



TRIPLE 4-INPUT  
MULTIPLEXER  
WITH ENABLE

SY100S371

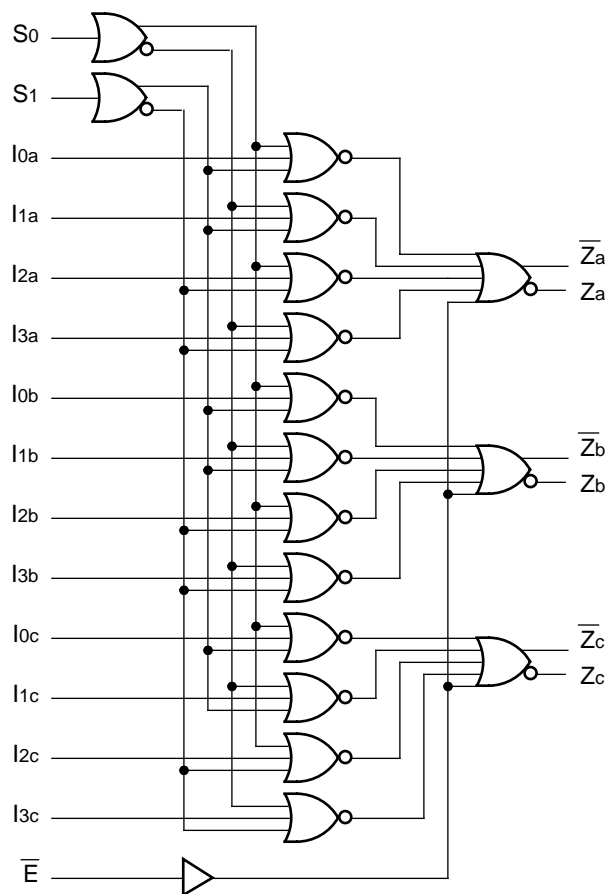
FEATURES

- 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

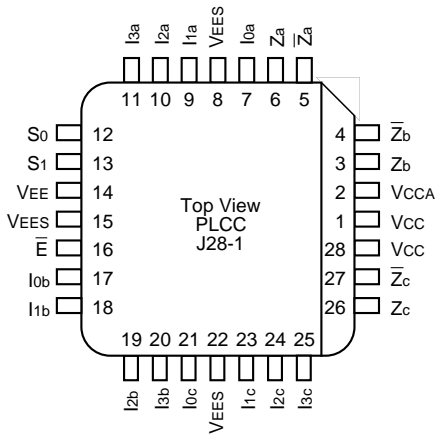
The SY100S371 is an ultra-fast triple 4-input multiplexer with true and complementary outputs designed for use in high-performance ECL systems. The multiplexer is controlled by common select inputs S0 and S1. A logic HIGH on the Enable ( $\bar{E}$ ) control input takes the outputs to a logic LOW. The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

BLOCK DIAGRAM



**PACKAGE/ORDERING INFORMATION**

**Ordering Information**



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

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
$\bar{E}$	Enable Input (Active LOW)
Za – Zc	Data Outputs
$\bar{Z}a - \bar{Z}c$	Complementary Data Outputs
VEES	VEE Substrate
VCCA	Vcco for ECL Outputs

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

Inputs			Outputs
$\bar{E}$	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;  $V_{CC} = V_{CCA} = GND$

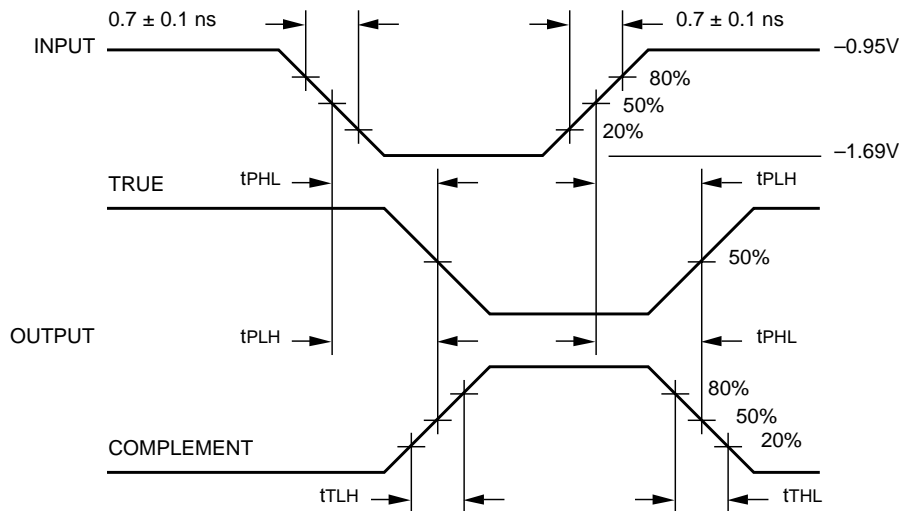
Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
$I_{IH}$	Input HIGH Current $I_{OX} - I_{3X}$ $S_0, S_1, \bar{E}$	—	—	250 300	$\mu A$	$V_{IN} = V_{IH} (Max.)$
$I_{EE}$	Power Supply Current	-68	-48	-34	mA	Inputs Open

### 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.		
$t_{PLH}$ $t_{PHL}$	Propagation Delay $I_{OX} - I_{3X}$ to Output	300	1000	300	1000	300	1000	ps	
$t_{PLH}$ $t_{PHL}$	Propagation Delay $S_0, S_1$ to Output	400	1400	400	1400	400	1400	ps	
$t_{PLH}$ $t_{PHL}$	Propagation Delay $\bar{S}_0, \bar{S}_1$ to Output	400	1300	400	1300	400	1300	ps	
$t_{TLH}$ $t_{THL}$	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

### TIMING DIAGRAM

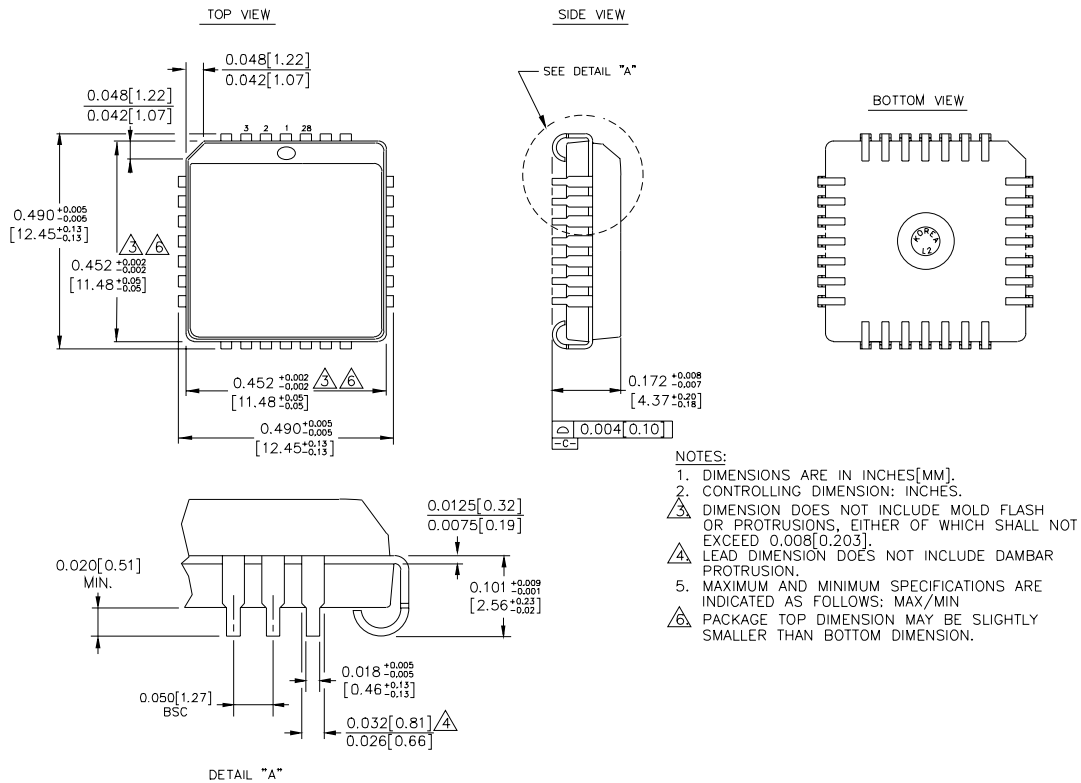


Propagation Delay and Transition Times

**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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