

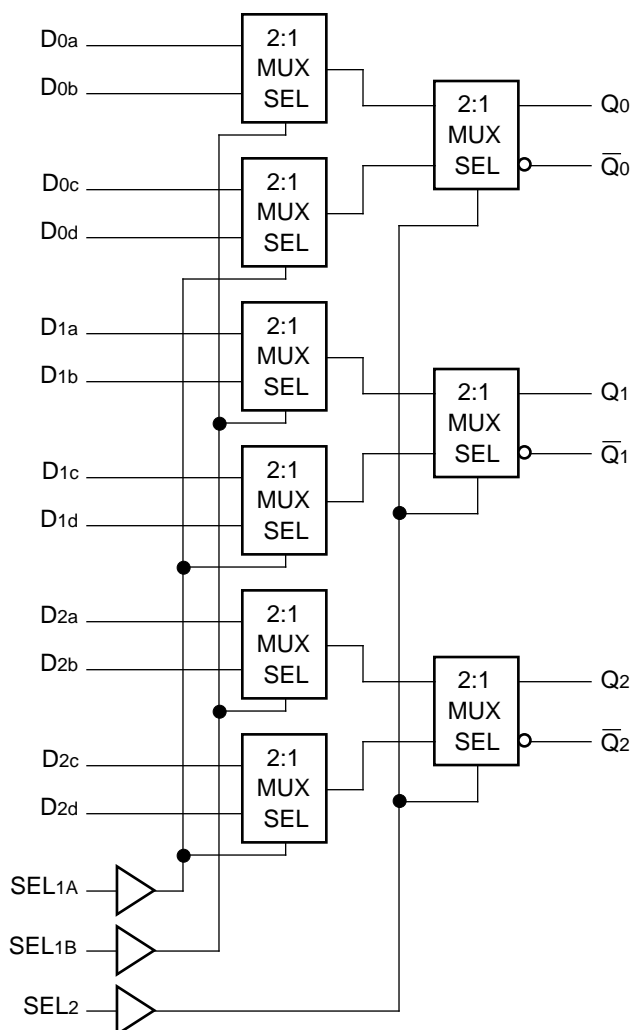
## FEATURES

- 725ps max. D to output
- Extended 100E VEE range of -4.2V to -5.5V
- Differential outputs
- Split select architecture
- Fully compatible with industry standard 10KH, 100K ECL levels
- Internal 75KΩ input pulldown resistors
- Fully compatible with Motorola MC10E/100E171
- Available in 28-pin PLCC package

## DESCRIPTION

The SY10/100E171 offer three 4:1 multiplexers with differential outputs, designed for use in new, high-performance ECL systems. The leading 4-bit multiplexer operation is organized pairwise, with each pair being a 2-bit multiplexer. Separate select (SEL<sub>1A</sub>, SEL<sub>1B</sub>) controls are provided within each pair. The SEL<sub>1A</sub> and SEL<sub>1B</sub> signals control the leading multiplexers, while the SEL<sub>2</sub> signal controls the output multiplexer. The three select signals can be used to determine which of the four data inputs will be propagated to the corresponding outputs.

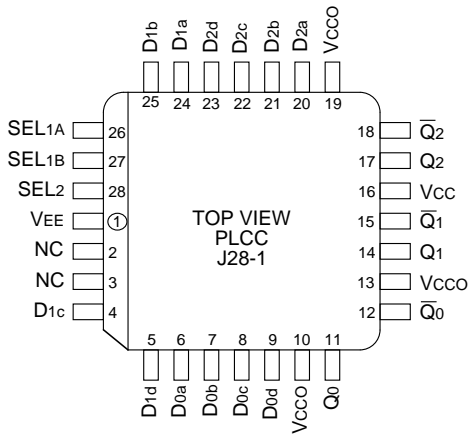
## BLOCK DIAGRAM



## PIN NAMES

Pin	Function
D <sub>0x</sub> -D <sub>2x</sub>	Data Inputs
SEL <sub>1A</sub> , SEL <sub>1B</sub>	First-stage Select Inputs
SEL <sub>2</sub>	Second-stage Select Input
Q <sub>0</sub> -Q <sub>2</sub>	True Output
$\bar{Q}_0$ - $\bar{Q}_2$	Inverted Output
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
SY10E171JC	J28-1	Commercial	SY10E171JC	Sn-Pb
SY10E171JCTR <sup>(2)</sup>	J28-1	Commercial	SY10E171JC	Sn-Pb
SY100E171JC	J28-1	Commercial	SY100E171JC	Sn-Pb
SY100E171JCTR <sup>(2)</sup>	J28-1	Commercial	SY100E171JC	Sn-Pb
SY10E171JZ <sup>(3)</sup>	J28-1	Commercial	SY10E171JZ with Pb-Free bar-line indicator	Matte-Sn
SY10E171JZTR <sup>(2, 3)</sup>	J28-1	Commercial	SY10E171JZ with Pb-Free bar-line indicator	Matte-Sn
SY100E171JZ <sup>(3)</sup>	J28-1	Commercial	SY100E171JZ with Pb-Free bar-line indicator	Matte-Sn
SY100E171JZTR <sup>(2, 3)</sup>	J28-1	Commercial	SY100E171JZ 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.

**TRUTH TABLE**

Pin	State	Operation
SEL2	H	Output c/d data
SEL1A	H	Input d data
SEL1B	H	Input b data

**DC ELECTRICAL CHARACTERISTICS**

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

Symbol	Parameter	$T_A = 0^\circ\text{C}$			$T_A = +25^\circ\text{C}$			$T_A = +85^\circ\text{C}$			Unit	Condition	
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.			
I <sub>IH</sub>	Input HIGH Current	—	—	150	—	—	150	—	—	150	μA	—	
I <sub>EE</sub>	Power Supply Current										mA	—	
		10E	—	56	67	—	56	67	—	56			67
		100E	—	56	67	—	56	67	—	65			77

**AC ELECTRICAL CHARACTERISTICS**

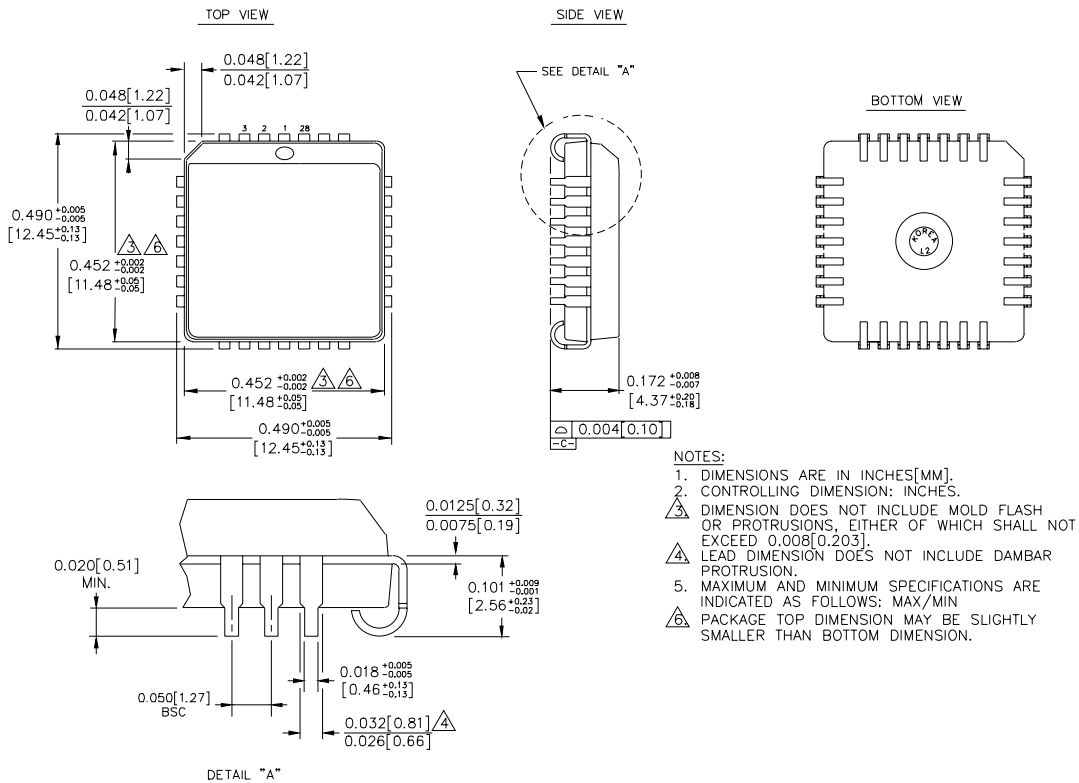
$V_{EE} = V_{EE} (\text{Min.})$  to  $V_{EE} (\text{Max.})$ ;  $V_{CC} = V_{CCO} = \text{GND}$

Symbol	Parameter	$T_A = 0^\circ\text{C}$			$T_A = +25^\circ\text{C}$			$T_A = +85^\circ\text{C}$			Unit	Condition	
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.			
t <sub>PD</sub>	Propagation Delay to Output D	275	480	650	275	480	650	275	480	650	ps	—	
		SEL1	450	650	850	450	650	850	450	650			850
		SEL2	350	550	700	350	550	700	350	550			700
t <sub>skew</sub>	Within-Device Skew										ps	1	
	D <sub>nm</sub> , D <sub>nm</sub> to Q <sub>n</sub>	—	60	—	—	60	—	—	60	—			
	Da, Db, Dc, Dd to Q	—	40	—	—	40	—	—	40	—			
t <sub>r</sub>	Rise/Fall Time	300	475	650	300	475	650	300	475	650	ps	—	
t <sub>f</sub>	20% to 80%												

**Note:**

1. Within-device skew is defined as identical transitions on similar paths through a device; n = 0, 1, 2 m = a, b, c, d.

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



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