



**5-BIT 2:1  
MULTIPLEXER**

**SY10E158  
SY100E158**

**FEATURES**

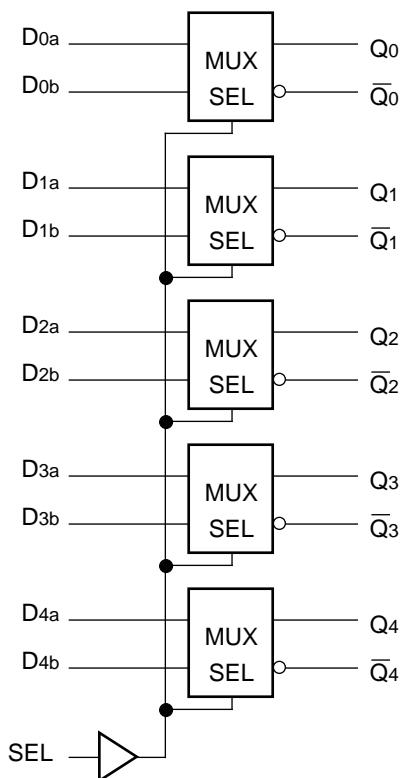
- 550ps max. D to output
- Extended 100E VEE range of -4.2V to -5.5V
- 775ps max. SEL to output
- Differential outputs
- Fully compatible with industry standard 10KH, 100K ECL levels
- Internal 75KΩ input pulldown resistors
- Fully compatible with Motorola MC10E/100E158
- Available in 28-pin PLCC package

**DESCRIPTION**

The SY10/100E158 offer five 2:1 multiplexers with differential outputs, designed for use in new, high-performance ECL systems.

The multiplexer operation is controlled by the SEL (Select) signal which selects one of the two bits of input data at each mux to be passed through.

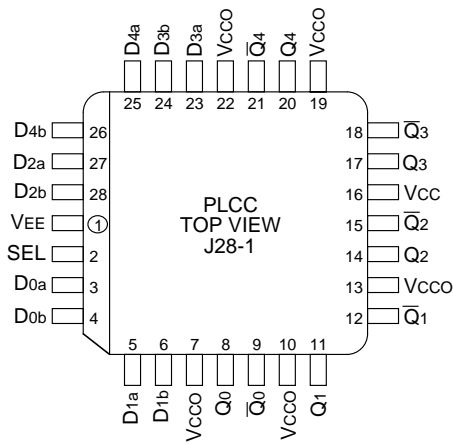
**BLOCK DIAGRAM**



**PIN NAMES**

Pin	Function
D0a-D4a	Input Data a
D0b-D4b	Input Data b
SEL	Select Input
Q0-Q4	True Outputs
Q0-bar-Q4-bar	Inverted Outputs
Vcco	Vcc 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
SY10E158JC	J28-1	Commercial	SY10E158JC	Sn-Pb
SY10E158JCTR <sup>(2)</sup>	J28-1	Commercial	SY10E158JC	Sn-Pb
SY100E158JC	J28-1	Commercial	SY100E158JC	Sn-Pb
SY100E158JCTR <sup>(2)</sup>	J28-1	Commercial	SY100E158JC	Sn-Pb
SY10E158JZ <sup>(3)</sup>	J28-1	Commercial	SY10E158JZ with Pb-Free bar-line indicator	Matte-Sn
SY10E158JZTR <sup>(2, 3)</sup>	J28-1	Commercial	SY10E158JZ with Pb-Free bar-line indicator	Matte-Sn
SY100E158JZ <sup>(3)</sup>	J28-1	Commercial	SY100E158JZ with Pb-Free bar-line indicator	Matte-Sn
SY100E158JZTR <sup>(2, 3)</sup>	J28-1	Commercial	SY100E158JZ 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**

SEL	Data
H	a
L	b

**DC ELECTRICAL CHARACTERISTICS**

VEE = VEE (Min.) to VEE (Max.); VCC = VCCO = GND

Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
IIH	Input HIGH Current	—	—	200	—	—	200	—	—	200	μA	—
	D SEL	—	—	150	—	—	150	—	—	150		
IEE	Power Supply Current	—	—	—	—	—	—	—	—	—	mA	—
	10E	—	33	40	—	33	40	—	33	40		
	100E	—	33	40	—	33	40	—	38	46		

**AC ELECTRICAL CHARACTERISTICS**

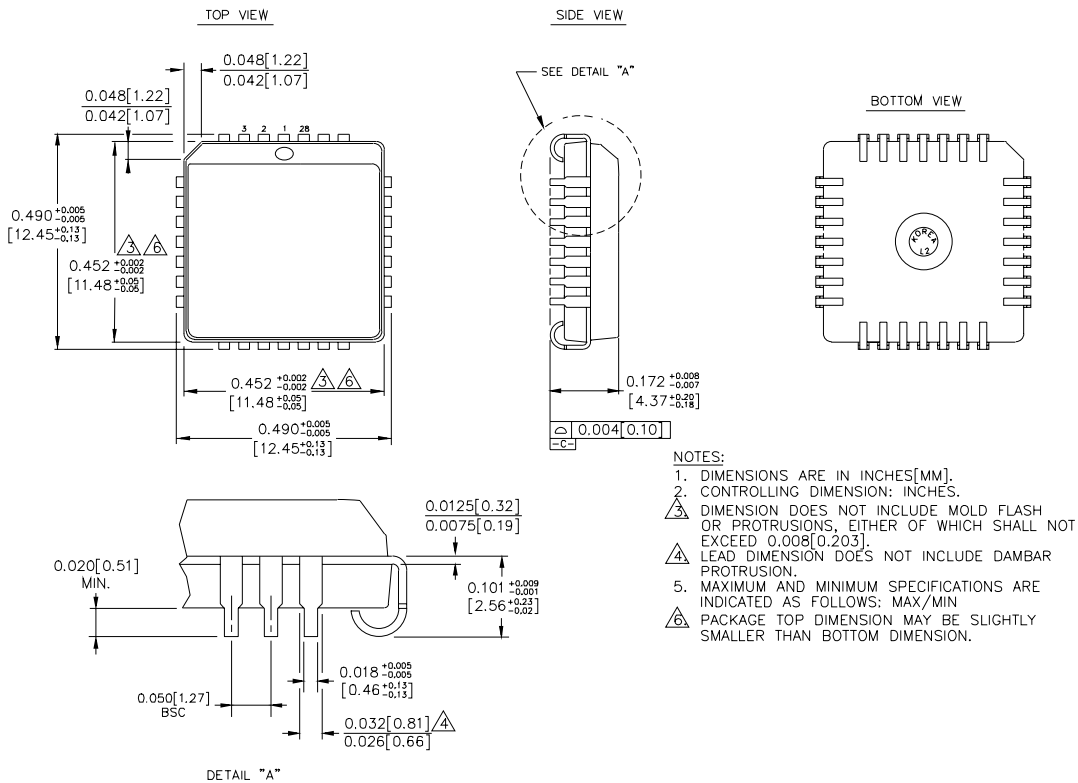
VEE = VEE (Min.) to VEE (Max.); VCC = VCCO = GND

Symbol	Parameter	TA = 0°C			TA = +25°C			TA = +85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
tPD	Propagation Delay to Output	225	385	550	225	385	550	225	385	550	ps	—
	D SEL	400	600	775	400	600	775	400	600	775		
t <sub>skew</sub>	Within-Device Skew	—	60	—	—	60	—	—	60	—	ps	1
t <sub>r</sub> t <sub>f</sub>	Rise/Fall Time 20% to 80%	275	425	650	275	425	650	275	425	650	ps	—

**Note:**

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

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



Rev. 03

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