



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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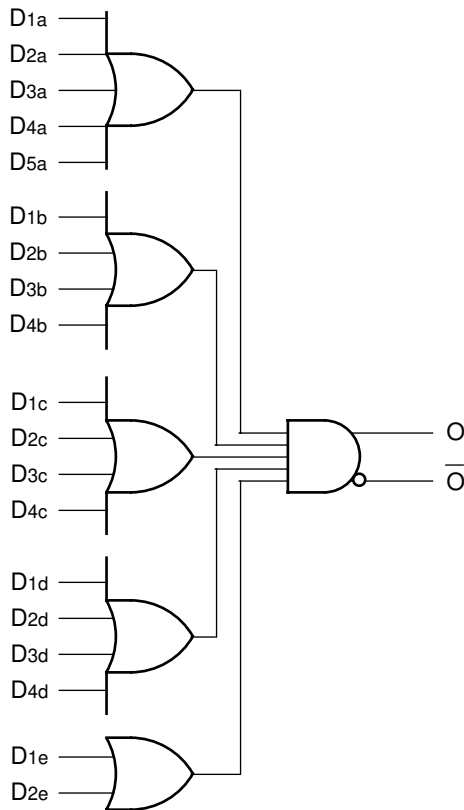
**FEATURES**

- Max. propagation delay of 800ps
- IEE min. of -55mA
- Extended supply voltage option:  
VEE = -4.2V to -5.5V
- Voltage and temperature compensation for improved noise immunity
- Internal 75kΩ input pull-down resistors
- 70% faster than Fairchild
- 40% lower power than Fairchild
- Function and pinout compatible with Fairchild F100K
- Available in 28-pin PLCC package

**DESCRIPTION**

The SY100S318 is an ultra-fast 5-wide 5, 4, 4, 4, 2 OR/AND gate with both true and complementary outputs, designed for use in high-performance ECL systems. The inputs on this device have 75kΩ pull-down resistors.

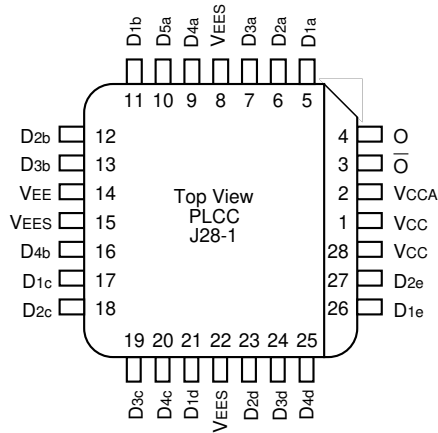
**BLOCK DIAGRAM**



**PIN NAMES**

Pin	Function
D <sub>na</sub> – D <sub>ne</sub>	Data Inputs (n = 1...5)
O – $\bar{O}$	Data Outputs
VEES	VEE Substrate
VCCA	VCCO for ECL Outputs

**PACKAGE/ORDERING INFORMATION**



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

**Ordering Information**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY100S318JC	J28-1	Commercial	SY100S318JC	Sn-Pb
SY100S318JCTR <sup>(1)</sup>	J28-1	Commercial	SY100S318JC	Sn-Pb
SY100S318JZ <sup>(2)</sup>	J28-1	Commercial	SY100S318JZ with Pb-Free bar-line indicator	Matte-Sn
SY100S318JZTR <sup>(1, 2)</sup>	J28-1	Commercial	SY100S318JZ with Pb-Free bar-line indicator	Matte-Sn

**Notes:**

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

**LOGIC EQUATION**

$$O = (D1a + D2a + D3a + D4a + D5a) \\ (D1b + D2b + D3b + D4b) \\ (D1c + D2c + D3c + D4c) \\ (D1d + D2d + D3d + D4d) \\ (D1e + D2e)$$

**DC ELECTRICAL CHARACTERISTICS**

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

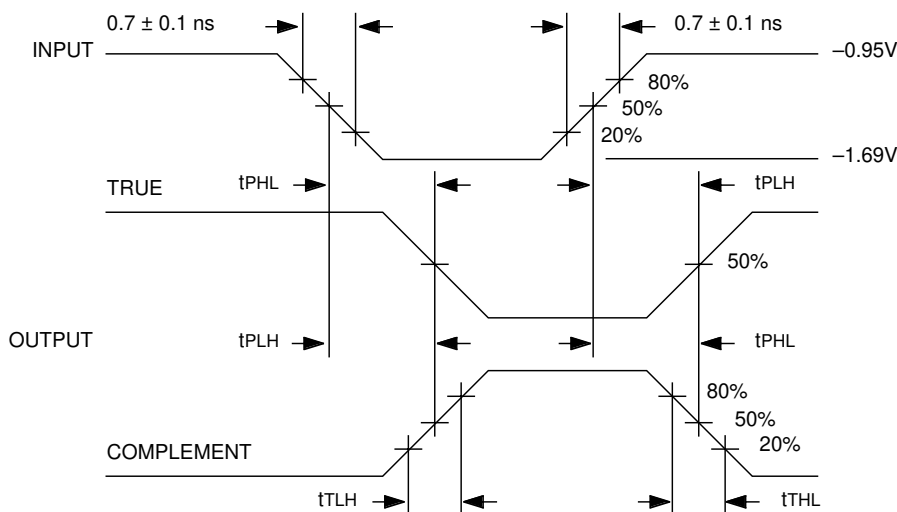
Symbol	Parameter	Min.	Typ.	Max.	Unit	Condition
I <sub>IH</sub>	Input HIGH Current, All Inputs	—	—	200	μA	V <sub>IN</sub> = V <sub>IH</sub> (Max.)
I <sub>EE</sub>	Power Supply Current	-55	-41	-25	mA	Inputs Open

**AC 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	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	800	300	800	300	800	ps	
t <sub>TLH</sub> t <sub>THL</sub>	Transition Time 20% to 80%, 80% to 20%	200	900	200	900	200	900	ps	

**TIMING DIAGRAM**

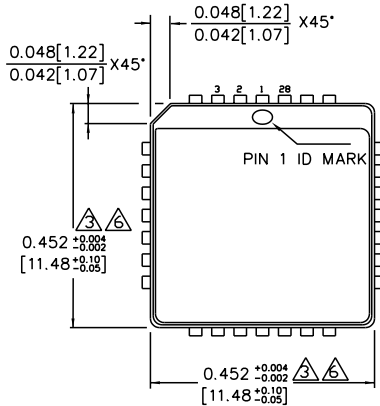


Propagation Delay and Transition Times

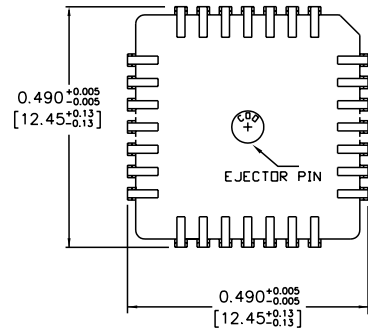
**Note:**

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

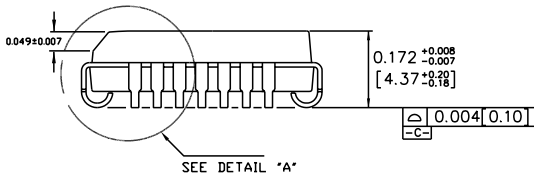
**28-PIN PLCC (J28-1)**



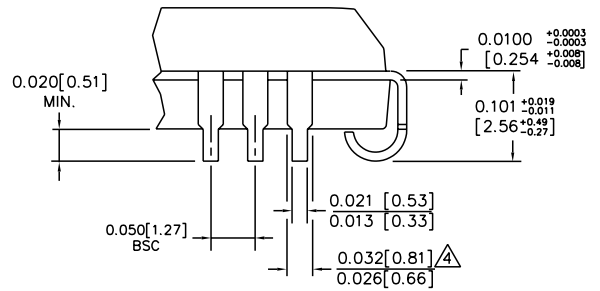
TOP VIEW



BOTTOM VIEW



SIDE VIEW



DETAIL "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.

Rev. A

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