



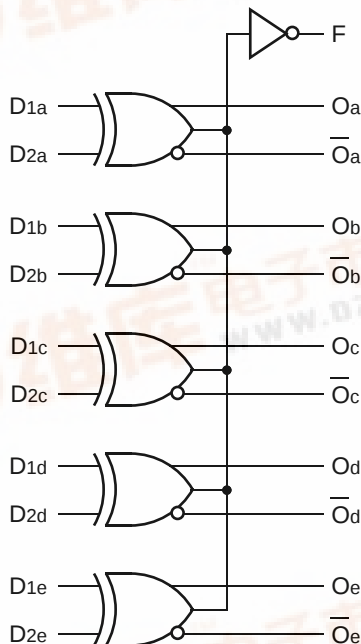
QUINT EXCLUSIVE OR/NOR GATE

SY100S307

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 24-pin CERPAC and 28-pin PLCC packages

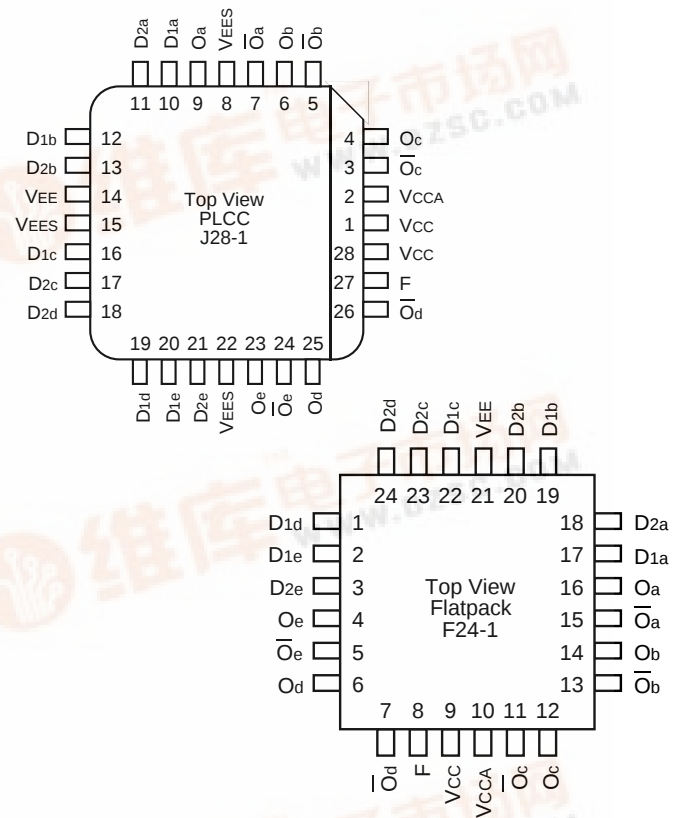
BLOCK DIAGRAM



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.

PIN CONFIGURATIONS



PIN NAMES

Pin	Function
Dna – Dne	Data Inputs (n-1...5)
E	Enable Input
Oa – Oe	Data Outputs
$\bar{O}a - \bar{O}e$	Complementary Data Outputs
VEES	VEE Substrate
VCCA	Vcco for ECL Outputs

LOGIC EQUATION

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

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
IIH	Input HIGH Current				μA	$V_{IN} = V_{IH} (Max.)$
	D2a — D2e	—	—	200		
	D2a — D2e	—	—	250		
IEE	Power Supply Current	-58	-40	-27	mA	Inputs Open

AC ELECTRICAL CHARACTERISTICS

CERPACK

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

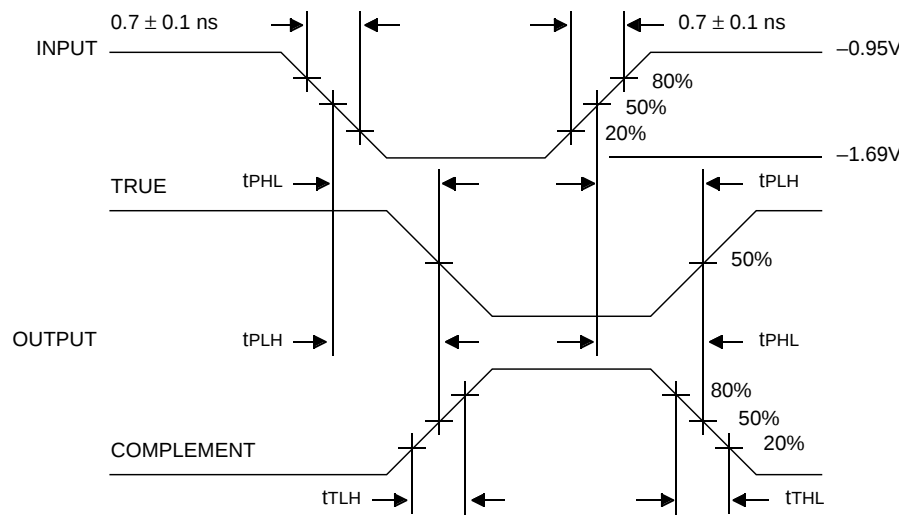
Symbol	Parameter	$T_A = 0^\circ C$		$T_A = +25^\circ C$		$T_A = +85^\circ C$		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
tPLH tPH2	Propagation Delay D2a — D2e to O, $\bar{O}$	200	1100	200	1150	200	1100	ps	
tPLH tPHL	Propagation Delay D1a — D1e to O, $\bar{O}$	200	1000	200	950	200	1000	ps	
tPLH tPHL	Propagation Delay Data to F	300	1525	300	1525	300	1525	ps	
tTLH tTHL	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

PLCC

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

Symbol	Parameter	$T_A = 0^\circ C$		$T_A = +25^\circ C$		$T_A = +85^\circ C$		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
tPLH tPH2	Propagation Delay D2a — D2e to O, $\bar{O}$	300	1000	300	1000	300	1000	ps	
tPLH tPHL	Propagation Delay D1a — D1e to O, $\bar{O}$	300	900	300	900	300	930	ps	
tPLH tPHL	Propagation Delay Data to F	300	1425	300	1425	300	1425	ps	
tTLH tTHL	Transition Time 3 20% to 80%, 80% to 20%	00	900	300	900	300	900	ps	

TIMING DIAGRAM



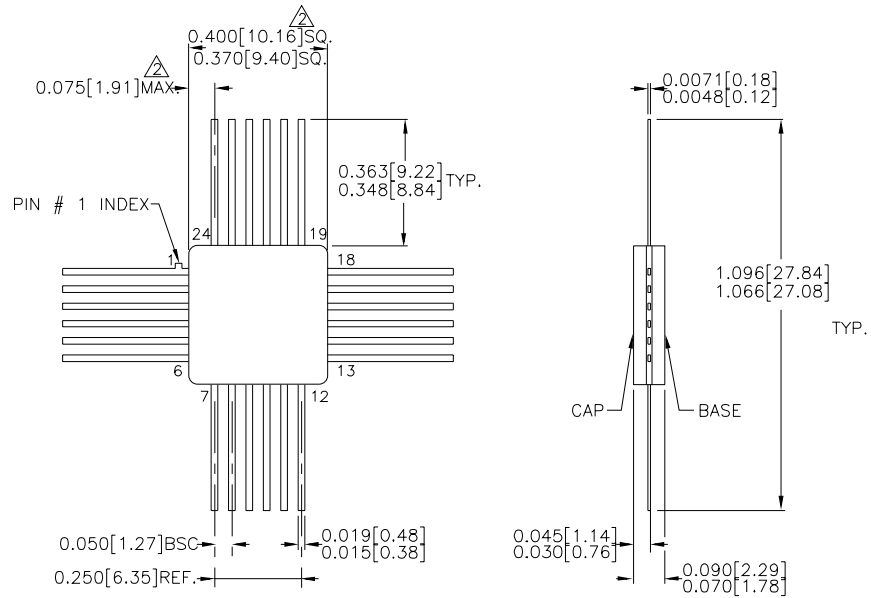
Propagation Delay and Transition Times

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
SY100S307FC	F24-1	Commercial
SY100S307JC	J28-1	Commercial
SY100S307JCTR	J28-1	Commercial

24 LEAD CERPACK (F24-1)



NOTES:

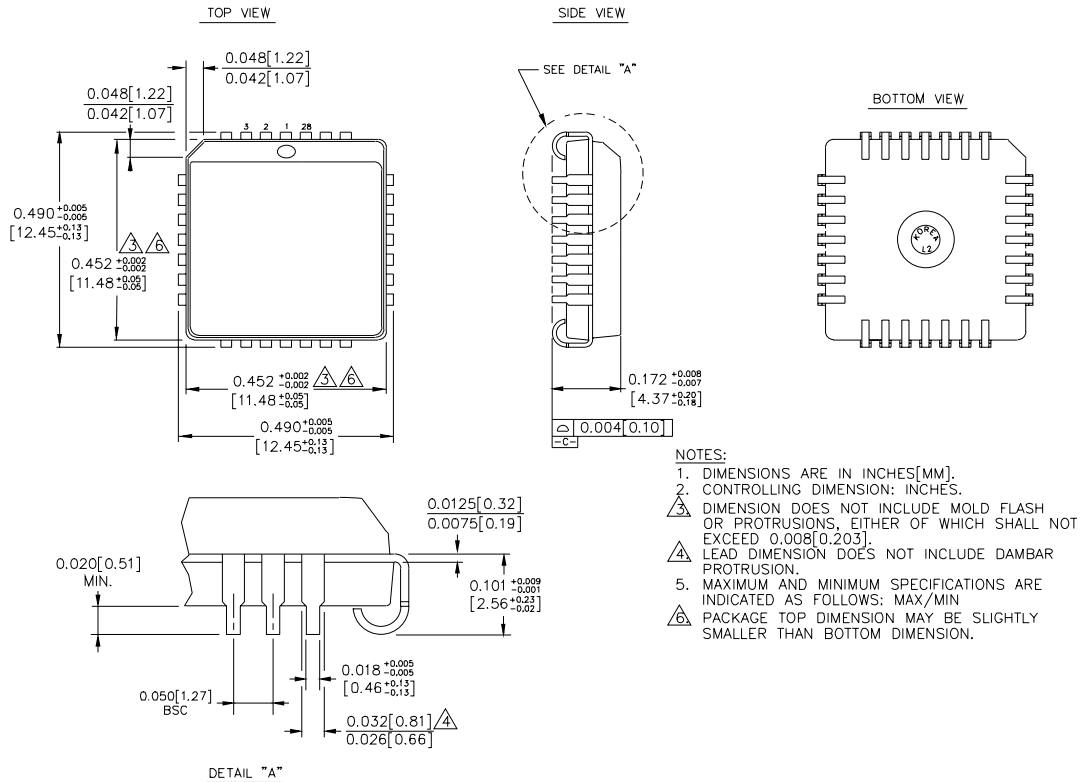
1. DIMENSIONS ARE IN INCHES[MM].

2. THIS DIMENSION INCLUDES GLASS PROTRUSION AND CAP TO BASE ALIGNMENT TOLERANCES.

3. DIMENSIONS SHOWN ARE MAX/MIN, WHERE NOTED.

Rev. 03

28 LEAD PLCC (J28-1)



Rev. 03