FEATURES

- ■ **Max. propagation delay of 2200ps**
- ■ **I_{EE} min. of −70mA**
- ■ **Industry standard 100K ECL levels**
- ■ **Extended supply voltage option:**
  V_{EE} = −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 28-pin PLCC package**

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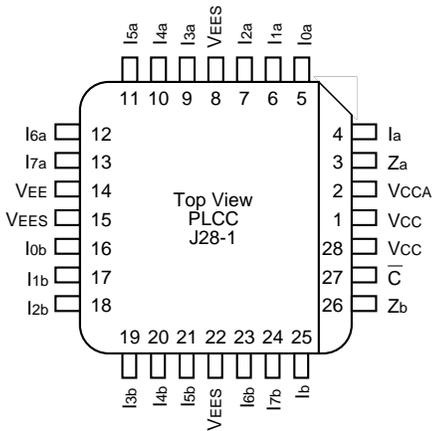
A Compare output ($\overline{C}$) is also provided which allows comparison of two 8-bit words. A logic LOW on the $\overline{C}$ output indicates a match. The inputs on this device have 75kΩ pull-down resistors.

BLOCK DIAGRAM
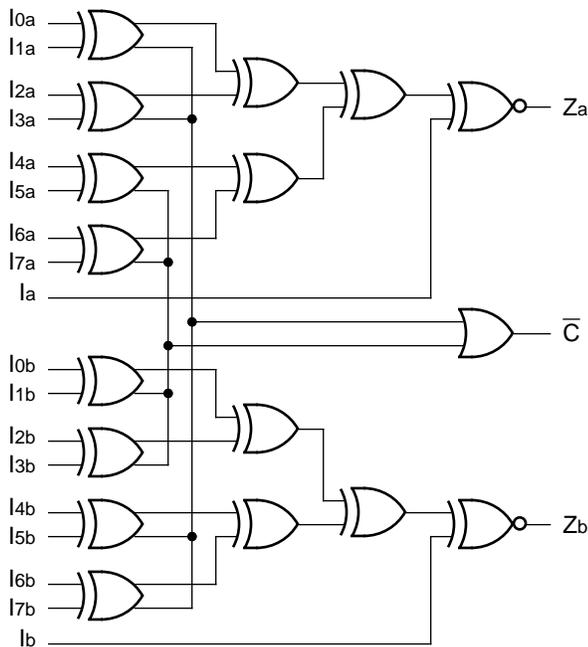
PACKAGE/ORDERING INFORMATION

28-Pin PLCC (J28-1)

Ordering Information

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100S360JC	J28-1	Commercial	SY100S360JC	Sn-Pb
SY100S360JCTR[1]	J28-1	Commercial	SY100S360JC	Sn-Pb
SY100S360JZ[2]	J28-1	Commercial	SY100S360JZ with Pb-Free bar-line indicator	Matte-Sn
SY100S360JZTR[1, 2]	J28-1	Commercial	SY100S360JZ 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
I_a, I_b, I_{na}, I_{nb}	Data Inputs (n = 1...7)
Z_a – Z_b	Parity Odd Outputs
$\overline{C}$	Compare Output
V_{EES}	V_{EE} Substrate
V_{CCA}	V_{CCO} for ECL Outputs

TRUTH TABLE[1]

Sum of High Inputs	Output Z
Even	HIGH
Odd	LOW

Note:

1. Comparator Function:

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

DC ELECTRICAL CHARACTERISTICS

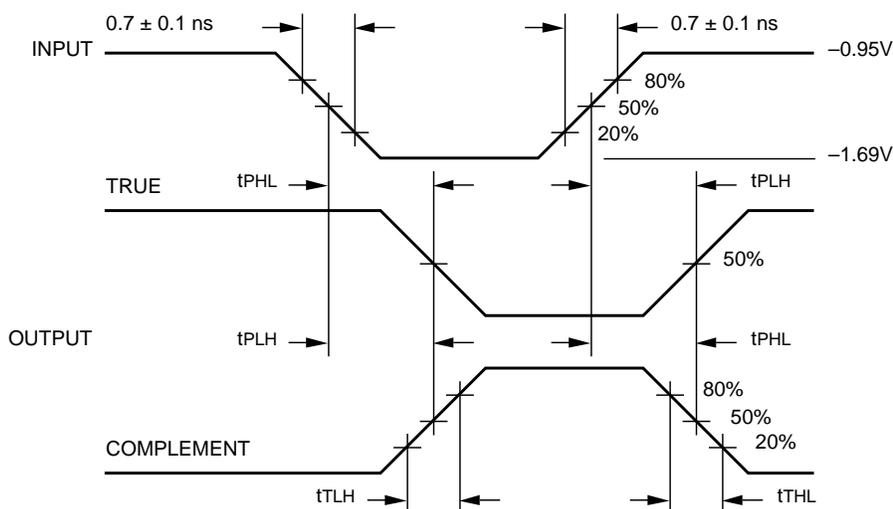V_{EE} = −4.2V to −5.5V unless otherwise specified; $V_{CC} = V_{CCA}$ = GND

Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
I_{IH}	Input HIGH Current I_a, I_b I_{na}, I_{nb}	— —	— —	300 200	µA	$V_{IN} = V_{IH}$ (Max.)
I_{EE}	Power Supply Current	−70	−45	−30	mA	Inputs Open

AC ELECTRICAL CHARACTERISTICS

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

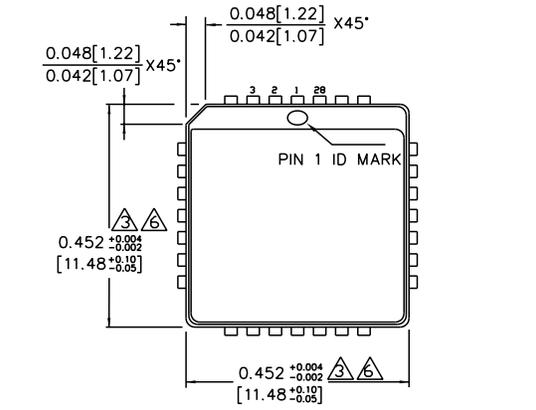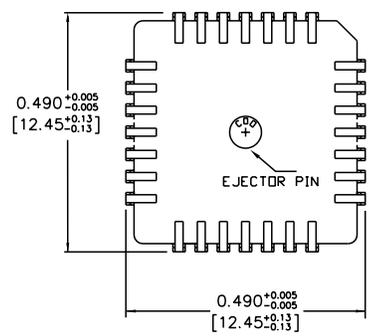| Symbol	Parameter	T_A = 0°C		T_A = +25°C		T_A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t_{PLH} t_{PHL}	Propagation Delay I_{na}, I_{nb} to Z_a, Z_b	500	2200	500	2200	500	2200	ps	
t_{PLH} t_{PHL}	Propagation Delay I_{na}, I_{nb} to $\overline{C}$	500	1700	500	1700	500	1700	ps	
t_{PLH} t_{PHL}	Propagation Delay I_a, I_b to Z_a, Z_b	300	900	300	900	300	900	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
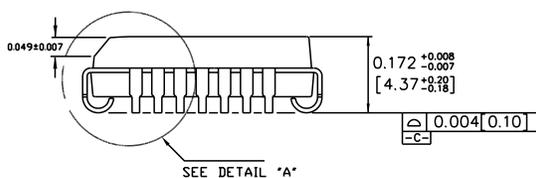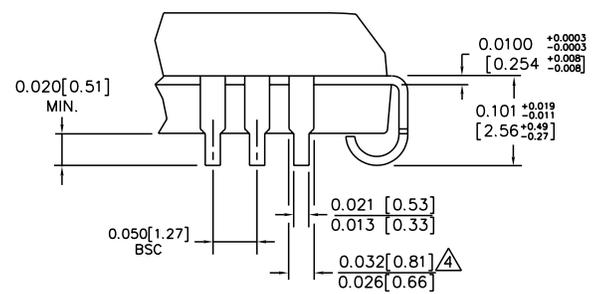
28-PIN PLCC (J28-1)

$\frac{0.048[1.22]}{0.042[1.07]}$ X45°

$\frac{0.048[1.22]}{0.042[1.07]}$ X45°

3 2 1 28

PIN 1 ID MARK

0.452 $^{+0.004}_{-0.002}$ [11.48$^{+0.10}_{-0.05}$] △3 △6

0.452 $^{+0.004}_{-0.002}$ △3 △6
[11.48$^{+0.10}_{-0.05}$]

TOP VIEW

0.490$^{+0.005}_{-0.005}$
[12.45$^{+0.13}_{-0.13}$]

EJECTOR PIN

0.490$^{+0.005}_{-0.005}$
[12.45$^{+0.13}_{-0.13}$]

BOTTOM VIEW

0.049±0.007

0.172 $^{+0.008}_{-0.007}$
[4.37$^{+0.20}_{-0.18}$]

[⌀ 0.004[0.10]]
-C-

SEE DETAIL "A"

SIDE VIEW

0.020[0.51]
MIN.

0.0100 $^{+0.0003}_{-0.0003}$
[0.254 $^{+0.008}_{-0.008}$]

0.101 $^{+0.019}_{-0.011}$
[2.56$^{+0.49}_{-0.27}$]

0.050[1.27]
BSC

0.021 [0.53]
0.013 [0.33]

0.032[0.81] △4
0.026[0.66]

DETAIL "A"

Rev. A

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.

The information furnished by Micrel in this datasheet is believed to be accurate and reliable. However, no responsibility is assumed by Micrel for its use. Micrel reserves the right to change circuitry and specifications at any time without notification to the customer.

Micrel Products are not designed or authorized for use as components in life support appliances, devices or systems where malfunction of a product can reasonably be expected to result in personal injury. Life support devices or systems are devices or systems that (a) are intended for surgical implant into the body or (b) support or sustain life, and whose failure to perform can be reasonably expected to result in a significant injury to the user. A Purchaser's use or sale of Micrel Products for use in life support appliances, devices or systems is at Purchaser's own risk and Purchaser agrees to fully indemnify Micrel for any damages resulting from such use or sale.