**DATA SHEET**

ARIZONA MICROTEK, INC.

# AZ10EL57
# AZ100EL57

## 4:1 Differential Multiplexer

## FEATURES

- 75kΩ Internal Input Pulldown Resistors
- 2:1 Operation When SEL1 Not Connected
- Multiple VBB Outputs Allow Single-ended Operation
- Direct Replacement For ON Semiconductor MC10EL57 & MC100EL57
- Manufactured Under License By Lucent Technologies

**PACKAGE AVAILABILITY**

| PACKAGE | PART NO. | MARKING |
|---|---|---|
| SOIC 16 | AZ10EL57D | AZM10EL57 |
| SOIC 16 | AZ100EL57D | AZM100EL57 |

## DESCRIPTION

The AZ10EL/100EL57 is a fully differential 4:1 multiplexer. By leaving the SEL1 line open (pulled LOW via the input pulldown resistor) the device can also be used as a differential 2:1 multiplexer with the 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, 01 selects D1, etc.).

The EL57 provides two $V_{BB}$ outputs for either single-ended use or as a DC bias for AC coupling to the device. The $V_{BB}$ pins should be used only as a bias for the EL57 as its current sink/source capability is limited. Whenever used, the $V_{BB}$ pins should be bypassed to ground via a 0.01 μF capacitor.

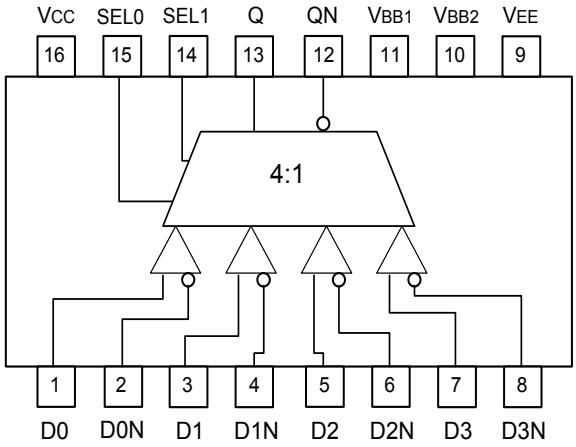
**PIN DESCRIPTION**

| PIN | FUNCTION |
|---|---|
| $D_0$, $D_0N$ – $D_3$, $D_3N$ | Data Input Pairs |
| $SEL_{0,1}$ | Mux Select Inputs |
| $V_{BB1,2}$ | Reference Outputs |
| Q, QN | Data Outputs |

**FUNCTION TABLE**

| $SEL_1$ | $SEL_0$ | Q |
|---|---|---|
| L | L | $D_0$ |
| L | H | $D_1$ |
| H | L | $D_2$ |
| H | H | $D_3$ |

**LOGIC DIAGRAM AND PINOUT ASSIGNMENT**




6/15/00

# AZ10EL57
# AZ100EL57

**Absolute Maximum ratings**[1]

| Symbol | Characteristic | Rating | Unit |
|---|---|---|---|
| $V_{EE}$ | Power Supply ($V_{CC}$ = 0V) | -8.0 to 0 | V |
| $V_I$ | Input Voltage ($V_{CC}$ = 0V) | 0 to -6.0 | V |
| $I_{OUT}$ | Output Current --- Continuous | 50 | mA |
| | --- Surge | 100 | mA |
| $T_A$ | Operating Temperature Range | -40 to +85 | $^{O}$C |
| $V_{EE}$ | Operating range [1,2] | -5.7 to -4.2 | V |

1. Absolute maximum rating beyond which device life may be impaired
2. Parametric values specified at : 10EL Series : -4.94V to –5.50V
   100EL Series: -4.20V to –5.50V

**DC Characteristics** ($V_{EE}$ = 10E(-4.75V to –5.5V),100E(-4.2V to –5.5V); $V_{CC}$ = GND)

| | | -40°C | | 0°C | | 25°C | | | 85°C | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Symbol** | **Characteristic** | **Min** | **Max** | **Min** | **Max** | **Min** | **Typ** | **Max** | **Min** | **Typ** | **Max** | **Unit** |
| $I_{EE}$ | Power Supply 10EL | | 24 | | 24 | | | 24 | | | 24 | mA |
| | Current 100EL | | 24 | | 24 | | | 24 | | | 27 | |
| $V_{BB}$ | Output Ref. 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 | |
| $I_{IH}$ | Input HIGH Current | | 150 | | 150 | | | 150 | | | 150 | µA |

**AC Characteristics** ($V_{EE}$ = 10E(-4.75V to -5.5V),100E(-4.2V to -5.5V); $V_{CC}$ = GND)

| | | -40°C | | | 0°C | | | 25°C | | | 85°C | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Symbol** | **Characteristic** | **Min** | **Typ** | **Max** | **Min** | **Typ** | **Max** | **Min** | **Typ** | **Max** | **Min** | **Typ** | **Max** | **Unit** |
| $t_{PLH}$ | Propagation D to Q | 350 | | 550 | 350 | | 550 | 360 | | 560 | 380 | | 580 | ps |
| $t_{PHL}$ | Delay SEL to Q | 440 | | 690 | 440 | | 690 | 440 | | 690 | 460 | | 710 | |
| $t_{SKEW}$ | Input Skew $D_N$,$D_M$ to Q | | | 100 | | | 100 | | | 100 | | | 100 | ps |
| $V_{PP}$ | Min Input Swing CLK | 250 | | | 250 | | | 250 | | | 250 | | | mV |
| $V_{CMR}$ | Common Mode Range CLK | -2.0 | | -0.4 | -2.0 | | -0.4 | -2.0 | | -0.4 | -2.0 | | -0.4 | V |
| $t_r$ | Output Rise/Fall Times | 125 | | 375 | 125 | | 375 | 125 | | 375 | 125 | | 375 | ps |
| $t_f$ | Q (20% - 80%) | | | | | | | | | | | | | |