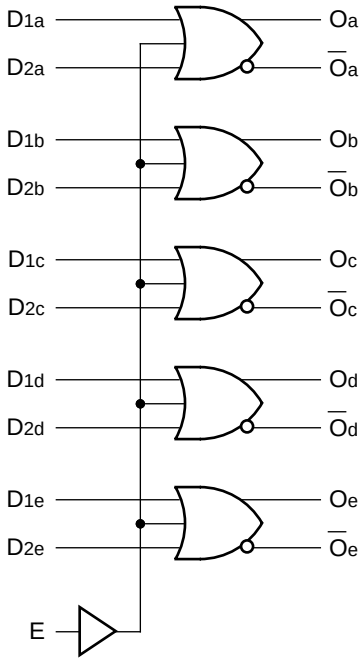
FEATURES

- **Max. propagation delay of 700ps**
- **I_{EE} min. of –45mA**
- **Industry standard 100K ECL levels**
- **Extended supply voltage option: V_{EE} = –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 28-pin PLCC package**

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.

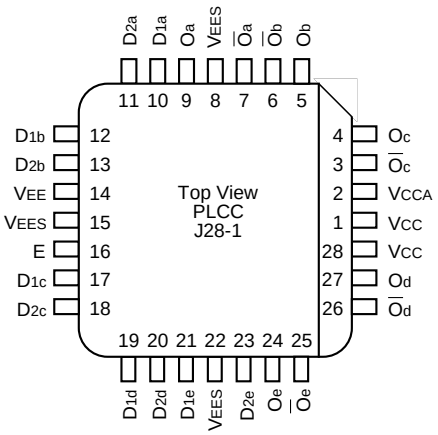
BLOCK DIAGRAM



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
V_{EES}	V_{EE} Substrate
V_{CCA}	V_{CCO} for ECL Outputs

PACKAGE/ORDERING INFORMATION



28-Pin PLCC (J28-1)

Ordering Information

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100S302JC	J28-1	Commercial	SY100S302JC	Sn-Pb
SY100S302JCTR[1]	J28-1	Commercial	SY100S302JC	Sn-Pb
SY100S302JZ[2]	J28-1	Commercial	SY100S302JZ with Pb-Free bar-line indicator	Matte-Sn
SY100S302JZTR[1, 2]	J28-1	Commercial	SY100S302JZ with Pb-Free bar-line indicator	Matte-Sn

Notes:

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

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

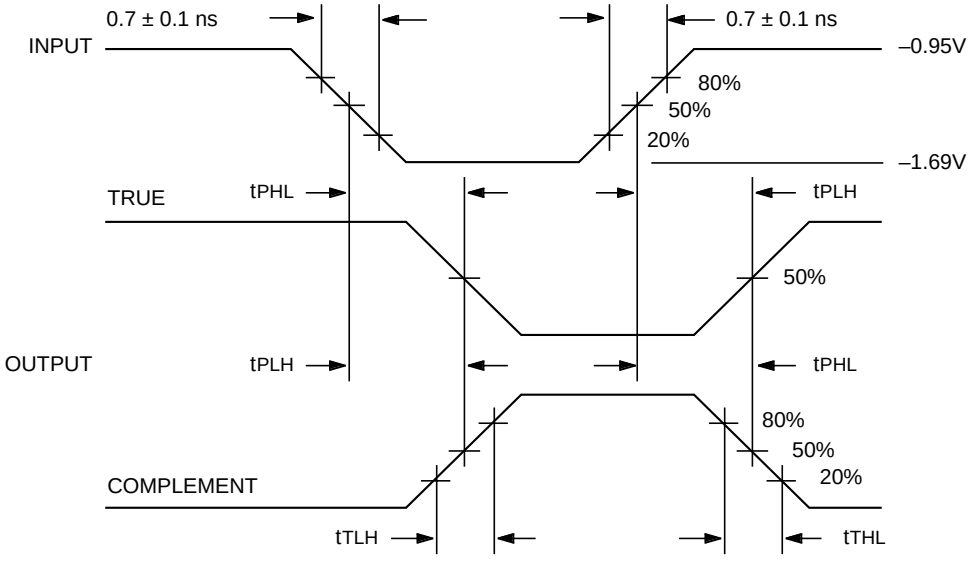
Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
I_{IH}	Input HIGH Current, All Inputs	—	—	200	µA	V_{IN} = V_{IH} (Max.)
I_{EE}	Power Supply Current	–45	–28	–21	mA	Inputs Open

AC ELECTRICAL CHARACTERISTICS

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	250	700	250	700	250	700	ps	
t_{PLH} t_{PHL}	Propogation Delay Enable to Output	250	900	250	900	250	900	ps	
t_{TLH} t_{THL}	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps	

TIMING DIAGRAM

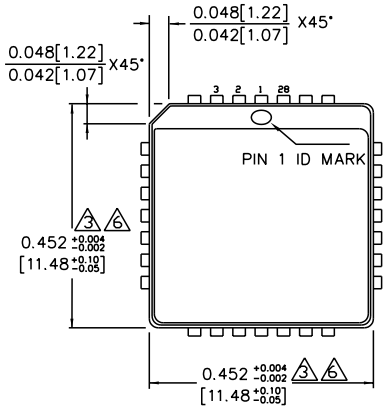


Propagation Delay and Transition Times

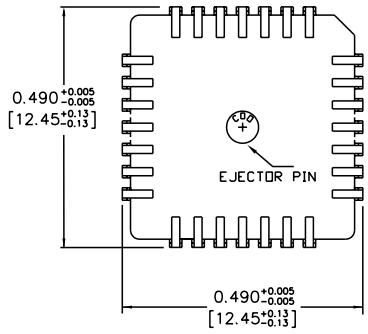
Note:

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

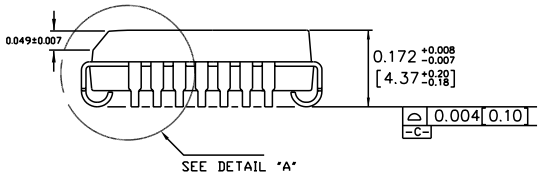
28-PIN PLCC (J28-1)



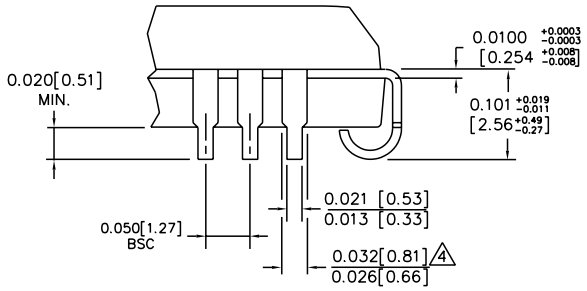
TOP VIEW



BOTTOM VIEW



SIDE VIEW



DETAIL "A"

Rev. 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.

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