



# QUINT 2-INPUT OR/NOR GATE

SY100S302

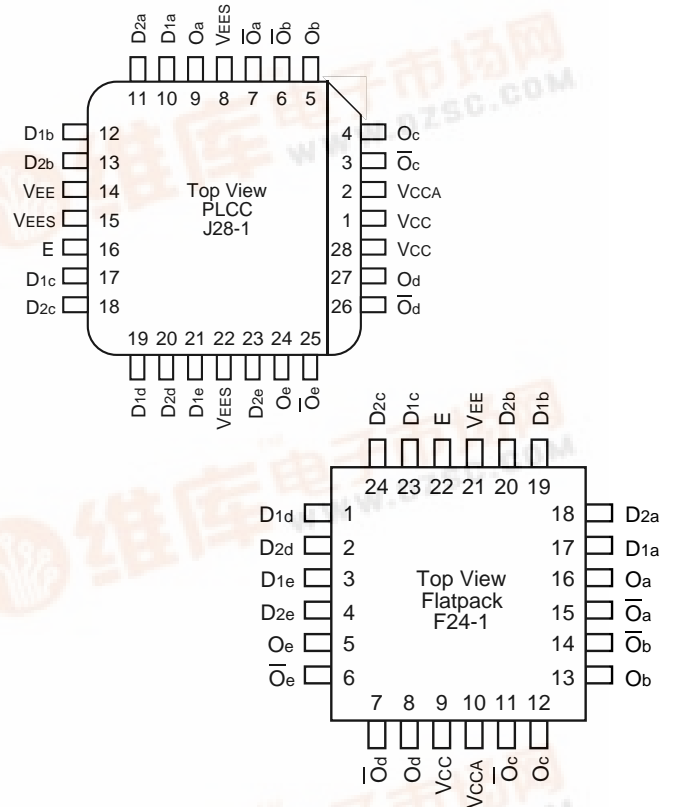
## FEATURES

- Max. propagation delay of 700ps
- IEE min. of -45mA
- Industry standard 100K ECL levels
- 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
- Function and pinout compatible with Fairchild F100K
- Available in 24-pin CERPACK and 28-pin PLCC packages

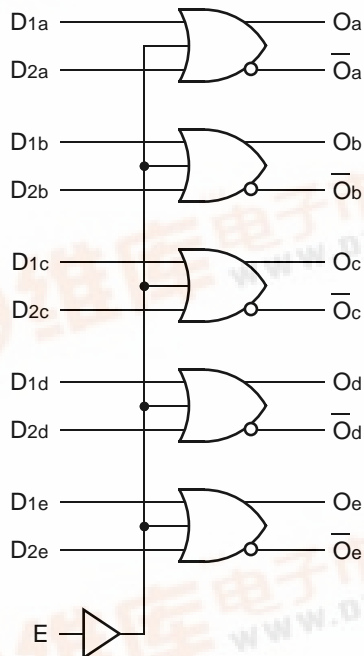
## DESCRIPTION

The SY100S302 offers five 2-input OR/NOR gates designed for use in high-performance ECL systems. The five gates are controlled by a common Enable signal. All inputs have 75KΩ pull-down resistors and all outputs are buffered.

## PIN CONFIGURATIONS



## BLOCK DIAGRAM



## PIN NAMES

Pin	Function
D <sub>na</sub> – D <sub>ne</sub>	Data Inputs (n-1...5)
E	Enable Input
O <sub>a</sub> – O <sub>e</sub>	Data Outputs
$\bar{O}_a$ – $\bar{O}_e$	Complementary Data Outputs
VEES	VEE Substrate
VCCA	V <sub>CC</sub> for ECL Outputs

**TRUTH TABLE<sup>(1)</sup>**

D1X	D2X	E	OX	$\overline{OX}$
L	L	L	L	H
L	L	H	H	L
L	H	L	H	L
L	H	H	H	L
H	L	L	H	L
H	L	H	H	L
H	H	L	H	L
H	H	H	H	L

**NOTE:**

1. H = High Voltage Level

L = Low Voltage Level

**DC ELECTRICAL CHARACTERISTICS**V<sub>EE</sub> = -4.2V to -5.5V unless otherwise specified, V<sub>CC</sub> = V<sub>CCA</sub> = GND

Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
I <sub>IH</sub>	Input HIGH Current, All Inputs	—	—	200	μA	V <sub>IN</sub> = V <sub>IH</sub> (Max.)
I <sub>EE</sub>	Power Supply Current	-45	-28	-21	mA	Inputs Open

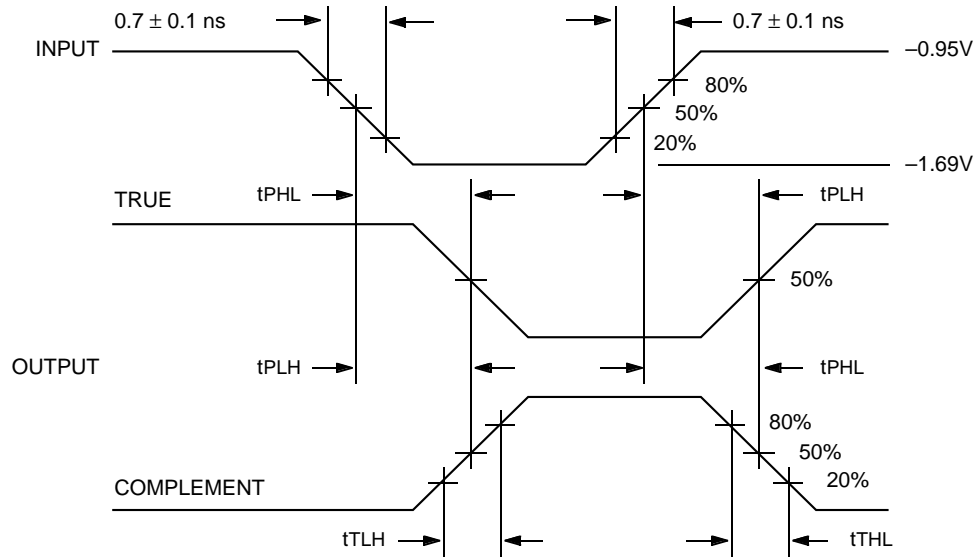
**AC ELECTRICAL CHARACTERISTICS****CERPACK**V<sub>EE</sub> = -4.2V to -5.5V unless otherwise specified, V<sub>CC</sub> = V<sub>CCA</sub> = GND

Symbol	Parameter	T <sub>A</sub> = 0°C		T <sub>A</sub> = +25°C		T <sub>A</sub> = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay Data to Output	300	750	300	750	300	750	ps	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay Enable to Output	250	950	250	950	250	950	ps	
t <sub>TLH</sub> t <sub>THL</sub>	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

**PLCC**V<sub>EE</sub> = -4.2V to -5.5V unless otherwise specified, V<sub>CC</sub> = V<sub>CCA</sub> = GND

Symbol	Parameter	T <sub>A</sub> = 0°C		T <sub>A</sub> = +25°C		T <sub>A</sub> = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay Data to Output	250	700	250	700	250	700	ps	
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay Enable to Output	250	900	250	900	250	900	ps	
t <sub>TLH</sub> t <sub>THL</sub>	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

**TIMING DIAGRAM**



Propagation Delay and Transition Times

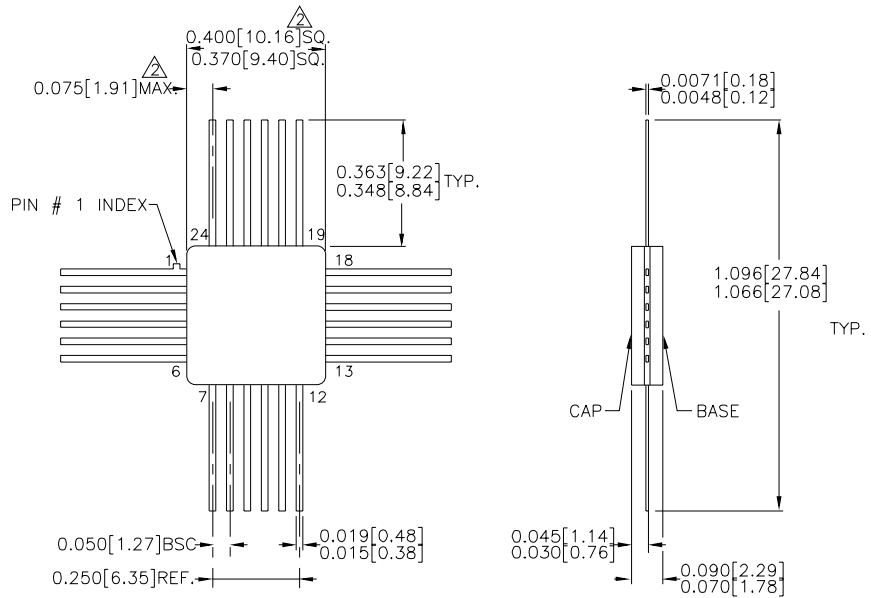
**NOTE:**

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

**PRODUCT ORDERING CODE**

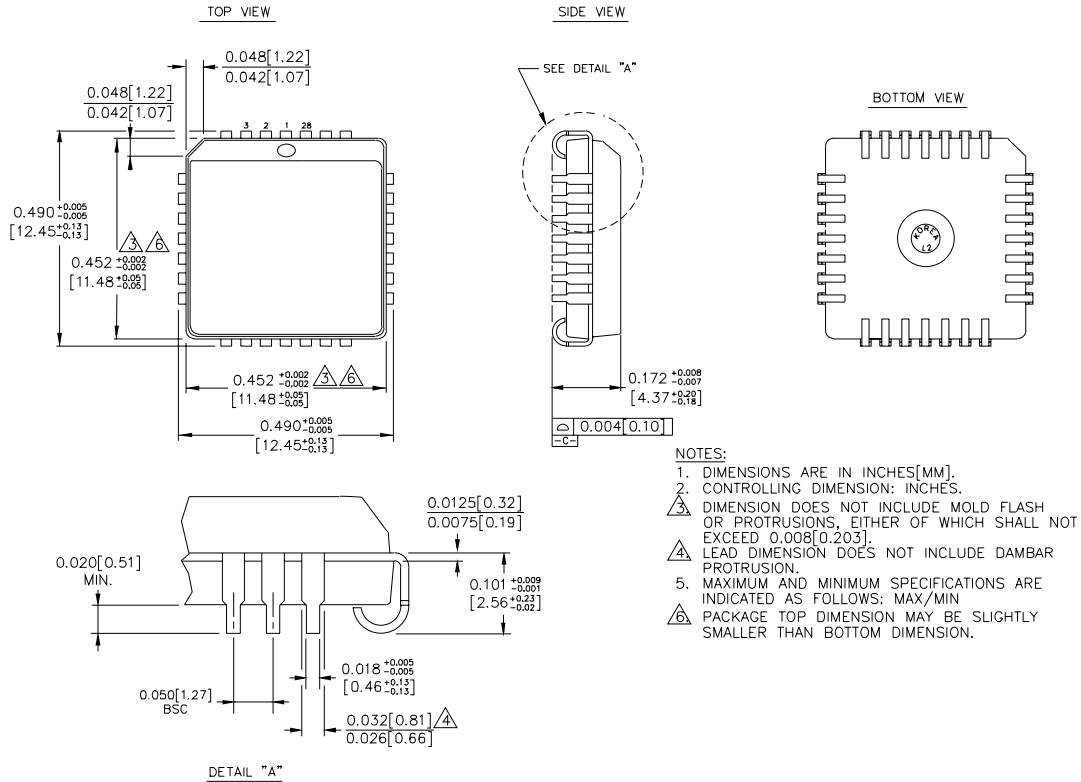
Ordering Code	Package Type	Operating Range
SY100S302FC	F24-1	Commercial
SY100S302JC	J28-1	Commercial
SY100S302JCTR	J28-1	Commercial

**24 LEAD CERPACK (F24-1)**



- NOTES:
1. DIMENSIONS ARE IN INCHES[MM].
  - △ THIS DIMENSION INCLUDES GLASS PROTRUSION AND CAP TO BASE ALIGNMENT TOLERANCES.
  3. DIMENSIONS SHOWN ARE MAX/MIN, WHERE NOTED.

**28 LEAD PLCC (J28-1)**



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