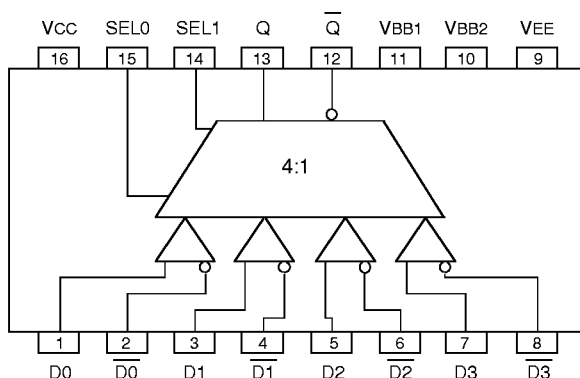


## FEATURES

- Useful as either 4:1 or 2:1 multiplexer
- VBB output for single-ended operation
- 75KΩ internal input pulldown resistors
- ESD protection of 2000V
- Available in 150 mil 16-pin SOIC package

## PIN CONFIGURATION/BLOCK DIAGRAM



SOIC  
TOP VIEW

## DESCRIPTION

The SY10/100EL57 are fully differential 4:1 multiplexers. By leaving the SEL1 line open (pulled LOW via the input pulldown resistors) the device can also be used as a differential 2:1 multiplexer with SEL0 input selecting between D0 and D1. The fully differential architecture of the EL57 makes it ideal for use in low skew applications such as clock distribution.

The SEL1 is the most significant select line. The binary number applied to the select inputs will select the same numbered data input (i.e., 00 selects D0).

Multiple VBB outputs are provided for single-ended or AC coupled interfaces. In these scenarios, the VBB output should be connected to the data bar inputs and bypassed via a 0.01μF capacitor to ground. Note that the VBB output can source/sink up to 0.5mA of current without upsetting the voltage level.

## TRUTH TABLE

SEL1	SEL0	DATA OUT
L	L	D0
L	H	D1
H	L	D2
H	H	D3

## PIN NAMES

Pin	Function
D0-3	Differential Data Inputs
SEL0, 1	Mux Select Inputs
VBB1, 2	Reference Outputs
Q	Data Outputs

## ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup>

Symbol	Rating	Value	Unit
V <sub>EE</sub>	Power Supply (V <sub>CC</sub> = 0V)	-8.0 to 0	V
V <sub>I</sub>	Input Voltage (V <sub>CC</sub> = 0V)	0 to -6.0	V
I <sub>OUT</sub>	Output Current - Continuous - Surge	50 100	mA
T <sub>A</sub>	Operating Temperature Range	-40 to +85	°C
V <sub>EE</sub>	Operating Range <sup>(1), (2)</sup>	-5.7 to -4.2	V

### NOTES:

- ABSOLUTE MAXIMUM RATINGS, beyond which, device life may be impaired, unless otherwise specified on an individual data sheet.
- Parametric values specified at: 5 volt Power Supply Range 100EL57 Series: -4.2V to -5.5V.  
10EL57 Series -4.75V to -5.5V.

## 10EL DC CHARACTERISTICS

V<sub>EE</sub> = V<sub>EE</sub> (Min) - V<sub>EE</sub> (Max); V<sub>CC</sub> = GND<sup>(1)</sup>

Symbol	Parameter	T <sub>A</sub> = -40°C		T <sub>A</sub> = 0°C		T <sub>A</sub> = +25°C		T <sub>A</sub> = +85°C		Unit
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
V <sub>OH</sub>	Output HIGH Voltage	-1080	-890	-1020	-840	-980	-810	-910	-720	mV
V <sub>OL</sub>	Output LOW Voltage	-1950	-1650	-1950	-1630	-1950	-1630	-1950	-1595	mV
V <sub>IH</sub>	Input HIGH Voltage	-1230	-890	-1170	-840	-1130	-810	-1060	-720	mV
V <sub>IL</sub>	Input LOW Voltage	-1950	-1500	-1950	-1480	-1950	-1480	-1950	-1445	mV
I <sub>IL</sub>	Input LOW Current	0.5	—	0.5	—	0.5	—	0.5	—	μA

### NOTE:

- 10EL circuits are designed to meet the DC specifications shown in the table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500lfpm is maintained. Outputs are terminated through a 50Ω resistor to -2.0V except where otherwise specified on the individual data sheets.

## 100EL DC CHARACTERISTICS

V<sub>EE</sub> = V<sub>EE</sub> (Min) - V<sub>EE</sub> (Max); V<sub>CC</sub> = GND<sup>(1)</sup>

Symbol	Parameter	T <sub>A</sub> = -40°C			T <sub>A</sub> = 0°C to 85°C			Unit	Condition
		Min.	Typ.	Max.	Min.	Typ.	Max.		
V <sub>OH</sub>	Output HIGH Voltage	-1085	-1005	-880	-1025	-955	-880	mV	V <sub>IN</sub> = V <sub>IH</sub> (Max) or V <sub>IL</sub> (Min)
V <sub>OL</sub>	Output LOW Voltage	-1830	-1695	-1555	-1810	-1705	-1620	mV	V <sub>IN</sub> = V <sub>IH</sub> (Max) or V <sub>IL</sub> (Min)
V <sub>OHA</sub>	Output HIGH Voltage	-1095	—	—	-1035	—	—	mV	V <sub>IN</sub> = V <sub>IH</sub> (Min) or V <sub>IL</sub> (Max)
V <sub>OLA</sub>	Output LOW Voltage	—	—	-1555	—	—	-1610	mV	V <sub>IN</sub> = V <sub>IH</sub> (Min) or V <sub>IL</sub> (Max)
V <sub>IH</sub>	Input HIGH Voltage	-1165	—	-880	-1165	—	-880	mV	
V <sub>IL</sub>	Input LOW Voltage	-1810	—	-1475	-1810	—	-1475	mV	
I <sub>IL</sub>	Input LOW Current	0.5	—	—	0.5	—	—	μA	V <sub>IN</sub> = V <sub>IL</sub> (Max)

### NOTE:

- The same DC parameter values at V<sub>EE</sub> = -4.5V now apply across the full V<sub>EE</sub> range of -4.2V to -5.5V. Outputs are terminated through a 50Ω resistor to -2.0V except where otherwise specified on the individual data sheets.

## DC ELECTRICAL CHARACTERISTICS

VEE = VEE (Min) - VEE (Max); VCC = GND

Symbol	Parameter	TA = -40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit	
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.		
IEE	Power Supply	10EL	—	15	24	—	15	24	—	15	24	—	15	24	mA
	Current	100EL	—	15	24	—	15	24	—	15	24	—	15	27	
VBB	Output Reference	10EL	-1.43	—	-1.30	-1.38	—	-1.27	-1.35	—	-1.25	-1.31	—	-1.19	V
	Voltage	100EL	-1.38	—	-1.26	-1.38	—	-1.26	-1.38	—	-1.26	-1.38	—	-1.26	
I <sub>IH</sub>	Input HIGH Current		—		150			150			150			150	μA

## AC ELECTRICAL CHARACTERISTICS

VEE = VEE (Min) - VEE (Max); VCC = GND

Symbol	Parameter	TA = -40°C			TA = 0°C			TA = +25°C			TA = +85°C			Unit
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
t <sub>PLH</sub>	Propagation Delay													ps
t <sub>PHL</sub>	DATA to Q/ $\bar{Q}$	350	—	550	350	—	550	360	—	560	380	—	580	
	SEL to Q/ $\bar{Q}$	440	—	690	440	—	690	440	—	690	460	—	710	
t <sub>skew</sub>	Input Skew DATA to Q	—	—	50	—	—	50	—	—	50	—	—	50	ps
V <sub>PP</sub>	Minmum Input Swing													mV
	DATA	150	—	—	150	—	—	150	—	—	150	—	—	
V <sub>CMR</sub>	Common Mode Range													V
	DATA	-2.0	—	-0.4	-2.0	—	-0.4	-2.0	—	-0.4	-2.0	—	-0.4	
t <sub>r</sub>	Output Rise/Fall Times Q	125	—	375	125	—	375	125	—	375	125	—	375	ps
t <sub>f</sub>	(20% - 80%)													

## PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range
SY10EL57ZC	Z16-2	Commercial
SY10EL57ZCTR	Z16-2	Commercial
SY100EL57ZC	Z16-2	Commercial
SY100EL57ZCTR	Z16-2	Commercial

**16 LEAD PLASTIC SOIC .150" WIDE (Z16-2)**

FILE/REV #: PD0038A02

PD/0038/ASCORP

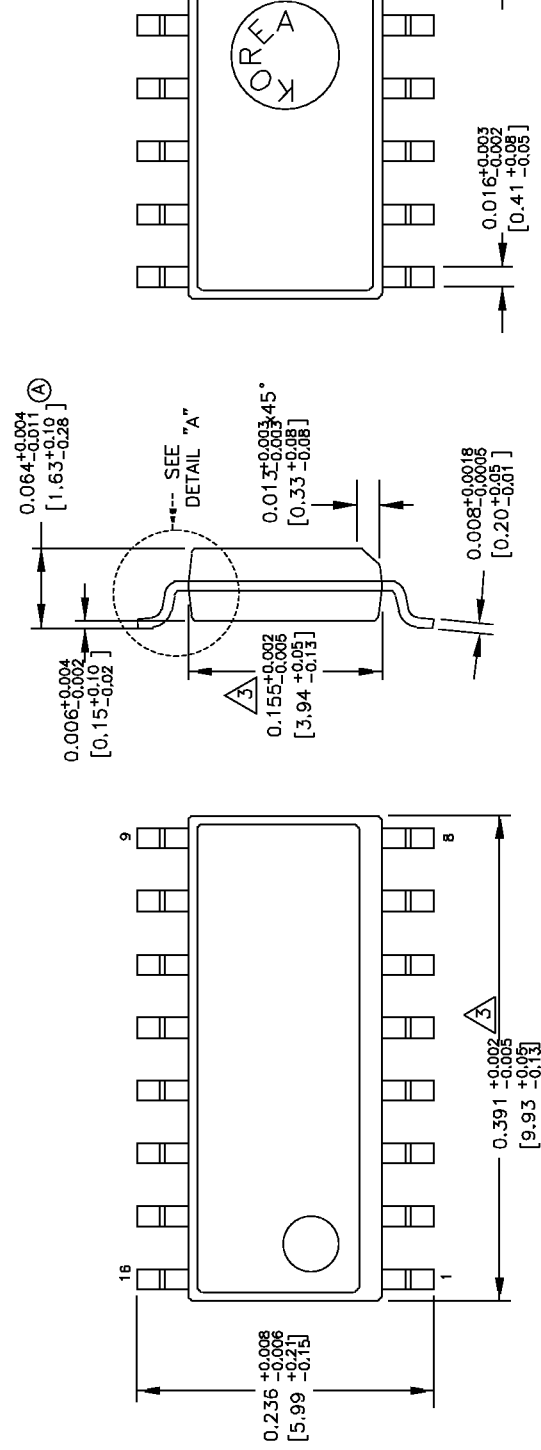
PAGE 1 OF 1

REV.	REVISION DESCRIPTION	DATE
00	NEW OUTLINE DRAWING.	01/20/94
01	CONVERT DWG. TO AUTOCAD REL. 12. REFERENCE AMKOR DWG. NO. 00019 REV. 05. MAKE @ SAME AS JEDEC.	02/22/96
02	CONVERT DWG. TO AUTOCAD REL. 13 AND ONE PAGE DOCUMENT.	02/20/98

TOP VIEW

END VIEW

BOTTOM VIEW



**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 0.006[0.15] PER SIDE.



APPROVALS	DATE	APPROVALS	DATE	SIZE	PACKAGE OUTLINE
ORIGINATOR: FERMIN G. URRUTIA	02/23/98	QUALITY: MARSHALL WILDER		A	16 LEAD PLASTIC SOIC (.150" WIDE)
CHK'D: WON CHANG		DOCUMENT CONTROL: BRIAN SANFILIPPO			
RELEASE DATE:					

3250 SCOTT BOULEVARD  
FAYETTEVILLE, NC 28404  
TEL: 408-980-9191  
FAX: 408-567-7878

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SCALE: N/A  
REVISION: 02

