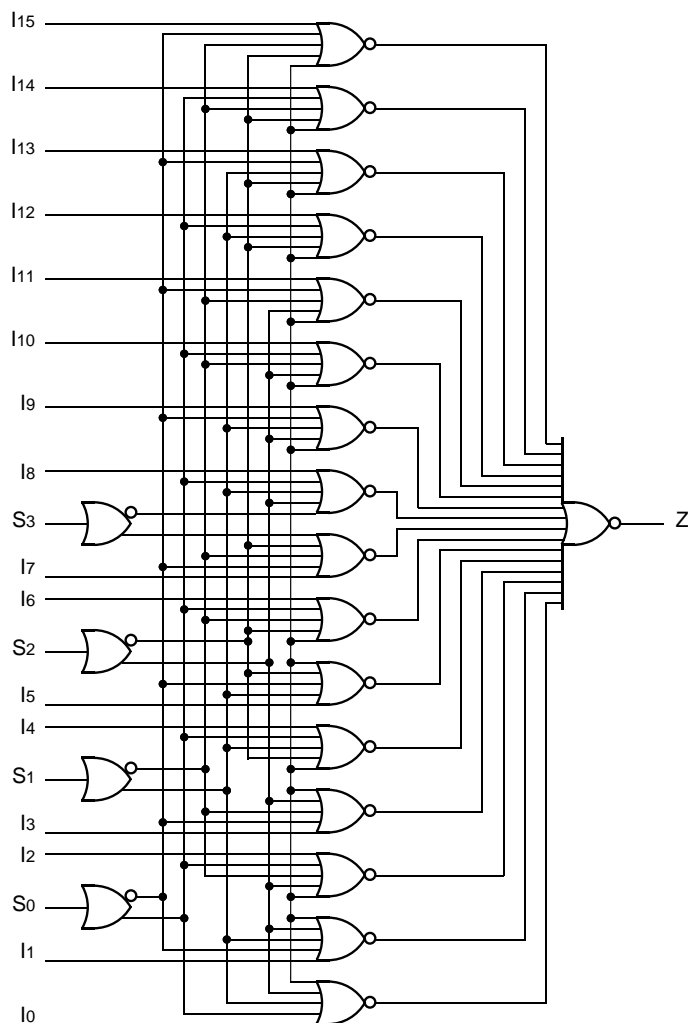


### FEATURES

- Max. propagation delay of 1300ps
- IEE min. of -63mA
- 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
- 70% 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

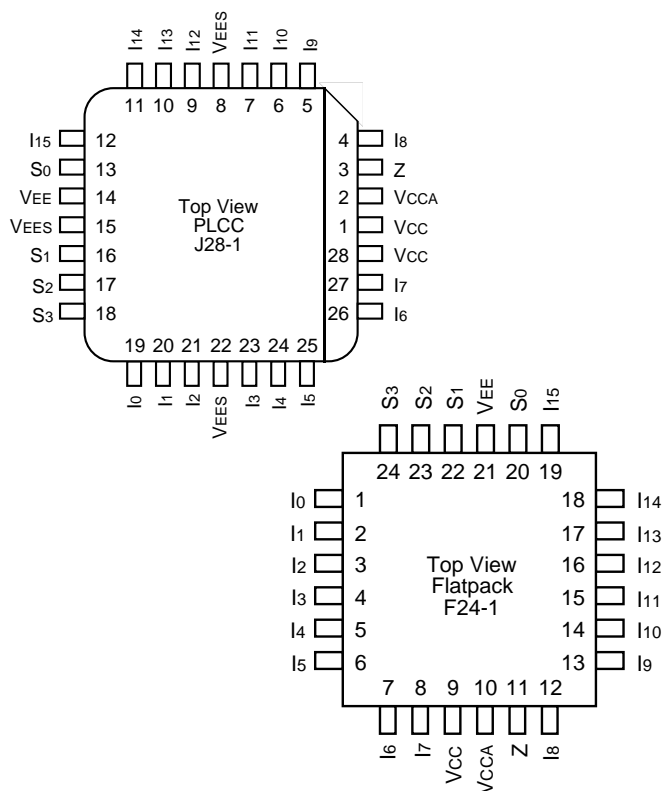
### BLOCK DIAGRAM



### DESCRIPTION

The SY100S364 is a 16-input multiplexer designed for use in high-performance ECL systems. The four Data Select inputs (S0, S1, S2, S3) determine the bit from the 16 inputs (I<sub>n</sub>) that will be passed on to the output as shown in the Truth Table. The output data polarity is the same as the input. The inputs on the device have 75KΩ pull-down resistors.

### PIN CONFIGURATIONS



**PIN NAMES**

Pin	Function
I <sub>0</sub> – I <sub>15</sub>	Data Inputs
S <sub>0</sub> – S <sub>3</sub>	Select Inputs
Z	Data Output
VEES	VEE Substrate
VCCA	VCCO for ECL Outputs

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

Select Inputs				Output
S <sub>0</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	Z
L	L	L	L	I <sub>0</sub>
H	L	L	L	I <sub>1</sub>
L	H	L	L	I <sub>2</sub>
H	H	L	L	I <sub>3</sub>
L	L	H	L	I <sub>4</sub>
H	L	H	L	I <sub>5</sub>
L	H	H	L	I <sub>6</sub>
H	H	H	L	I <sub>7</sub>
L	L	L	H	I <sub>8</sub>
H	L	L	H	I <sub>9</sub>
L	H	L	H	I <sub>10</sub>
H	H	L	H	I <sub>11</sub>
L	L	H	H	I <sub>12</sub>
H	L	H	H	I <sub>13</sub>
L	H	H	H	I <sub>14</sub>
H	H	H	H	I <sub>15</sub>

**NOTE:**

1. H = HIGH Voltage Level

L = LOW Voltage Level

**DC ELECTRICAL CHARACTERISTICS**

VEE = –4.2V to –5.5V unless otherwise specified; VCC = VCCA = GND

Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
I <sub>IH</sub>	Input HIGH Current I <sub>n</sub> S <sub>0</sub> , S <sub>1</sub> S <sub>2</sub> , S <sub>3</sub>	—	—	200 200 200	μA	V <sub>IN</sub> = V <sub>IH</sub> (Max.)
I <sub>EE</sub>	Power Supply Current	–63	–45	–30	mA	Inputs Open

**AC ELECTRICAL CHARACTERISTICS****CERPACK**

VEE = –4.2V to –5.5V unless otherwise specified; VCC = VCCA = GND

Symbol	Parameter	T <sub>A</sub> = 0°C		T <sub>A</sub> = +25°C		T <sub>A</sub> = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay I <sub>0</sub> – I <sub>15</sub> to Output	400	1400	400	1400	400	1400	ps	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay S <sub>0</sub> , S <sub>1</sub> to Output	400	1900	400	1900	400	1900	ps	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay S <sub>2</sub> , S <sub>3</sub> to Output	400	1700	400	1700	400	1700	ps	
t <sub>TLH</sub> t <sub>THL</sub>	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

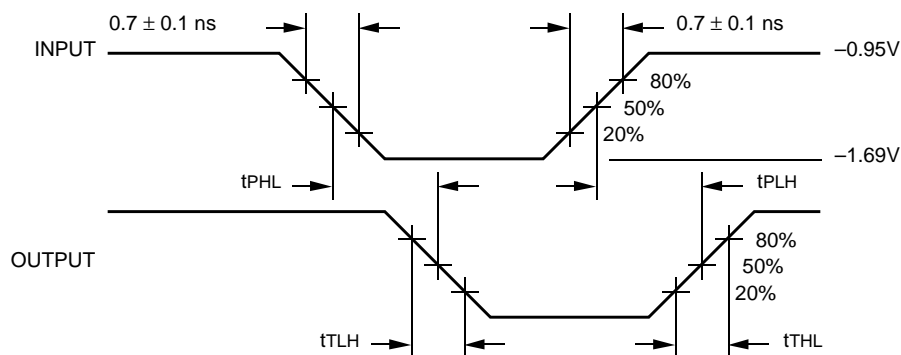
## AC ELECTRICAL CHARACTERISTICS

### PLCC

$V_{EE} = -4.2V$  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 $I_0 - I_{15}$ to Output	400	1300	400	1300	400	1300	ps	
$t_{PLH}$ $t_{PHL}$	Propagation Delay $S_0, S_1$ to Output	400	1800	400	1800	400	1800	ps	
$t_{PLH}$ $t_{PHL}$	Propagation Delay $S_2, S_3$ to Output	400	1600	400	1600	400	1600	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

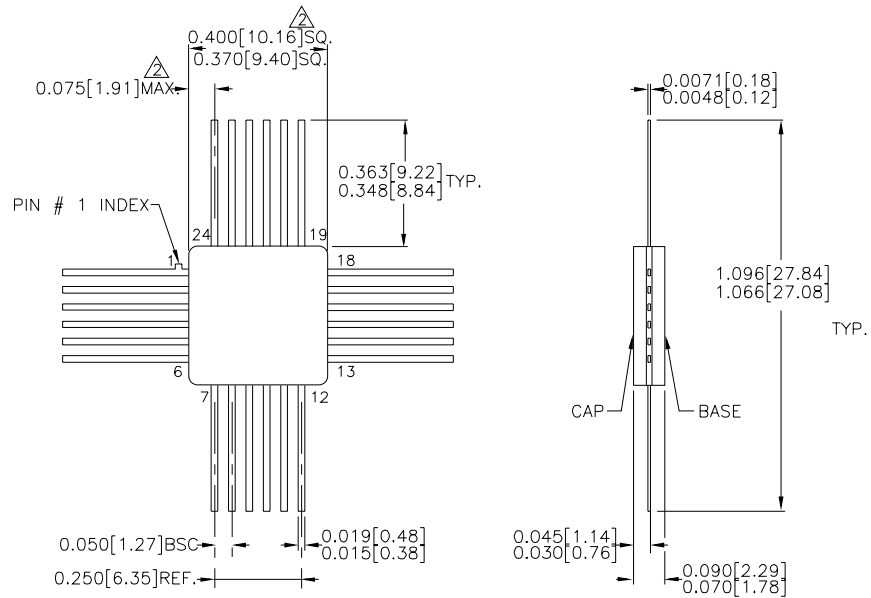
#### NOTE:

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

## PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY100S364FC	F24-1	Commercial
SY100S364JC	J28-1	Commercial
SY100S364JCTR	J28-1	Commercial

## 24 LEAD CERPACK (F24-1)

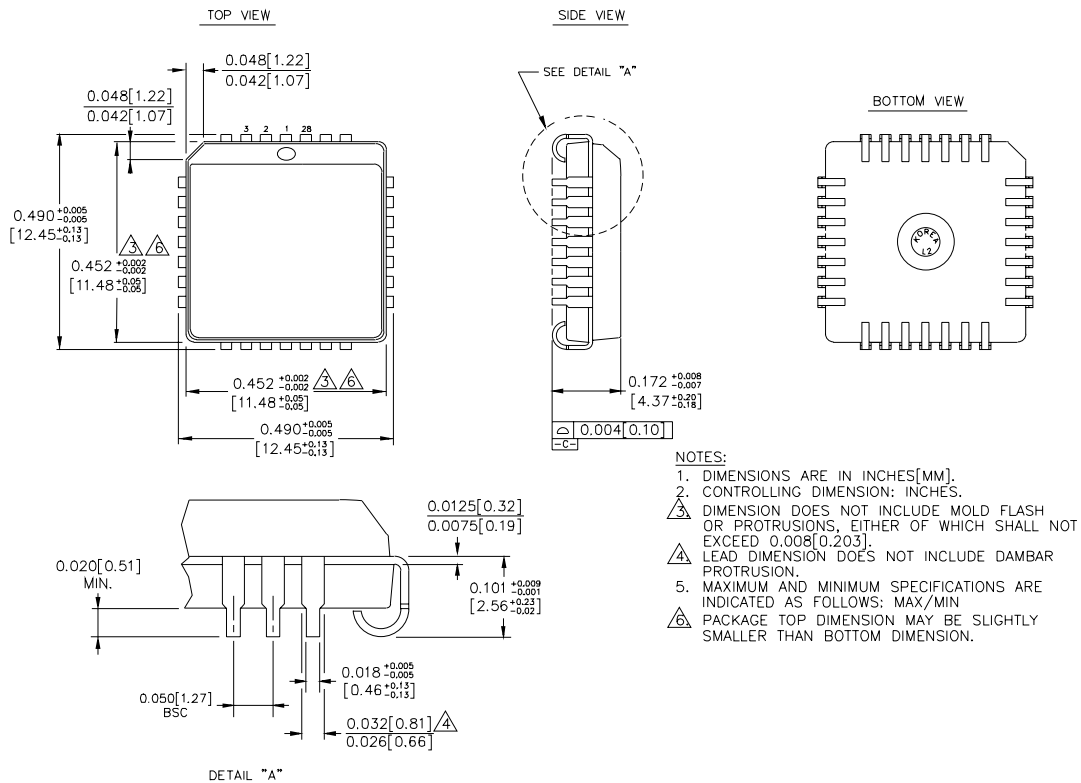


### NOTES:

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**

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