

FEATURES

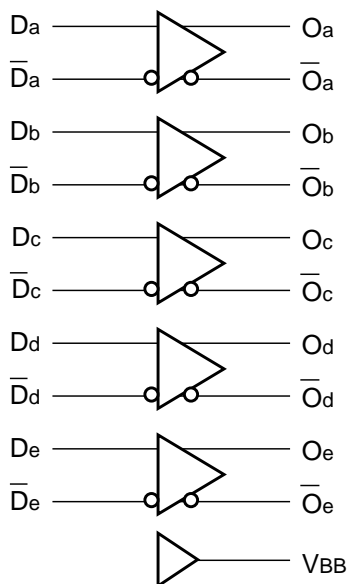
- Max. propagation delay of 900ps
- Differential outputs
- IEE min. of -60mA
- Extended supply voltage option:
VEE = -4.2V to -5.5V
- Voltage and temperature compensation for improved noise immunity
- VBB output for single-ended use
- More than twice as fast as Fairchild
- Function and pinout compatible with Fairchild F100K
- Available in 24-pin CERPAC and 28-pin PLCC packages

DESCRIPTION

The SY100S314 offers five differential line receivers with emitter follower outputs, designed for use in high-performance ECL systems. For single-ended operation, the VBB reference voltage is available. In the single-ended mode, the apparent input threshold of the true inputs is 30mV higher than the threshold of the complementary inputs.

Common mode rejection of +1.0V is achieved through the use of active current sources. If both the true and complement inputs are at the same potential between VEE and VCC, then the complementary outputs will take on a logic HIGH state. Unlike the other members of the Synergy 300K family, the inputs on this device do not have pull-down resistors.

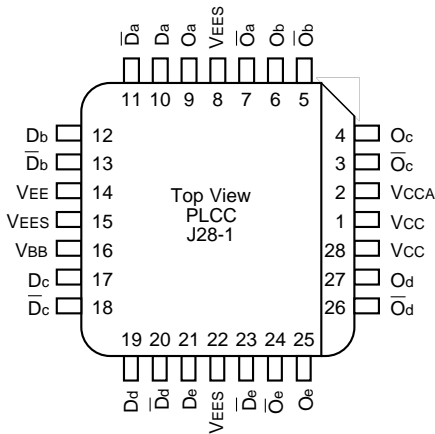
BLOCK DIAGRAM



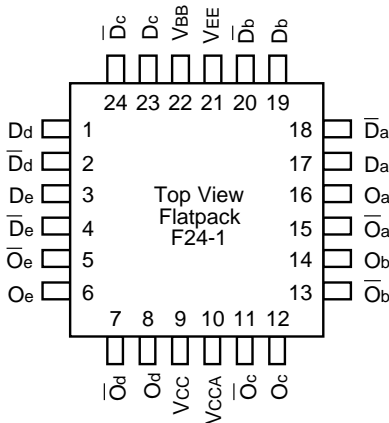
PIN NAMES

Pin	Function
Da - De	Data Inputs
Da-bar - De-bar	Inverting Data Inputs
Oa - Oe	Data Outputs
Oa-bar - Oe-bar	Complementary Data Outputs
VEES	VEE Substrate
VCCA	VCCO for ECL Outputs

PACKAGE/ORDERING INFORMATION



28-Pin PLCC (J28-1)



24-Pin Cerpack (F24-1)

Ordering Information

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100S314FC	F24-1	Commercial	SY100S314FC	Sn-Pb
SY100S314FCTR ⁽¹⁾	F24-1	Commercial	SY100S314FC	Sn-Pb
SY100S314JC	J28-1	Commercial	SY100S314JC	Sn-Pb
SY100S314JCTR ⁽¹⁾	J28-1	Commercial	SY100S314JC	Sn-Pb
SY100S314JZ ⁽²⁾	J28-1	Commercial	SY100S314JZ with Pb-Free bar-line indicator	Matte-Sn
SY100S314JZTR ^(1, 2)	J28-1	Commercial	SY100S314JZ with Pb-Free bar-line indicator	Matte-Sn

Notes:

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

LOGIC EQUATION

O = D

DC ELECTRICAL CHARACTERISTICSV_{EE} = -4.2V to -5.5V unless otherwise specified, V_{CC} = V_{CCA} = GND

Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
V _{DIFF}	Input Voltage Differential	150	—	—	mV	Required for Full Output Swing
V _{CM}	Common Mode Voltage	—	—	1.0	V	Permissible ±V _{CM} with Respect to V _{BB}
I _{IH}	Input HIGH Current	—	—	50	μA	V _{IN} = V _{IH} (Max.), D _a - D _e = V _{BB} , $\overline{D}_a - \overline{D}_e = V_{IL}$ (Min.)
I _{CBO}	Input Leakage Current	-10	—	—	μA	V _{IN} = V _{EE} , D _a - D _e = V _{BB} , $\overline{D}_a - \overline{D}_e = V_{IL}$ (Min.)
I _{EE}	Power Supply Current	-60	-45	-30	mA	D _a - D _e = V _{BB} , $\overline{D}_a - \overline{D}_e = V_{IL}$ (Min.)

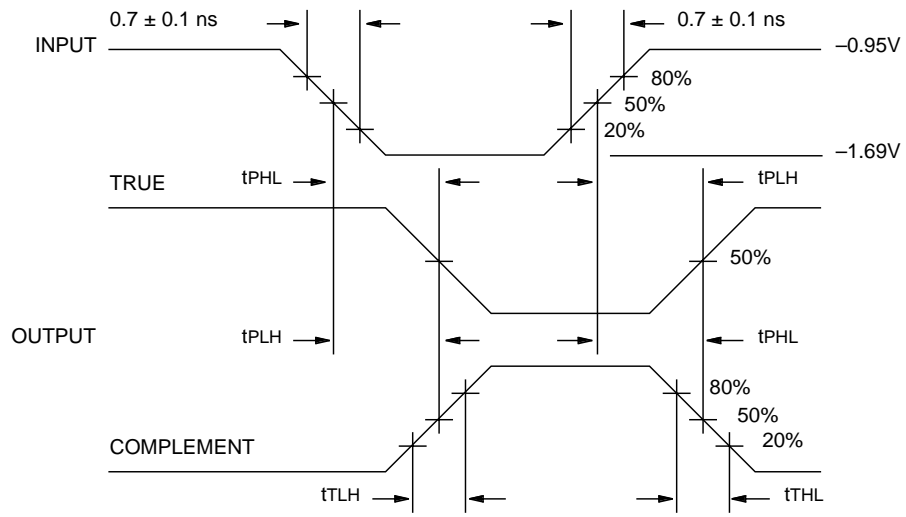
AC ELECTRICAL CHARACTERISTICS**CERPACK**V_{EE} = -4.2V to -5.5V unless otherwise specified, V_{CC} = V_{CCA} = GND

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 Data to Output	300	1000	300	1000	300	1000	ps	
t _{TLH} t _{THL}	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

PLCCV_{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 Data to Output	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

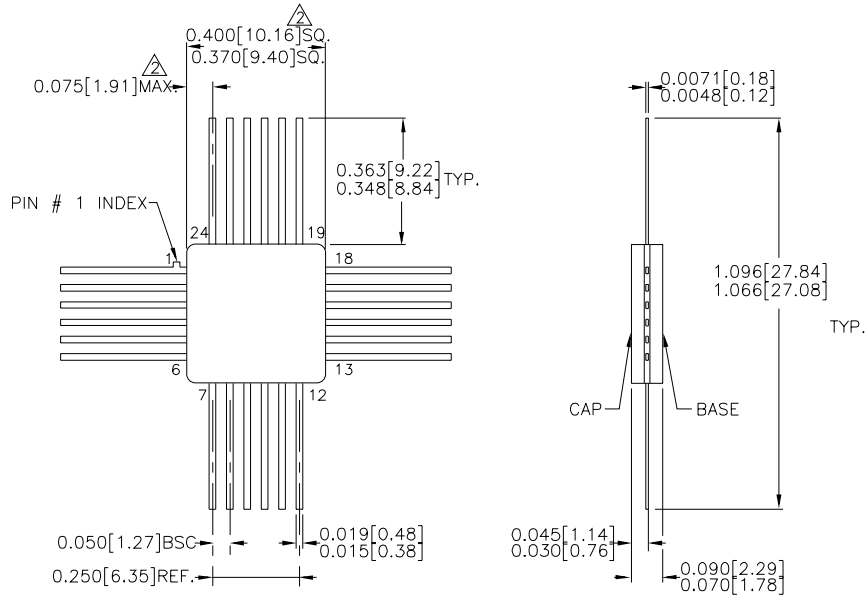


Propagation Delay and Transition Times

Note:

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

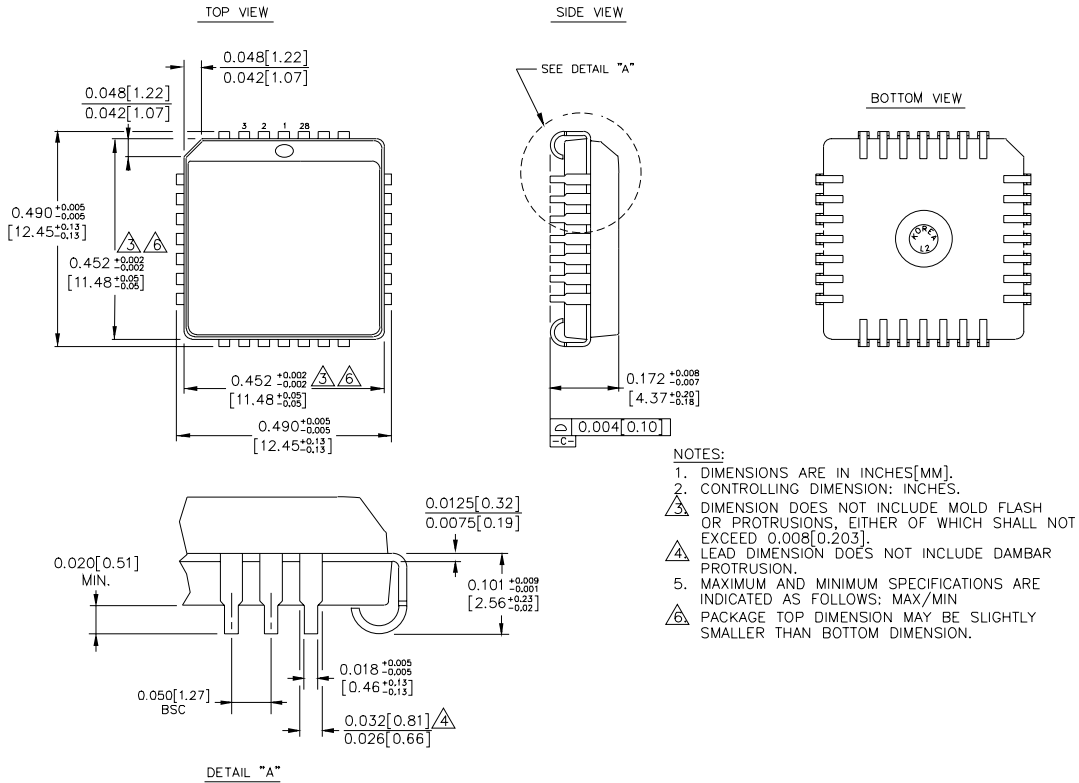
24-PIN CERPACK (F24-1)



- 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-PIN PLCC (J28-1)



Rev. 03

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.