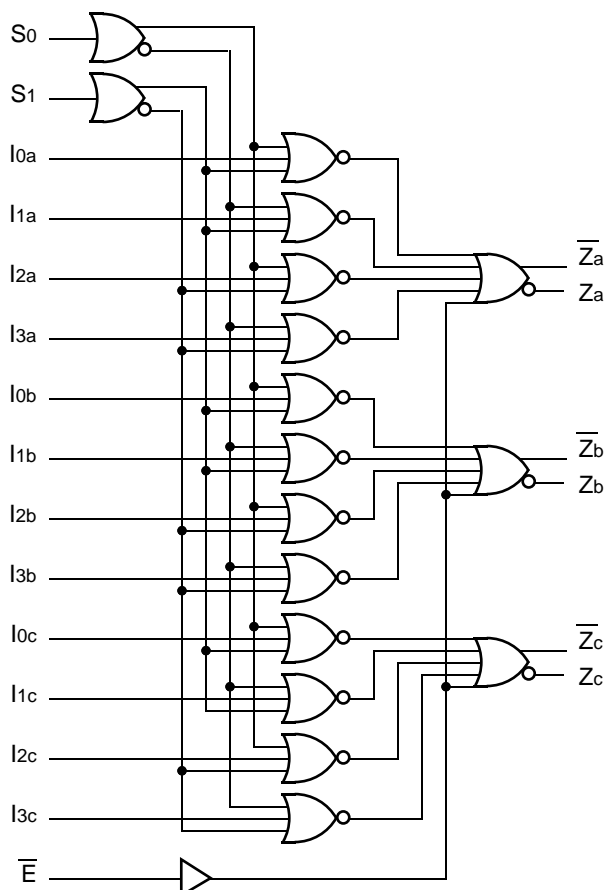


## FEATURES

- 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 24-pin CERPACK and 28-pin PLCC packages

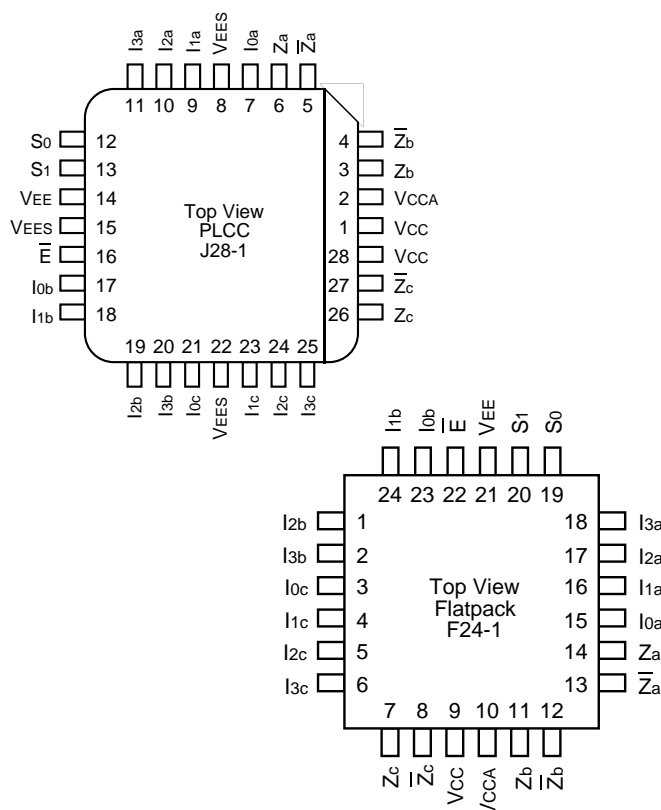
## BLOCK DIAGRAM



## 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.

## PIN CONFIGURATIONS



**PIN NAMES**

Pin	Function
I <sub>0X</sub> – I <sub>3X</sub>	Data Inputs (x = a, b or c)
S <sub>0</sub> , S <sub>1</sub>	Select Inputs
$\bar{E}$	Enable Input (Active LOW)
Z <sub>a</sub> – Z <sub>c</sub>	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
$\bar{E}$	S <sub>0</sub>	S <sub>1</sub>	Z <sub>n</sub>
L	L	L	I <sub>0X</sub>
L	H	L	I <sub>1X</sub>
L	L	H	I <sub>2X</sub>
L	H	H	I <sub>3X</sub>
H	X	X	L

**NOTE:**

1. H = HIGH Voltage Level

L = LOW Voltage Level

X = Don't Care

**DC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = –4.2V to –5.5V unless otherwise specified; V<sub>CC</sub> = V<sub>CCA</sub> = GND

Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
I <sub>IH</sub>	Input HIGH Current I <sub>0X</sub> – I <sub>3X</sub> S <sub>0</sub> , S <sub>1</sub> , $\bar{E}$	—	—	250 300	μA	V <sub>IN</sub> = V <sub>IH</sub> (Max.)
I <sub>EE</sub>	Power Supply Current	–68	–48	–34	mA	Inputs Open

## AC ELECTRICAL CHARACTERISTICS

### CERPACK

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

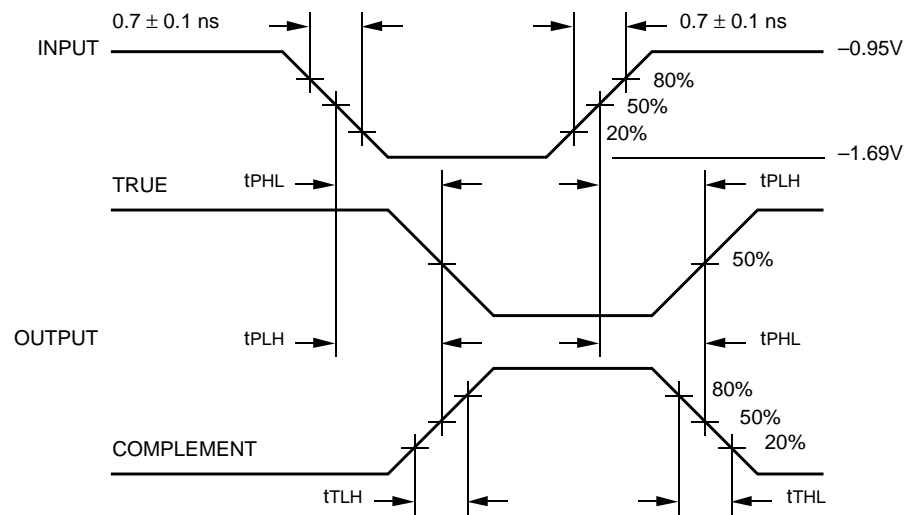
Symbol	Parameter	TA = 0°C		TA = +25°C		TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
tPLH tPHL	Propagation Delay I <sub>ox</sub> – I <sub>3x</sub> to Output	300	1100	300	1100	300	1100	ps	
tPLH tPHL	Propagation Delay S <sub>0</sub> , S <sub>1</sub> to Output	400	1500	400	1500	400	1500	ps	
tPLH tPHL	Propagation Delay S <sub>0</sub> , S <sub>1</sub> to Output	400	1400	400	1400	400	1400	ps	
tTLH tTHL	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

### PLCC

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

Symbol	Parameter	TA = 0°C		TA = +25°C		TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
tPLH tPHL	Propagation Delay I <sub>ox</sub> – I <sub>3x</sub> to Output	300	1000	300	1000	300	1000	ps	
tPLH tPHL	Propagation Delay S <sub>0</sub> , S <sub>1</sub> to Output	400	1400	400	1400	400	1400	ps	
tPLH tPHL	Propagation Delay S <sub>0</sub> , S <sub>1</sub> to Output	400	1300	400	1300	400	1300	ps	
tTLH tTHL	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

## TIMING DIAGRAM



Propagation Delay and Transition Times

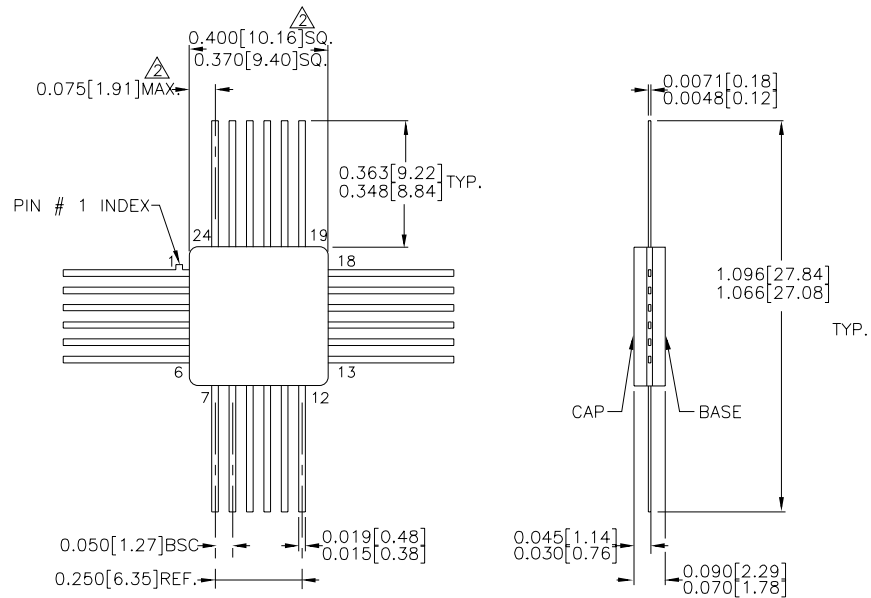
**NOTE:**

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

## PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY100S371FC	F24-1	Commercial
SY100S371JC	J28-1	Commercial
SY100S371JCTR	J28-1	Commercial

## 24 LEAD CERPACK (F24-1)

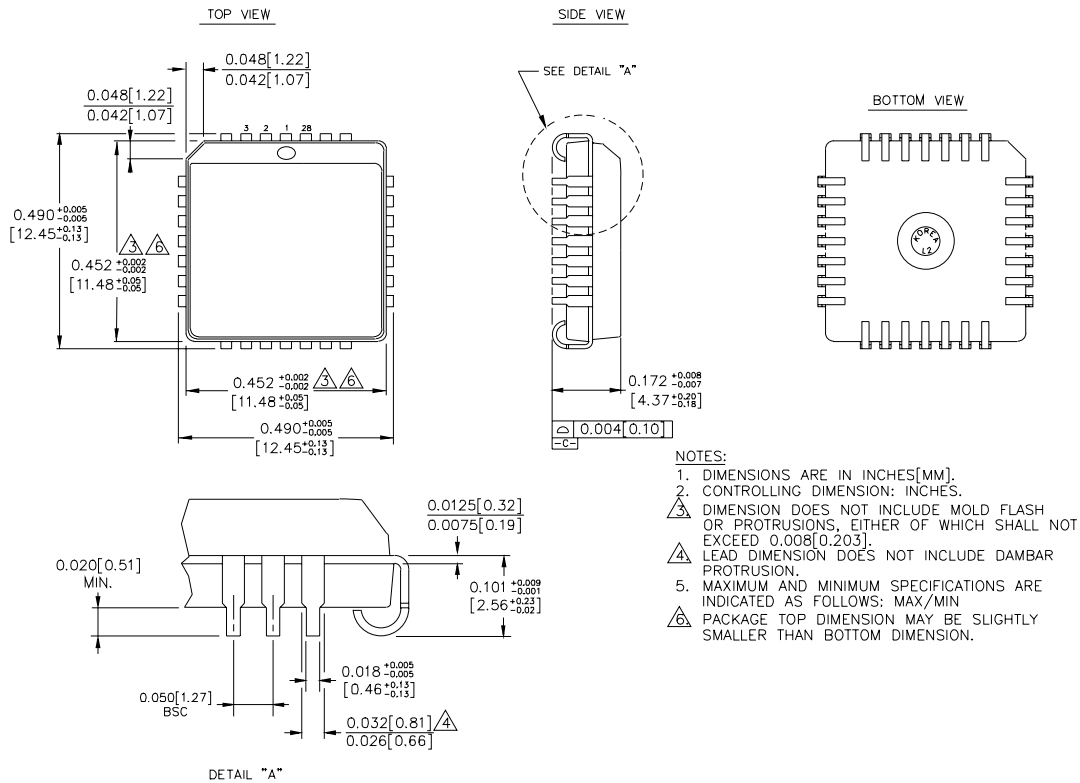


### NOTES:

1. DIMENSIONS ARE IN INCHES[MM].
2. THIS DIMENSION INCLUDES GLASS PROTRUSION AND CAP TO BASE ALIGNMENT TOLERANCES.
3. DIMENSIONS SHOWN ARE MAX/MIN, WHERE NOTED.

Rev. 03

## 28 LEAD PLCC (J28-1)



Rev. 03

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

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