

## FEATURES

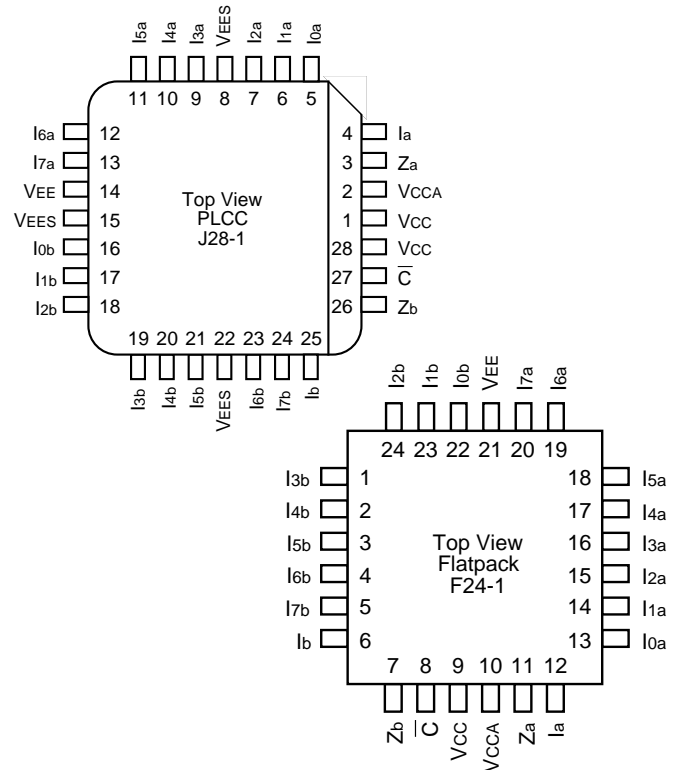
- Max. propagation delay of 2200ps
- IEE min. of -70mA
- Industry standard 100K ECL levels
- Extended supply voltage option:  
VEE = -4.2V to -5.5V
- Voltage and temperature compensation for improved noise immunity
- Internal 75KΩ input pull-down resistors
- 15% faster than Fairchild 300K
- Approximately 30% lower power than Fairchild 300K
- Function and pinout compatible with Fairchild F100K
- Available in 24-pin CERPACK and 28-pin PLCC packages

## DESCRIPTION

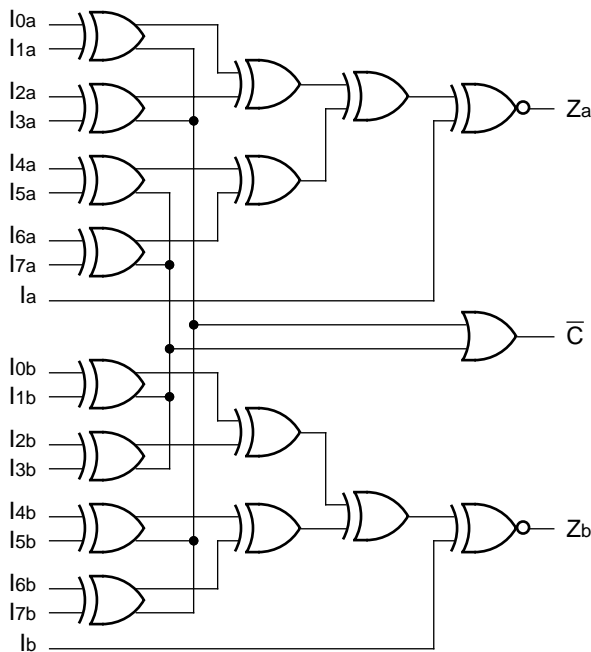
The SY100S360 is a dual parity checker/generator and is designed for use in high-performance ECL systems. The inputs are segmented into two groups of nine inputs each and the parity output is at a logic LOW when an even number of inputs are at a logic HIGH. In each group, one of the nine inputs (Ia, Ib) has a shorter propagation delay and, therefore, is ideal as the expansion input for parity generation of wider data.

A Compare output (C) is also provided which allows comparison of two 8-bit words. A logic LOW on the C output indicates a match. The inputs on this device have 75KΩ pull-down resistors.

## PIN CONFIGURATIONS



## BLOCK DIAGRAM



**PIN NAMES**

Pin	Function
Ia, Ib, I <sub>na</sub> , I <sub>nb</sub>	Data Inputs (n = 1...7)
Z <sub>a</sub> – Z <sub>b</sub>	Parity Odd Outputs
$\bar{C}$	Compare Output
VEES	VEE Substrate
VCCA	VCCO for ECL Outputs

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

Sum of High Inputs	Output Z
Even	HIGH
Odd	LOW

**NOTE:**

1. Comparator Function:

$$\bar{C} = (I_{0a} \oplus I_{1a}) + (I_{2a} \oplus I_{3a}) + (I_{4a} \oplus I_{5a}) + (I_{6a} \oplus I_{7a}) + (I_{0b} \oplus I_{1b}) + (I_{2b} \oplus I_{3b}) + (I_{4b} \oplus I_{5b}) + (I_{6b} \oplus I_{7b})$$

**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 Ia, Ib I <sub>na</sub> , I <sub>nb</sub>	—	—	300 200	μA	V <sub>IN</sub> = V <sub>IH</sub> (Max.)
I <sub>EE</sub>	Power Supply Current	-70	-45	-30	mA	Inputs Open

**AC ELECTRICAL CHARACTERISTICS**

**CERPACK**

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

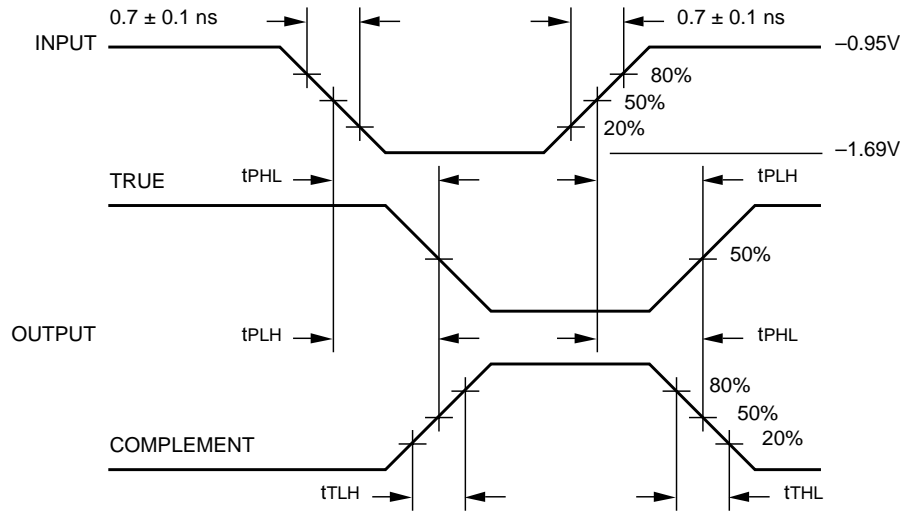
Symbol	Parameter	TA = 0°C		TA = +25°C		TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay I <sub>na</sub> , I <sub>nb</sub> to Z <sub>a</sub> , Z <sub>b</sub>	500	2300	500	2300	500	2300	ps	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay I <sub>na</sub> , I <sub>nb</sub> to $\bar{C}$	500	1800	500	1800	500	1800	ps	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay Ia, Ib to Z <sub>a</sub> , Z <sub>b</sub>	300	1000	300	1000	300	1000	ps	
t <sub>TLH</sub> t <sub>THL</sub>	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

**PLCC**

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

Symbol	Parameter	TA = 0°C		TA = +25°C		TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay I <sub>na</sub> , I <sub>nb</sub> to Z <sub>a</sub> , Z <sub>b</sub>	500	2200	500	2200	500	2200	ps	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay I <sub>na</sub> , I <sub>nb</sub> to $\bar{C}$	500	1700	500	1700	500	1700	ps	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay Ia, Ib to Z <sub>a</sub> , Z <sub>b</sub>	300	900	300	900	300	900	ps	
t <sub>TLH</sub> t <sub>THL</sub>	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

**TIMING DIAGRAM**



**Propagation Delay and Transition Times**

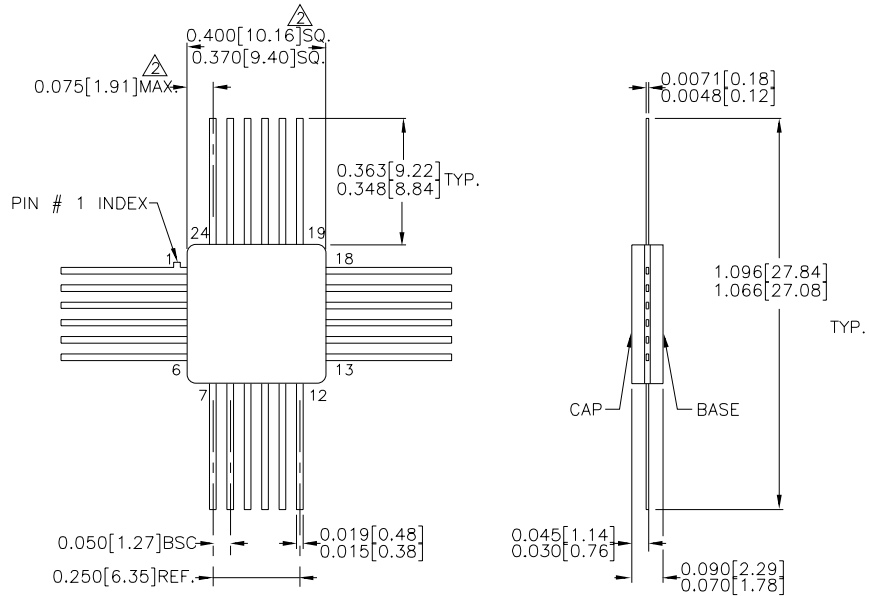
**NOTE:**

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

**PRODUCT ORDERING CODE**

Ordering Code	Package Type	Operating Range
SY100S360FC	F24-1	Commercial
SY100S360JC	J28-1	Commercial
SY100S360JCTR	J28-1	Commercial

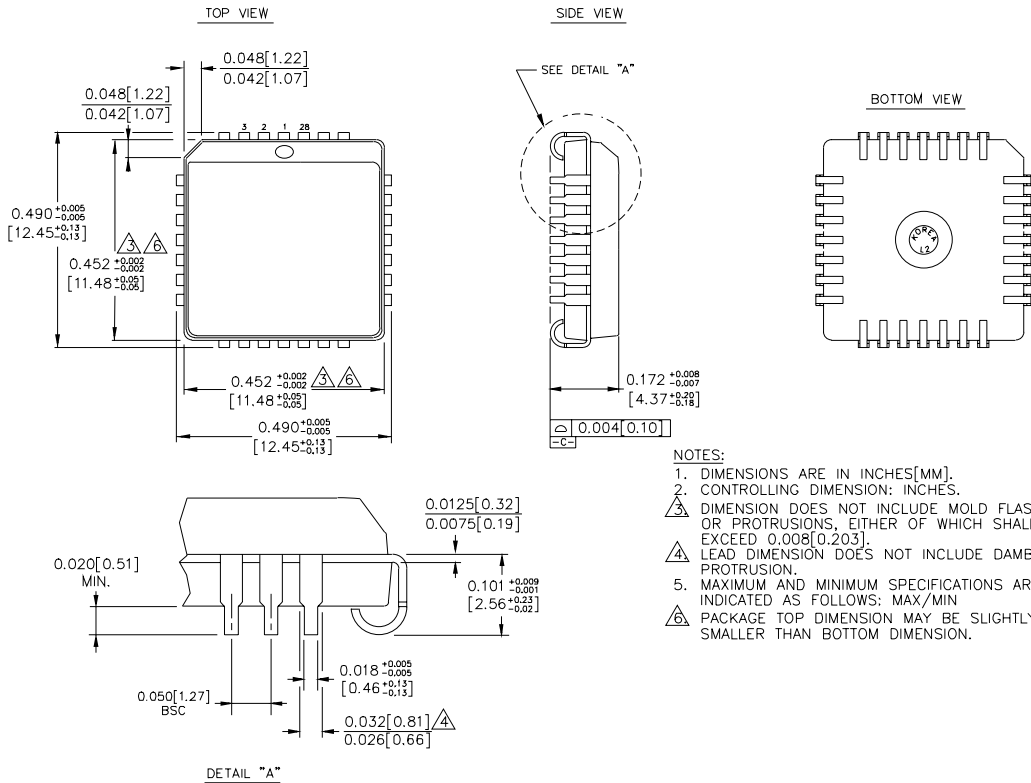
**24 LEAD CERPACK (F24-1)**



- 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.

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**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.

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