

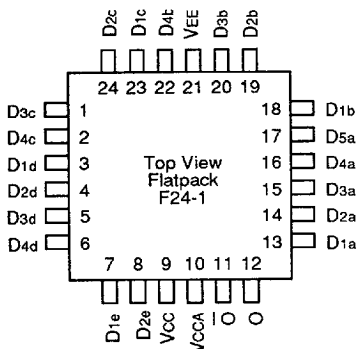
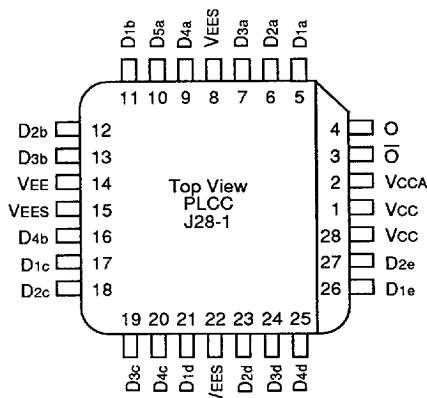
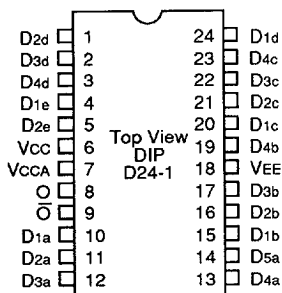
FEATURES

- Max. propagation delay of 800ps
- IEE min. of -55mA
- ESD protection of 2000V
- Extended supply voltage option:
— VEE = -4.2V to -5.46V
- Voltage and temperature compensation for improved noise immunity
- Internal 75K Ω input pull-down resistors
- 70% faster than National or Signetics
- 40% lower power than National or Signetics
- Function and pinout compatible with National and Signetics F100K
- Available in CERDIP, CERPACK and PLCC

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 75K Ω pull-down resistors.

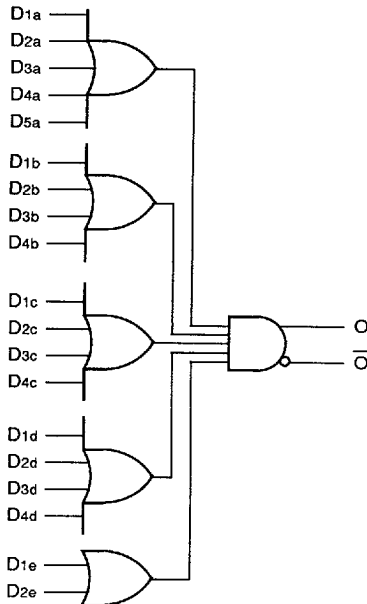
PIN CONFIGURATIONS



PIN NAMES

Pin	Function
Dna - Dne	Data Inputs (n = 1...5)
O - $\bar{O}$	Data Outputs

BLOCK DIAGRAM



LOGIC EQUATION

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

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DC ELECTRICAL CHARACTERISTICS

$V_{EE} = -4.2V$ to $-5.46V$ unless otherwise specified, $V_{CC} = V_{CCA} = GND$, $T_A = 0^{\circ}C$ to $+85^{\circ}C$

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	-55	-41	-25	mA	Inputs Open

AC ELECTRICAL CHARACTERISTICS

CERDIP

$V_{EE} = -4.2V$ to $-5.46V$ unless otherwise specified, $V_{CC} = V_{CCA} = GND$, $T_A = 0^{\circ}C$ to $+85^{\circ}C$

Symbol	Parameter	$T_A = 0^{\circ}C$		$T_A = +25^{\circ}C$		$T_A = +85^{\circ}C$		Unit
		Min.	Max.	Min.	Max.	Min.	Max.	
t_{PLH} t_{PHL}	Propagation Delay Data to Output	300	1000	300	1000	300	1000	ps
t_{TLH} t_{THL}	Transition Time 20% to 80%, 80% to 20%	200	900	200	900	200	900	ps

AC ELECTRICAL CHARACTERISTICS (CONT'D.)

CERPACK

$V_{EE} = -4.2V$ to $-5.46V$ unless otherwise specified, $V_{CC} = V_{CCA} = GND$, $T_A = 0^{\circ}C$ to $+85^{\circ}C$

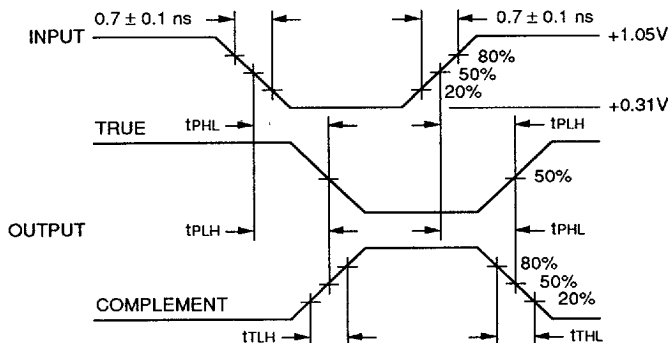
Symbol	Parameter	$T_A = 0^{\circ}C$		$T_A = +25^{\circ}C$		$T_A = +85^{\circ}C$		Unit
		Min.	Max.	Min.	Max.	Min.	Max.	
t_{PLH} t_{PHL}	Propagation Delay Data to Output	300	900	300	900	300	900	ps
t_{TLH} t_{THL}	Transition Time 20% to 80%, 80% to 20%	200	900	200	900	200	900	ps

PLCC

$V_{EE} = -4.2V$ to $-5.46V$ unless otherwise specified, $V_{CC} = V_{CCA} = GND$, $T_A = 0^{\circ}C$ to $+85^{\circ}C$

Symbol	Parameter	$T_A = 0^{\circ}C$		$T_A = +25^{\circ}C$		$T_A = +85^{\circ}C$		Unit
		Min.	Max.	Min.	Max.	Min.	Max.	
t_{PLH} t_{PHL}	Propagation Delay Data to Output	300	800	300	800	300	800	ps
t_{TLH} t_{THL}	Transition Time 20% to 80%, 80% to 20%	200	900	200	900	200	900	ps

TIMING DIAGRAM



Propagation Delay and Transition Times

PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY100S318DC	D24-1	Commercial
SY100S318FC	F24-1	Commercial
SY100S318JC	J28-1	Commercial