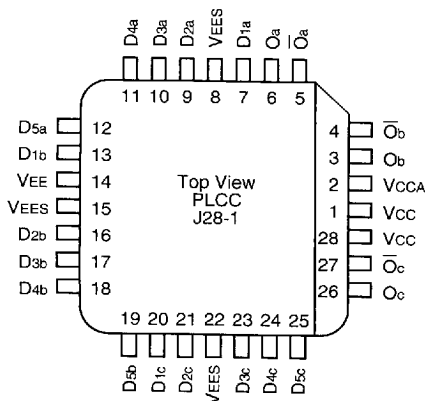
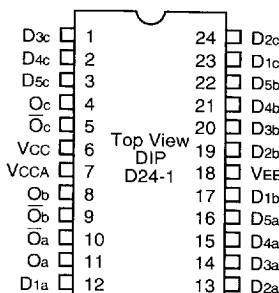


FEATURES

- Max. propagation delay of 750ps
- IEE min. of -25mA
- ESD protection of 2000V
- Industry standard 100K ECL levels
- Extended supply voltage option:
VEE = -4.2V to -5.5V
- Voltage and temperature compensation for improved noise immunity
- 20% faster than National 300K at lower power
- Internal 75K Ω input pull-down resistors
- Function and pinout compatible with National and Signetics F100K
- Available in CERPDP, CERPAC and PLCC

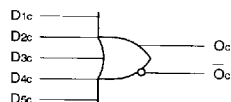
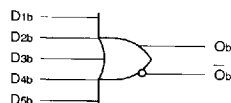
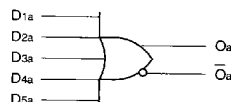
PIN CONFIGURATIONS



DESCRIPTION

The SY100S301 is an ultra-fast triple 5-input OR/NOR gate designed for use in high-performance ECL systems. The inputs on this device have 75K Ω pull-down resistors.

BLOCK DIAGRAM



PIN NAMES

Pin	Function
Dna, Dnb, Dnc	Data Inputs (n-1...5)
Oa, Ob, Oc	Data Outputs
$\bar{O}a, \bar{O}b, \bar{O}c$	Complementary Data Outputs
VEES	VEE Substrate
VCCA	Vcco for ECL Outputs

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LOGIC EQUATION

$$O_a = D_{1a} + D_{2a} + D_{3a} + D_{4a} + D_{5a}$$

$$O_b = D_{1b} + D_{2b} + D_{3b} + D_{4a} + D_{5b}$$

$$O_c = D_{1c} + D_{2c} + D_{3c} + D_{4c} + D_{5c}$$

DC ELECTRICAL CHARACTERISTICS

 $V_{EE} = -4.2V$ to $-5.5V$ 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	—	—	200	μA	—
I _{EE}	Power Supply Current	-25	-17	-11	mA	Inputs Open

AC ELECTRICAL CHARACTERISTICS

CERDIP

 $V_{EE} = -4.2V$ to $-5.5V$ 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%	300	900	300	900	300	900	ps

CERPACK

 $V_{EE} = -4.2V$ to $-5.5V$ unless otherwise specified, $V_{CC} = V_{CCA} = GND$, $T_A = 0^{\circ}C$ to $+85^{\circ}C$

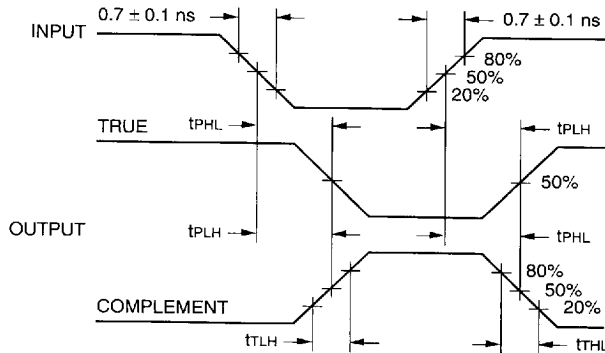
Symbol	Parameter	$T_A = 0^{\circ}C$		$T_A = +25^{\circ}C$		$T_A = +85^{\circ}C$		Unit
		Min.	Max.	Min.	Max.	Min.	Max.	
t _{PLH} t _{PHL}	Propagation Delay Data to Output	300	800	300	800	300	800	ps
t _{TLH} t _{THL}	Transition Time 20% to 80%, 80% to 20%	300	900	300	900	300	900	ps

PLCC

 $V_{EE} = -4.2V$ to $-5.5V$ 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	750	300	750	300	750	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

PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY100S301DC	D24-1	Commercial
SY100S301FC	F24-1	Commercial
SY100S301JC	J28-1	Commercial
SY100S301JCTR	J28-1	Commercial