

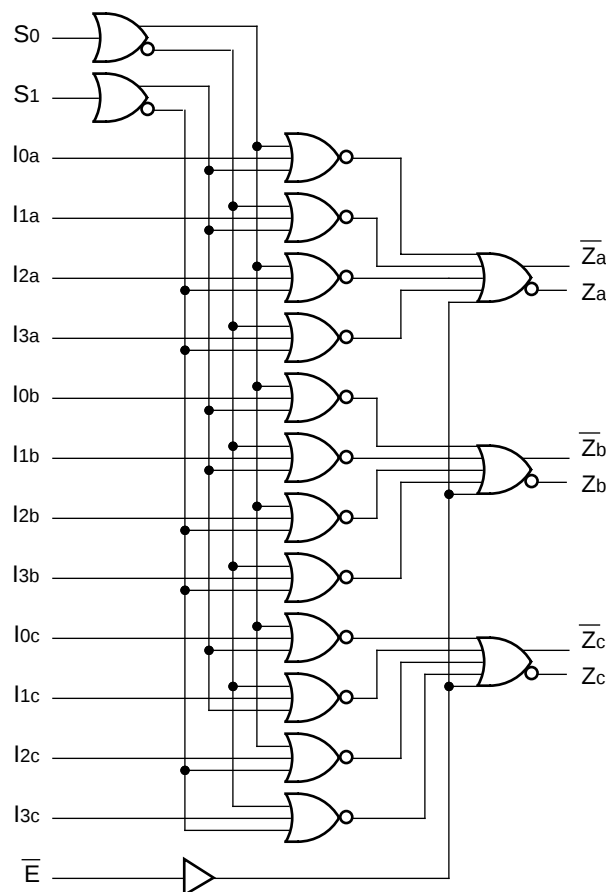
### FEATURES

- Max. propagation delay of 1000ps
- IEE min. of -68mA
- Industry standard 100K ECL levels
- Extended supply voltage option:  
VEE = -4.2V to -5.5V
- Voltage and temperature compensation for improved noise immunity
- Internal 75kΩ input pull-down resistors
- 40% faster than Fairchild
- 40% lower power than Fairchild
- Function and pinout compatible with Fairchild F100K
- Available in 28-pin PLCC packages

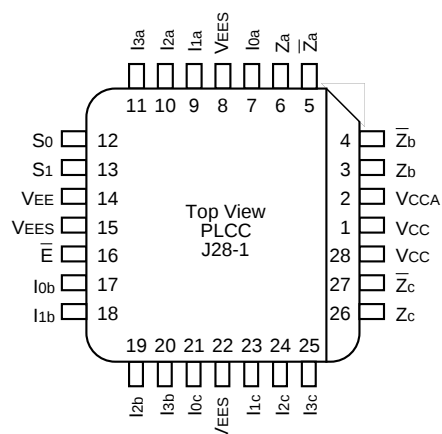
### DESCRIPTION

The SY100S371 is an ultra-fast triple 4-input multiplexer with true and complementary outputs designed for use in high-performance ECL systems. The multiplexer is controlled by common select inputs S0 and S1. A logic HIGH on the Enable ( $\bar{E}$ ) control input takes the outputs to a logic LOW. The inputs on the device have 75kΩ pull-down resistors.

### BLOCK DIAGRAM



## PACKAGE/ORDERING INFORMATION



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

## Ordering Information

| Part Number                     | Package Type | Operating Range | Package Marking                             | Lead Finish |
|---------------------------------|--------------|-----------------|---------------------------------------------|-------------|
| SY100S371JC                     | J28-1        | Commercial      | SY100S371JC                                 | Sn-Pb       |
| SY100S371JCTR <sup>(1)</sup>    | J28-1        | Commercial      | SY100S371JC                                 | Sn-Pb       |
| SY100S371JZ <sup>(2)</sup>      | J28-1        | Commercial      | SY100S371JZ with Pb-Free bar-line indicator | Matte-Sn    |
| SY100S371JZTR <sup>(1, 2)</sup> | J28-1        | Commercial      | SY100S371JZ with Pb-Free bar-line indicator | Matte-Sn    |

### Notes:

1. Tape and Reel.
2. Pb-Free package is recommended for new designs.

## PIN NAMES

| Pin                             | Function                    |
|---------------------------------|-----------------------------|
| I0x – I3x                       | Data Inputs (x = a, b or c) |
| S0, S1                          | Select Inputs               |
| $\overline{E}$                  | Enable Input (Active LOW)   |
| Za – Zc                         | Data Outputs                |
| $\overline{Za} - \overline{Zc}$ | Complementary Data Outputs  |
| VEES                            | VEE Substrate               |
| VCCA                            | Vcco for ECL Outputs        |

## TRUTH TABLE<sup>(1)</sup>

| Inputs         |    |    | Outputs |
|----------------|----|----|---------|
| $\overline{E}$ | S0 | S1 | Zn      |
| L              | L  | L  | I0X     |
| L              | H  | L  | I1X     |
| L              | L  | H  | I2X     |
| L              | H  | H  | I3X     |
| H              | X  | X  | L       |

### Note:

1. H = HIGH Voltage Level  
L = LOW Voltage Level  
X = Don't Care

## DC ELECTRICAL CHARACTERISTICS

$V_{EE} = -4.2V$  to  $-5.5V$  unless otherwise specified;  $V_{CC} = V_{CCA} = GND$

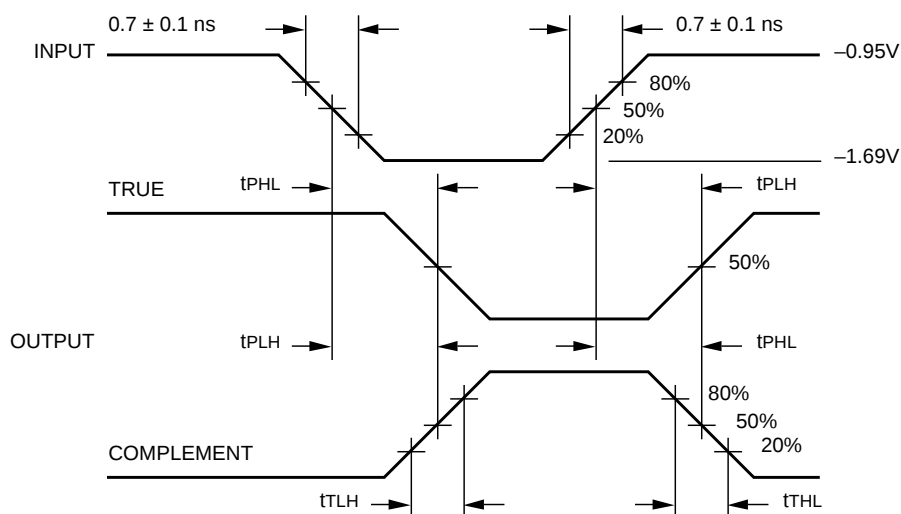
| Symbol   | Parameter                                                      | Min. | Typ. | Max.       | Unit    | Condition                |
|----------|----------------------------------------------------------------|------|------|------------|---------|--------------------------|
| $I_{IH}$ | Input HIGH Current<br>$I_{OX} - I_{3X}$<br>$S_0, S_1, \bar{E}$ | —    | —    | 250<br>300 | $\mu A$ | $V_{IN} = V_{IH} (Max.)$ |
| $I_{EE}$ | Power Supply Current                                           | -68  | -48  | -34        | mA      | Inputs Open              |

## AC ELECTRICAL CHARACTERISTICS

$V_{EE} = -4.2V$  to  $-5.5V$  unless otherwise specified;  $V_{CC} = V_{CCA} = GND$

| Symbol                 | Parameter                                        | $T_A = 0^\circ C$ |      | $T_A = +25^\circ C$ |      | $T_A = +85^\circ C$ |      | Unit | Condition |
|------------------------|--------------------------------------------------|-------------------|------|---------------------|------|---------------------|------|------|-----------|
|                        |                                                  | Min.              | Max. | Min.                | Max. | Min.                | Max. |      |           |
| $t_{PLH}$<br>$t_{PHL}$ | Propagation Delay<br>$I_{OX} - I_{3X}$ to Output | 300               | 1000 | 300                 | 1000 | 300                 | 1000 | ps   |           |
| $t_{PLH}$<br>$t_{PHL}$ | Propagation Delay<br>$S_0, S_1$ to Output        | 400               | 1400 | 400                 | 1400 | 400                 | 1400 | ps   |           |
| $t_{PLH}$<br>$t_{PHL}$ | Propagation Delay<br>$S_0, S_1$ to Output        | 400               | 1300 | 400                 | 1300 | 400                 | 1300 | ps   |           |
| $t_{TLH}$<br>$t_{THL}$ | Transition Time<br>20% to 80%, 80% to 20%        | 300               | 900  | 300                 | 900  | 300                 | 900  | ps   |           |

## TIMING DIAGRAM

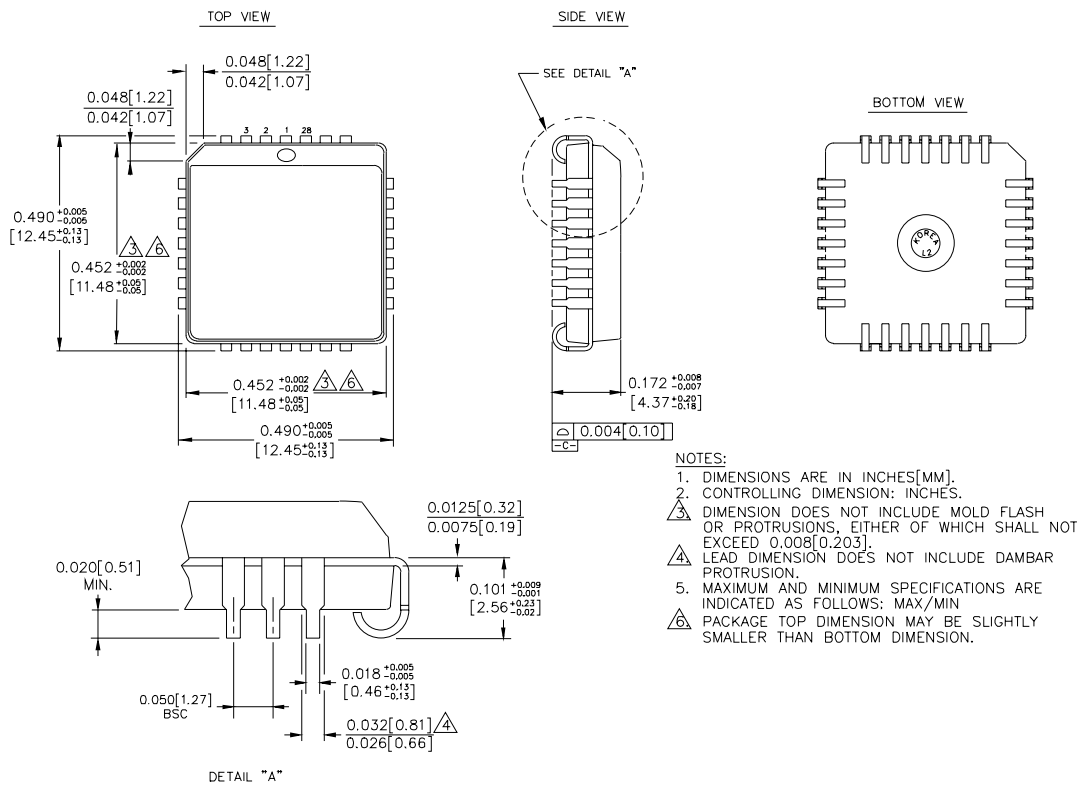


Propagation Delay and Transition Times

### Note:

$V_{EE} = -4.2V$  to  $-5.5V$  unless otherwise specified;  $V_{CC} = V_{CCA} = GND$

## 28-PIN PLCC (J28-1)



Rev. 03

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