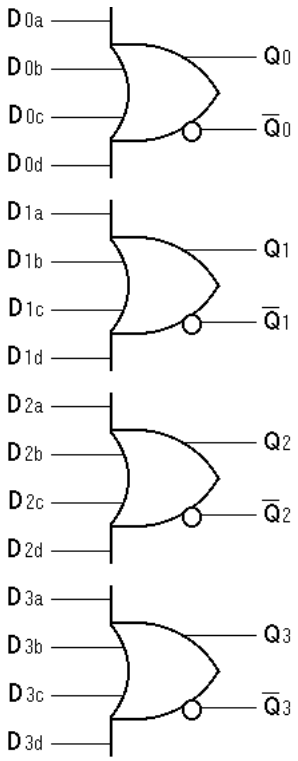
- **500ps max. propagation delay**
- **Extended 100E V_{EE} range of –4.2V to –5.5V**
- **True and complementary outputs**
- **Fully compatible with industry standard 10KH, 100K I/O levels**
- **Internal 75KΩ input pulldown resistors**
- **Fully compatible with Motorola MC10E/100E101**
- **Available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

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.

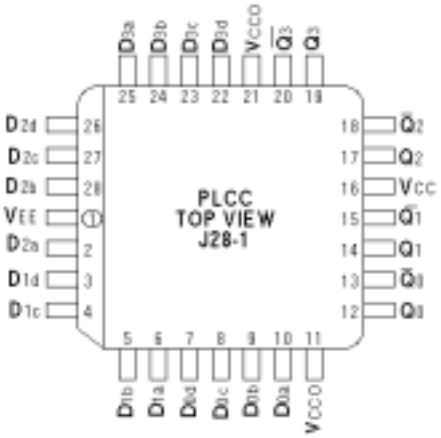
BLOCK DIAGRAM



PIN NAMES

Pin	Function
D_{na}, D_{nb}, D_{nc}, D_{nd}	Data Inputs
Q_0-Q_3	True Outputs
$\overline{Q}_0$-$\overline{Q}_3$	Inverting Outputs
V_{CCO}	V_{CC} to Output

PACKAGE/ORDERING INFORMATION



28-Pin PLCC (J28-1)

Ordering Information[1]

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

Notes:

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

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

DC ELECTRICAL CHARACTERISTICS[1]

$V_{EE} = V_{EE}$(Min.) to V_{EE}(Max.); $V_{CC} = V_{CCO}$ = GND

Symbol	Parameter	$T_A = -40°C$			$T_A = 0°C$			$T_A = +25°C$			$T_A = +85°C$			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
I_{IH}	Input HIGH Current	—	—	150	—	—	150	—	—	150	—	—	150	µA
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[3]

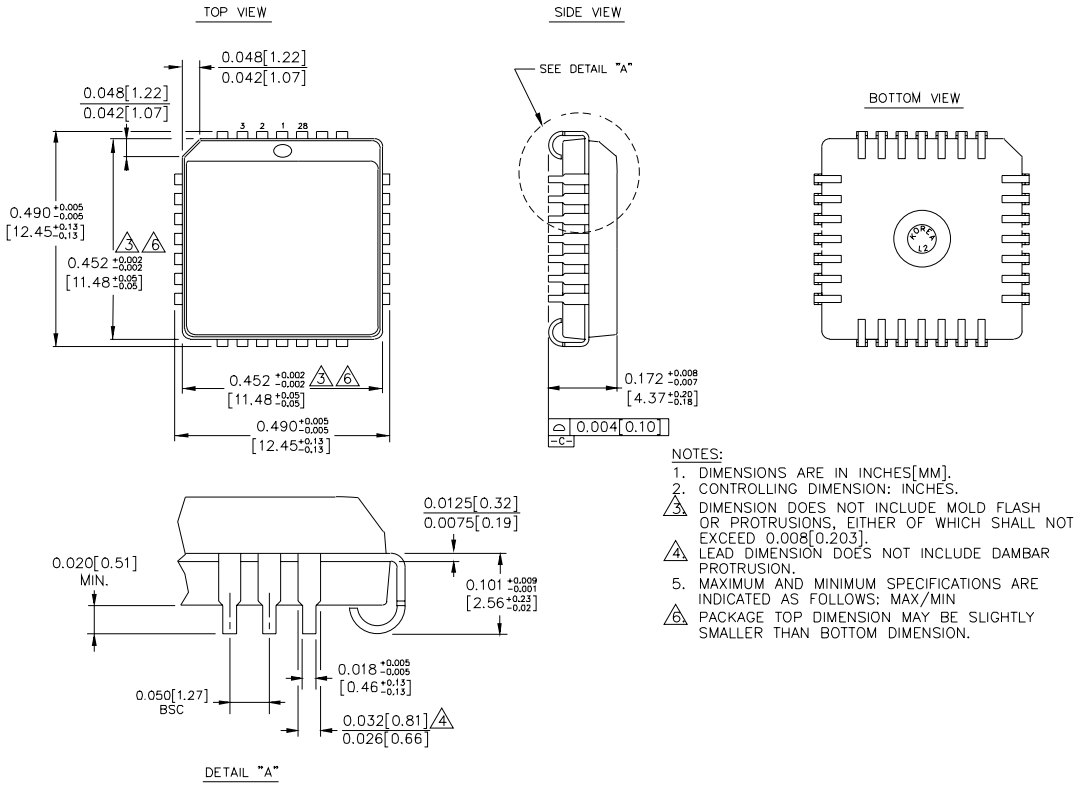
$V_{EE} = V_{EE}$(Min.) to V_{EE}(Max.); $V_{CC} = V_{CCO}$ = GND

Symbol	Parameter	$T_A = -40°C$			$T_A = 0°C$			$T_A = +25°C$			$T_A = +85°C$			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[1]	—	50	—	—	50	—	—	50	—	—	50	—	ps
	Within-Gate Skew[2]	—	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)



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. 03

MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USA

TEL + 1 (408) 944-0800 FAX + 1 (408) 474-1000 WEB http://www.micrel.com