

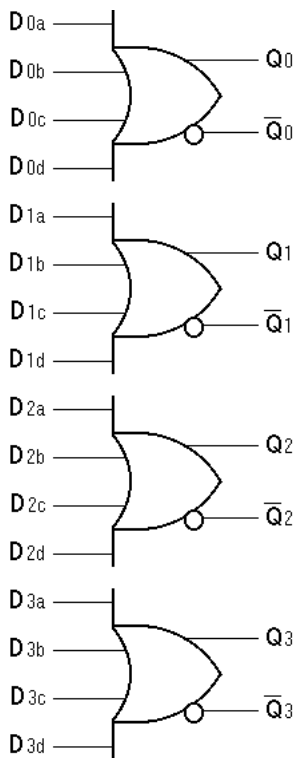
**FEATURES**

- 500ps max. propagation delay
- Extended 100E VEE range of -4.2V to -5.5V
- True and complementary outputs
- Fully compatible with industry standard 10KH, 100K I/O levels
- Internal 75KΩ input pulldown resistors
- Fully compatible with Motorola MC10E/100E101
- Available in 28-pin PLCC package

**DESCRIPTION**

The SY10/100E101 are quad 4-input OR/NOR gates designed for use in new, high-performance ECL systems. The E101 features both true and complementary outputs.

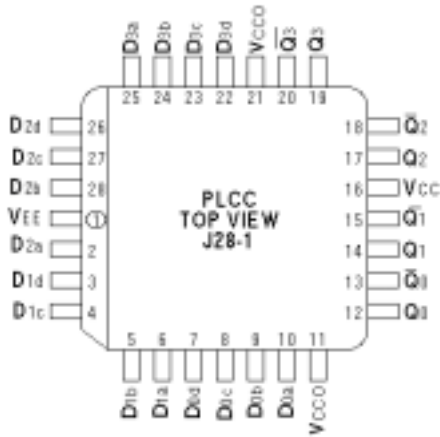
**BLOCK DIAGRAM**



**PIN NAMES**

Pin	Function
D <sub>na</sub> , D <sub>nb</sub> , D <sub>nc</sub> , D <sub>nd</sub>	Data Inputs
Q <sub>0</sub> -Q <sub>3</sub>	True Outputs
Q̄ <sub>0</sub> -Q̄ <sub>3</sub>	Inverting Outputs
V <sub>CC0</sub>	V <sub>CC</sub> to Output

**PACKAGE/ORDERING INFORMATION**



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

**Ordering Information<sup>(1)</sup>**

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10E101JI	J28-1	Industrial	SY10E101JI	Sn-Pb
SY10E101JITR <sup>(2)</sup>	J28-1	Industrial	SY10E101JI	Sn-Pb
SY100E101JI	J28-1	Industrial	SY100E101JI	Sn-Pb
SY100E101JITR <sup>(2)</sup>	J28-1	Industrial	SY100E101JI	Sn-Pb
SY10E101JC	J28-1	Commercial	SY10E101JC	Sn-Pb
SY10E101JCTR <sup>(2)</sup>	J28-1	Commercial	SY10E101JC	Sn-Pb
SY100E101JC	J28-1	Commercial	SY100E101JC	Sn-Pb
SY100E101JCTR <sup>(2)</sup>	J28-1	Commercial	SY100E101JC	Sn-Pb
SY10E101JY <sup>(3)</sup>	J28-1	Industrial	SY10E101JY with Pb-Free bar-line indicator	Matte-Sn
SY10E101JYTR <sup>(2, 3)</sup>	J28-1	Industrial	SY10E101JY with Pb-Free bar-line indicator	Matte-Sn
SY100E101JY <sup>(3)</sup>	J28-1	Industrial	SY100E101JY with Pb-Free bar-line indicator	Matte-Sn
SY100E101JYTR <sup>(2, 3)</sup>	J28-1	Industrial	SY100E101JY with Pb-Free bar-line indicator	Matte-Sn

**Notes:**

1. Contact factory for die availability. Dice are guaranteed at T<sub>A</sub> = 25°C, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

**LOGIC EQUATION**

$$Q_n = D_{na} + D_{nb} + D_{nc} + D_{nd}$$

**DC ELECTRICAL CHARACTERISTICS<sup>(1)</sup>**

$V_{EE} = V_{EE}(\text{Min.})$  to  $V_{EE}(\text{Max.})$ ;  $V_{CC} = V_{CC0} = \text{GND}$

Symbol	Parameter	$T_A = -40^\circ\text{C}$			$T_A = 0^\circ\text{C}$			$T_A = +25^\circ\text{C}$			$T_A = +85^\circ\text{C}$			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
$I_{IH}$	Input HIGH Current	—	—	150	—	—	150	—	—	150	—	—	150	$\mu\text{A}$
$I_{EE}$	Power Supply Current	—	—	—	—	—	—	—	—	—	—	—	—	mA
	10EL	—	30	36	—	30	36	—	30	36	—	30	36	
	100EL	—	30	36	—	30	36	—	30	36	—	35	42	

**Note:**

1. Specification for packaged product only.

**AC ELECTRICAL CHARACTERISTICS<sup>(3)</sup>**

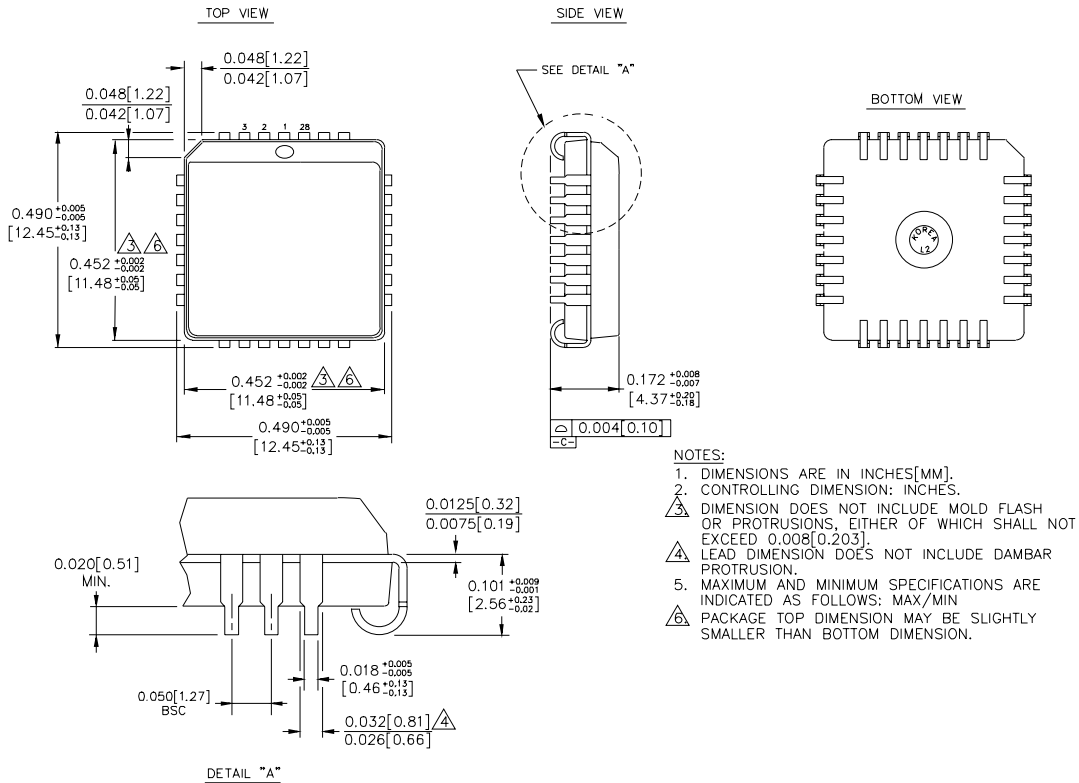
$V_{EE} = V_{EE}(\text{Min.})$  to  $V_{EE}(\text{Max.})$ ;  $V_{CC} = V_{CC0} = \text{GND}$

Symbol	Parameter	$T_A = -40^\circ\text{C}$			$T_A = 0^\circ\text{C}$			$T_A = +25^\circ\text{C}$			$T_A = +85^\circ\text{C}$			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
$t_{PD}$	Propagation Delay to Output D to Q	150	—	550	200	350	500	200	350	500	200	350	500	ps
$t_{skew}$	Within-Device Skew <sup>(1)</sup>	—	50	—	—	50	—	—	50	—	—	50	—	ps
	Within-Gate Skew <sup>(2)</sup>	—	25	—	—	25	—	—	25	—	—	25	—	ps
$t_r$ $t_f$	Rise/Fall Time 20% to 80%	275	—	625	300	380	575	300	380	575	300	380	575	ps

**Notes:**

1. Within-device skew is defined as identical transitions on similar paths through a device.
2. Within-gate skew is defined as the variation in propagation delays through a single gate when driven from its different inputs.
3. Specification for packaged product only.

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



Rev. 03

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