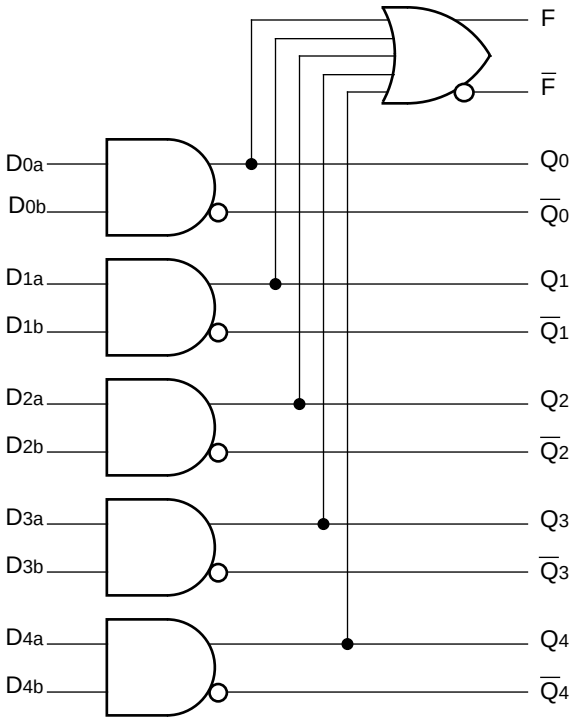
FEATURES

- **600ps max. propagation delay**
- **Extended 100E V_{EE} range of –4.2V to –5.5V**
- **True and complementary outputs**
- **OR/NOR function outputs**
- **Fully compatible with Industry standard 10KH, 100K I/O levels**
- **Internal 75KΩ input pulldown resistors**
- **Fully compatible with Motorola MC10E/100E104**
- **Available in 28-pin PLCC package**

DESCRIPTION

The SY10/100E104 are quint 2-input AND/NAND gates designed for use in new, high-performance ECL systems. The E104 also features a function output, F, which is the OR of all five AND gate outputs, while $\overline{F}$ is the NOR. Both true and complementary outputs are provided.

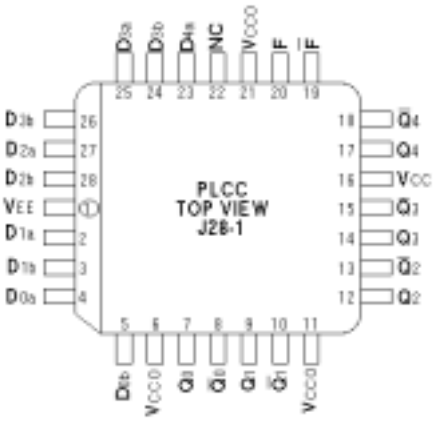
BLOCK DIAGRAM



PIN NAMES

Pin	Function
D_{na}, D_{nb}	Data Inputs
Q_0-Q_4	AND Outputs
$\overline{Q}_0$-$\overline{Q}_4$	NAND Outputs
F	OR Output
$\overline{F}$	NOR Output
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
SY10E104JI	J28-1	Industrial	SY10E104JI	Sn-Pb
SY10E104JITR[2]	J28-1	Industrial	SY10E104JI	Sn-Pb
SY100E104JI	J28-1	Industrial	SY100E104JI	Sn-Pb
SY100E104JITR[2]	J28-1	Industrial	SY100E104JI	Sn-Pb
SY10E104JC	J28-1	Commercial	SY10E104JC	Sn-Pb
SY10E104JCTR[2]	J28-1	Commercial	SY10E104JC	Sn-Pb
SY100E104JC	J28-1	Commercial	SY100E104JC	Sn-Pb
SY100E104JCTR[2]	J28-1	Commercial	SY100E104JC	Sn-Pb
SY10E104JY[3]	J28-1	Industrial	SY10E104JY with Pb-Free bar-line indicator	Matte-Sn
SY10E104JYTR[2, 3]	J28-1	Industrial	SY10E104JY with Pb-Free bar-line indicator	Matte-Sn
SY100E104JY[3]	J28-1	Industrial	SY100E104JY with Pb-Free bar-line indicator	Matte-Sn
SY100E104JYTR[2, 3]	J28-1	Industrial	SY100E104JY 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.

LOGIC EQUATION

$F = (D_{0a} \bullet D_{0b}) + (D_{1a} \bullet D_{1b}) + (D_{2a} \bullet D_{2b}) + (D_{3a} \bullet D_{3b}) + (D4a \bullet D_{4b})$

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	—	—	200	—	—	200	—	—	200	—	—	200	µA
I_{EE}	Power Supply Current													mA
	10E	—	38	46	—	38	46	—	38	46	—	38	46	
	100E	—	38	46	—	38	46	—	38	46	—	44	53	

Note:

1. Specification for packaged product only.

AC ELECTRICAL CHARACTERISTICS[2]

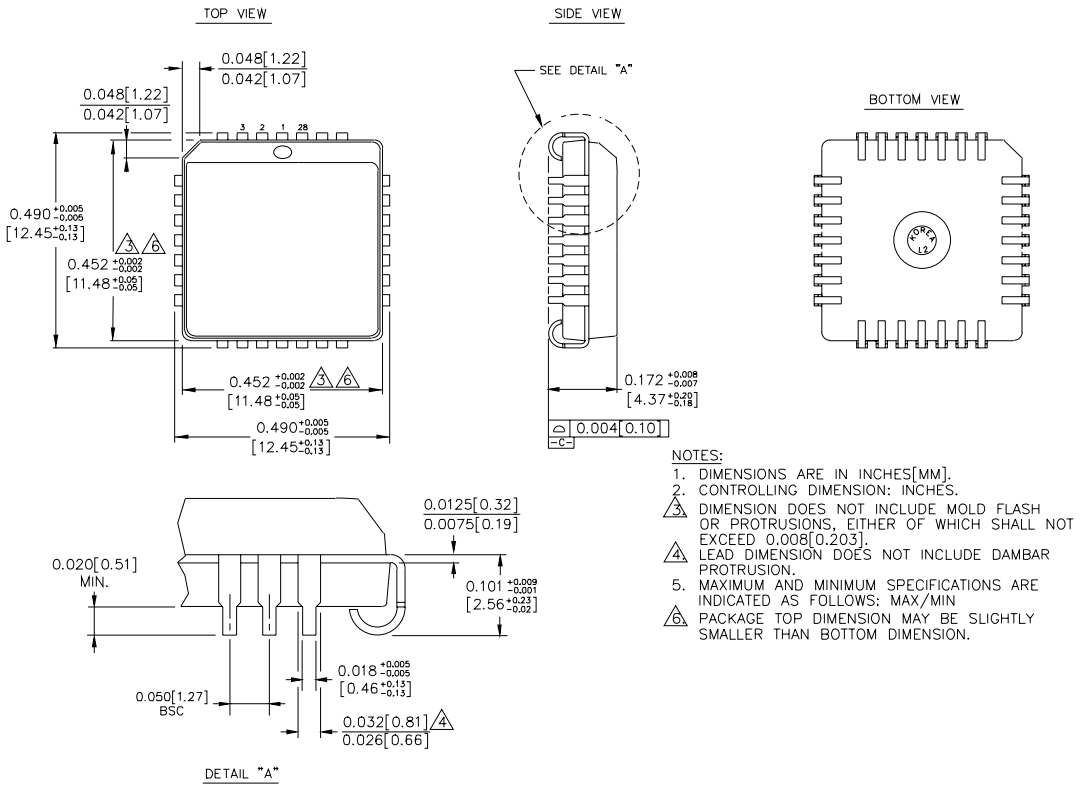
$V_{EE} = V_{EE}$ (Min.) to V_{EE} (Max.); $V_{CC} = V_{CCO} = GND$

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													ps
	Output D to Q	225	385	600	225	385	600	225	385	600	225	385	600	
	D to F	500	725	1000	500	725	1000	500	725	1000	500	725	1000	
t_{skew}	Within-Device Skew, D to Q[1]	—	75	—	—	75	—	—	75	—	—	75	—	ps
t_r	Rise/Fall Time													ps
t_f	20% to 80% Q	275	425	700	275	425	700	275	425	700	275	425	700	
	F	300	475	700	300	475	700	300	475	700	300	475	700	

Notes:

1. Within-device skew is defined as identical transitions on similar paths through a device.
2. 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

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