

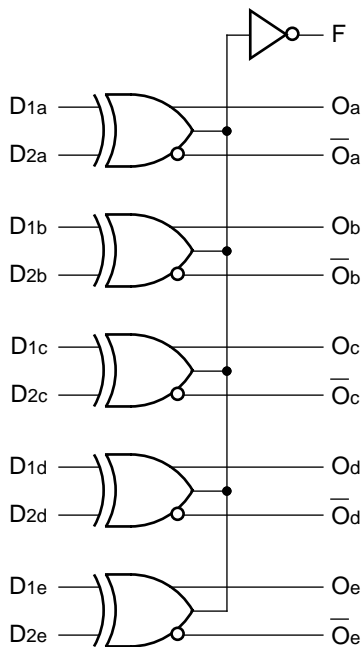
FEATURES

- Max. propagation delay of 1000ps
- IEE min. of -58mA
- Extended supply voltage option:
VEE = -4.2V to -5.5V
- Voltage and temperature compensation for improved noise immunity
- Internal 75kΩ input pull-down resistors
- 50% faster than Fairchild 300K at lower power
- Function and pinout compatible with Fairchild F100K
- Available in 28-pin PLCC package

DESCRIPTION

The SY100S307 is an ultra-fast quint exclusive-OR/NOR gate designed for use in high-performance ECL systems. A function output that is the wire-OR result of the exclusive-OR outputs is also available. The inputs on the device have 75kΩ pull-down resistors.

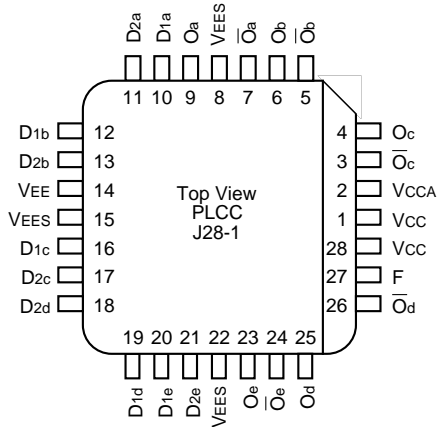
BLOCK DIAGRAM



PIN NAMES

Pin	Function
D _{na} – D _{ne}	Data Inputs (n-1...5)
E	Enable Input
O _a – O _e	Data Outputs
\overline{O}_a – \overline{O}_e	Complementary Data Outputs
VEES	VEE Substrate
VCCA	VCCO for ECL Outputs

PACKAGE/ORDERING INFORMATION



28-Pin PLCC (J28-1)

Ordering Information

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100S307JC	J28-1	Commercial	SY100S307JC	Sn-Pb
SY100S307JCTR ⁽¹⁾	J28-1	Commercial	SY100S307JC	Sn-Pb
SY100S307JZ ⁽²⁾	J28-1	Commercial	SY100S307JZ with Pb-Free bar-line indicator	Matte-Sn
SY100S307JZTR ^(1, 2)	J28-1	Commercial	SY100S307JZ with Pb-Free bar-line indicator	Matte-Sn

Notes:

1. Tape and Reel.
2. Pb-Free package is recommended for new designs.

LOGIC EQUATION

$$F = (D1a \oplus D2a) + (D1b \oplus D2b) + (D1c \oplus D2c) + (D1d \oplus D2d) + (D1e \oplus D2e).$$

DC ELECTRICAL CHARACTERISTICS

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

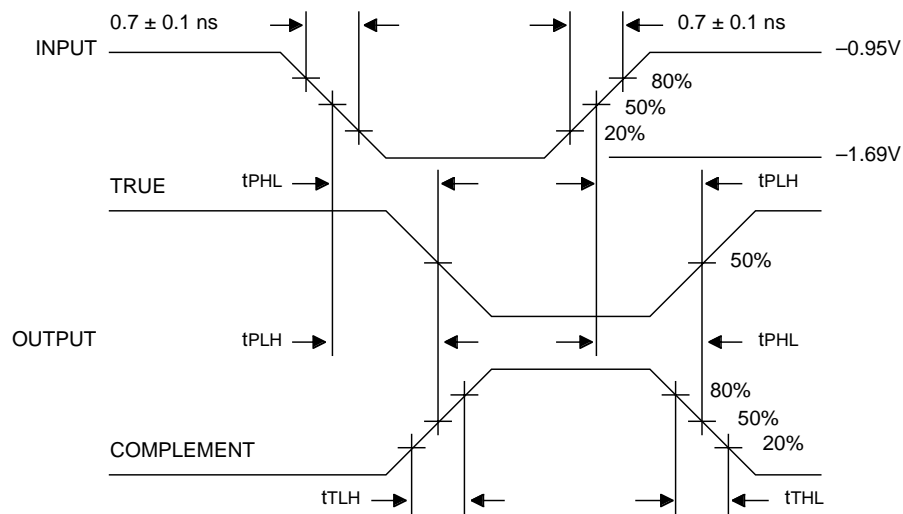
Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
I _{IH}	Input HIGH Current D2a — D2e D2a — D2e	—	—	200 250	μA	V _{IN} = V _{IH} (Max.)
I _{EE}	Power Supply Current	-58	-40	-27	mA	Inputs Open

AC ELECTRICAL CHARACTERISTICS

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 _{PLH} t _{PH2}	Propagation Delay D2a — D2e to O, \bar{O}	300	1000	300	1000	300	1000	ps	
t _{PLH} t _{PHL}	Propagation Delay D1a — D1e to O, \bar{O}	300	900	300	900	300	930	ps	
t _{PLH} t _{PHL}	Propagation Delay Data to F	300	1425	300	1425	300	1425	ps	
t _{TLH} t _{THL}	Transition Time 3 20% to 80%, 80% to 20%	00	900	300	900	300	900	ps	

TIMING DIAGRAM

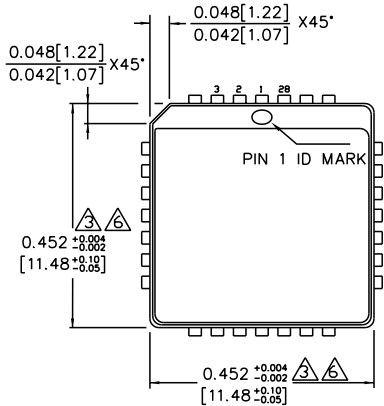


Propagation Delay and Transition Times

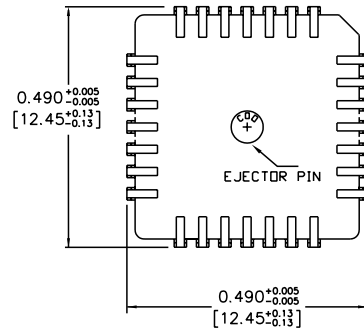
NOTE:

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

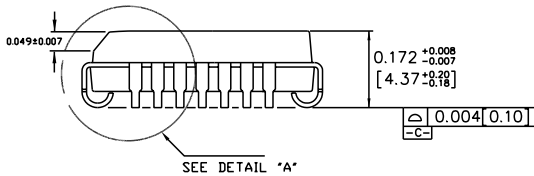
28-PIN PLCC (J28-1)



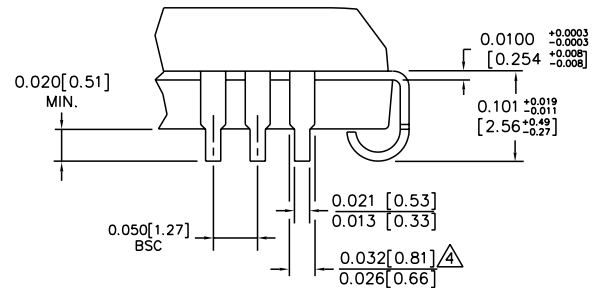
TOP VIEW



BOTTOM VIEW



SIDE VIEW



DETAIL "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.

Rev. A

MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USA

TEL + 1 (408) 944-0800 FAX + 1 (408) 474-1000 WEB <http://www.micrel.com>

The information furnished by Micrel in this data sheet 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.

© 2006 Micrel, Incorporated.