

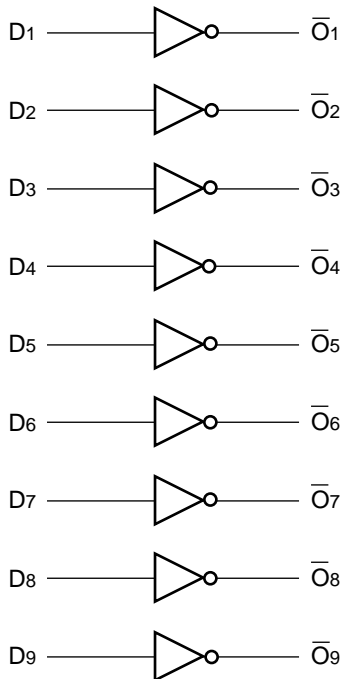
FEATURES

- Max. propagation delay of 700ps
- IEE min. of -55mA
- Extended supply voltage option:
VEE = -4.2V to -5.5V
- Voltage and temperature compensation for improved noise immunity
- 70% faster than Fairchild 300K at lower power
- Internal 75KΩ input pull-down resistors
- Function and pinout compatible with Fairchild F100K
- Available in 24-pin CERPACK and 28-pin PLCC packages

DESCRIPTION

The SY100S321 is a monolithic 9-bit inverter. The device contains nine inverting buffer gates with single input and output.

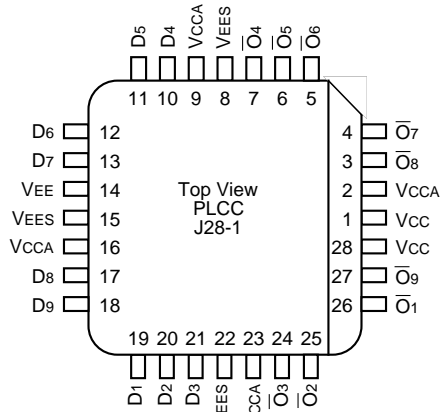
BLOCK DIAGRAM



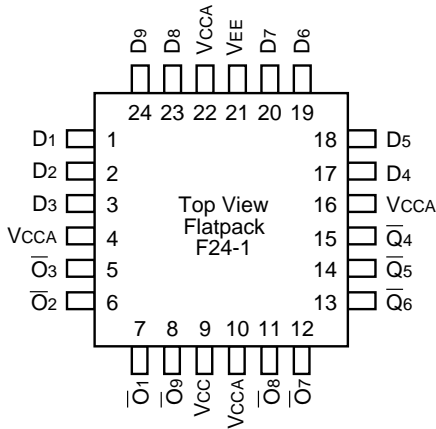
PIN NAMES

Pin	Function
D1 – D9	Data Inputs
$\bar{Q}_1 – \bar{Q}_9$	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
SY100S321FC	F24-1	Commercial	SY100S321FC	Sn-Pb
SY100S321FCTR ⁽¹⁾	F24-1	Commercial	SY100S321FC	Sn-Pb
SY100S321JC	J28-1	Commercial	SY100S321JC	Sn-Pb
SY100S321JCTR ⁽¹⁾	J28-1	Commercial	SY100S321JC	Sn-Pb
SY100S321JZ ⁽²⁾	J28-1	Commercial	SY100S321JZ with Pb-Free bar-line indicator	Matte-Sn
SY100S321JZTR ^(1, 2)	J28-1	Commercial	SY100S321JZ with Pb-Free bar-line indicator	Matte-Sn

Notes:

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

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	—	—	200	μA	$V_{IN} = V_{IH} (Max.)$
I _{EE}	Power Supply Current	-55	-41	-25	mA	Inputs Open

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 ⁽¹⁾ Data to Output	300	800	300	800	300	800	ps	
t _{TLH} t _{THL}	Transition Time ⁽¹⁾ 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	
t _{S, G-G}	Skew, Gate-to-Gate	—	200	—	200	—	200	ps	

NOTE:

- Reference figures 1 and 2

PLCC

$V_{EE} = -4.2V$ 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 ⁽¹⁾ Data to Output	300	700	300	700	300	700	ps	
t _{TLH} t _{THL}	Transition Time ⁽¹⁾ 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	
t _{S, G-G}	Skew, Gate-to-Gate	—	200	—	200	—	200	ps	

NOTE:

- Reference figures 1 and 2

TEST CIRCUITRY⁽¹⁾

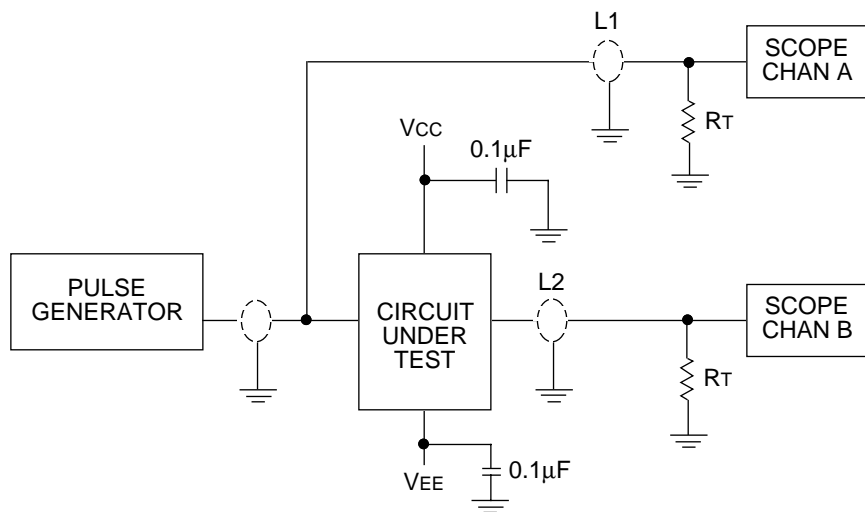


Figure 1. AC Test Circuit

Note:

- 1. VCC, VCCA = +2V, VEE = -2.5V.
- L1 and L2 = equal length 50Ω impedance lines.
- RT = 50Ω terminator internal to scope.
- Decoupling 0.1µF from GND to Vcc and VEE.
- All unused outputs are loaded with 50Ω to GND.
- CL = Fixture and stray capacitance ≤ 3pF.

SWITCHING WAVEFORMS

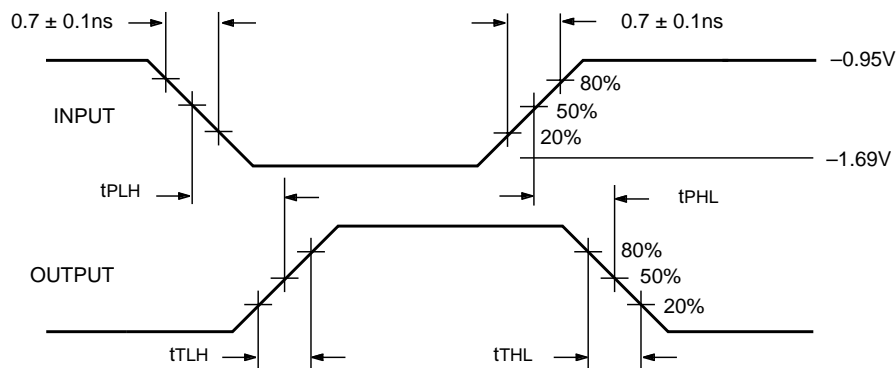
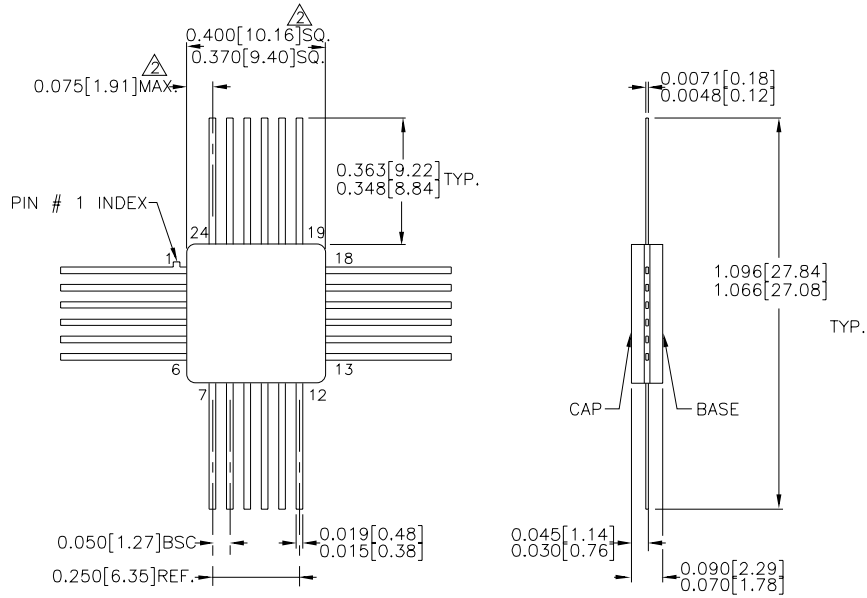


Figure 2. Propagation Delay and Transition Times

Note:

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

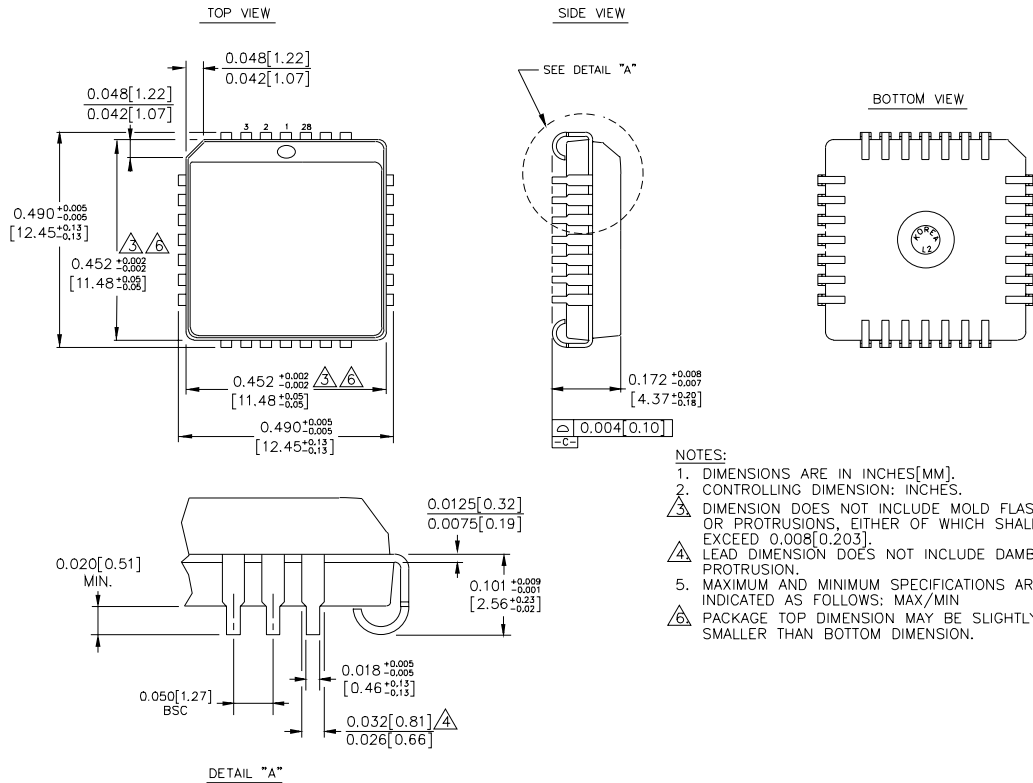
24-PIN CERPACK (F24-1)



- 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.