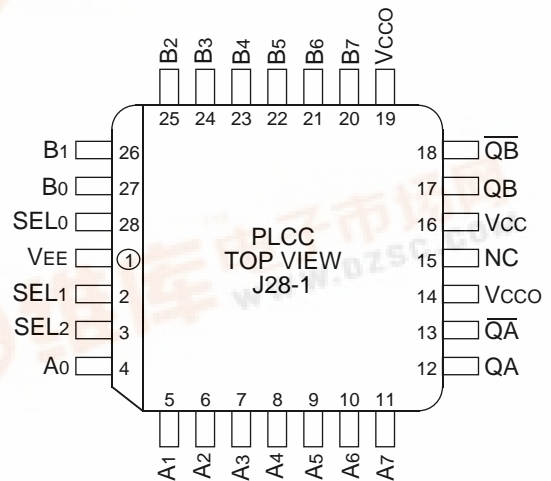
### DESCRIPTION

The SY10/100E163 offer two 8:1 multiplexers designed for use in new, high-performance ECL systems. The E163 has differential outputs and common select inputs. The select inputs (SEL0, SEL1, SEL2) determine which one of the eight data inputs (A0-A7, B0-B7) is propagated to the output.

### BLOCK DIAGRAM



### PIN CONFIGURATION



### PIN NAMES

Pin	Function
A0-A7	A Data Inputs (D)
B0-B7	B Data Inputs (D)
SEL0, 1, 2	Select Inputs
QA, QB	True Outputs
$\overline{QA}$ , $\overline{QB}$	Inverting Outputs
Vcc0	Vcc to Output

**TRUTH TABLE**

SEL <sub>2</sub>	SEL <sub>1</sub>	SEL <sub>0</sub>	A/B Data
L	L	L	0
L	L	H	1
L	H	L	2
L	H	H	3
H	L	L	4
H	L	H	5
H	H	L	6
H	H	H	7

**DC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = V<sub>CC0</sub> = GND

Symbol	Parameter	T <sub>A</sub> = 0°C			T <sub>A</sub> = +25°C			T <sub>A</sub> = +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	—	73	88	—	73	88	—	73	88	mA	—
		10E	73	88	—	73	88	—	73	88		
		100E	73	88	—	73	88	—	83	100		

**AC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = V<sub>EE</sub> (Min.) to V<sub>EE</sub> (Max.); V<sub>CC</sub> = V<sub>CC0</sub> = GND

Symbol	Parameter	T <sub>A</sub> = 0°C			T <sub>A</sub> = +25°C			T <sub>A</sub> = +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 D	400	550	800	400	550	800	400	550	800	ps	—
	SEL <sub>0</sub>	525	725	950	525	725	950	525	725	950		
	SEL <sub>1</sub>	425	625	850	425	625	850	425	625	850		
	SEL <sub>2</sub>	350	525	725	350	525	725	350	525	725		
t <sub>skew</sub>	Within-Device Skew	—	40	—	—	40	—	—	40	—	ps	1
	A <sub>n</sub> , B <sub>n</sub> to Q	—	30	—	—	30	—	—	30	—		
	A <sub>n</sub> , A <sub>m</sub> to QA B <sub>n</sub> , B <sub>m</sub> to QB	—	30	—	—	30	—	—	30	—		
t <sub>r</sub> t <sub>f</sub>	Rise/Fall Time 20% to 80%	275	375	575	275	375	575	275	375	575	ps	—

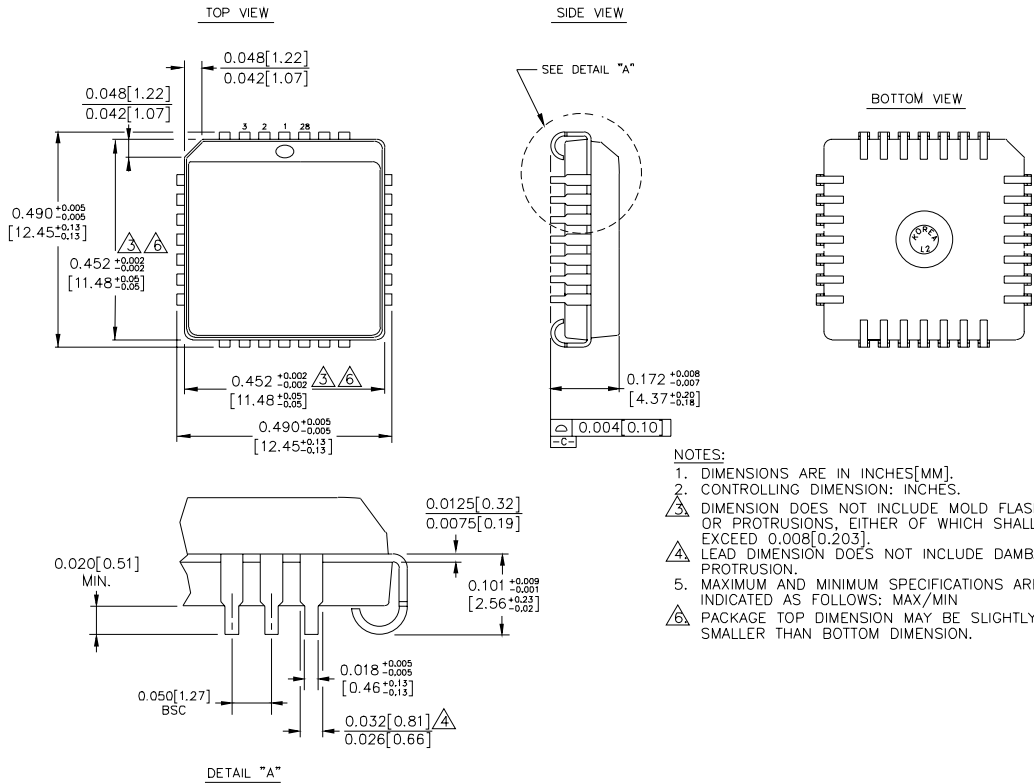
**NOTE:**

1. Within-device skew is defined as identical transition on similar paths through a device; n = 0-7, m ≠ n, m = 0-7.

**PRODUCT ORDERING CODE**

Ordering Code	Package Type	Operating Range
SY10E163JC	J28-1	Commercial
SY10E163JCTR	J28-1	Commercial
SY100E163JC	J28-1	Commercial
SY100E163JCTR	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.

---

**MICREL-SYNERGY 3250 SCOTT BOULEVARD SANTA CLARA CA 95054 USA**

TEL + 1 (408) 980-9191 FAX + 1 (408) 914-7878 WEB <http://www.micrel.com>

This information is believed to be accurate and reliable, however no responsibility is assumed by Micrel for its use nor for any infringement of patents or other rights of third parties resulting from its use. No license is granted by implication or otherwise under any patent or patent right of Micrel Inc.

© 2000 Micrel Incorporated