

AZ10EL58 AZ100EL58

ECL/PECL 2:1 Multiplexer

FEATURES

- 230ps Propagation Delay
- High Bandwidth Output Transitions
- 75kΩ Internal Input Pulldown Resistors
- Direct Replacement for ON Semiconductor MC10EL58 & MC100EL58

PACKAGE AVAILABILITY

| PACKAGE | PART NUMBER | MARKING | NOTES |
|---------|-------------|------------|-------|
| SOIC 8 | AZ10EL58D | AZM10EL58 | 1,2 |
| SOIC 8 | AZ100EL58D | AZM100EL58 | 1,2 |
| TSSOP 8 | AZ10EL58T | AZTEL58 | 1,2 |
| TSSOP 8 | AZ100EL58T | AZHEL58 | 1,2 |

- 1 Add R1 at end of part number for 7 inch (1K parts), R2 for 13 inch (2.5K parts) Tape & Reel.
- 2 Date Code "YWW" on underside of part.

DESCRIPTION

The AZ10/100EL58 is a 2:1 multiplexer. The device is functionally equivalent to the E158 device with higher performance capabilities. With propagation delays and output transition times significantly faster than the E158, the EL58 is ideally suited for those applications that require the ultimate in AC performance.

NOTE: Specifications in ECL/PECL tables are valid when thermal equilibrium is established.

FUNCTION TABLE

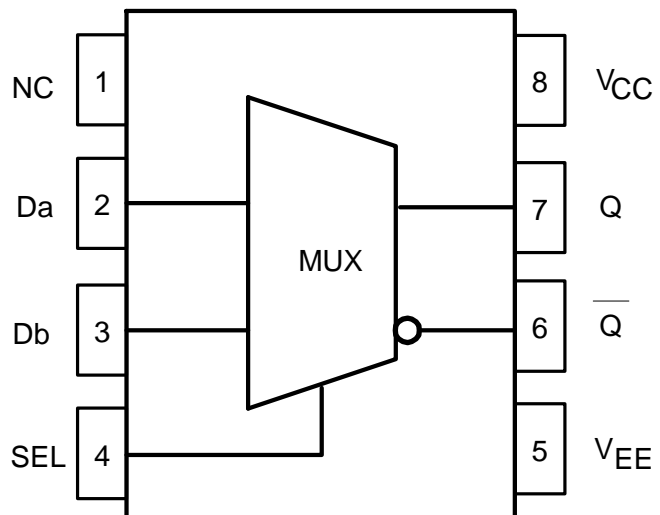
| SEL* | Q |
|------|----|
| H | Da |
| L | Db |

* Pin will default low when left open.

PIN DESCRIPTION

| PIN | FUNCTION |
|-----------------|-----------------|
| Da, Db | Data Inputs |
| Q, Q | Data Outputs |
| SEL | Select |
| V _{CC} | Positive Supply |
| V _{EE} | Negative Supply |
| NC | No Connect |

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



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Absolute Maximum Ratings are those value beyond which device life may be impaired.

| Symbol | Characteristic | Rating | Unit |
|------------------|-----------------------------------------------|-------------|------|
| V _{CC} | PECL Power Supply (V _{EE} = 0V) | 0 to +8.0 | Vdc |
| V _I | PECL Input Voltage (V _{EE} = 0V) | 0 to +6.0 | Vdc |
| V _{EE} | ECL Power Supply (V _{CC} = 0V) | -8.0 to 0 | Vdc |
| V _I | ECL Input Voltage (V _{CC} = 0V) | -6.0 to 0 | Vdc |
| I _{OUT} | Output Current --- Continuous --- Surge | 50 100 | mA |
| T _A | Operating Temperature Range | -40 to +85 | °C |
| T _{STG} | Storage Temperature Range | -65 to +150 | °C |

10K ECL DC Characteristics (V_{EE} = -4.75V to -5.5V, V_{CC} = GND)

| Symbol | Characteristic | -40°C | | | 0°C | | | 25°C | | | 85°C | | | Unit |
|-----------------|----------------------------------|-------|-----|-------|-------|-----|-------|-------|-----|-------|-------|-----|-------|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| V _{OH} | Output HIGH Voltage ¹ | -1080 | | -890 | -1020 | | -840 | -980 | | -810 | -910 | | -720 | mV |
| V _{OL} | Output LOW Voltage ¹ | -1950 | | -1650 | -1950 | | -1630 | -1950 | | -1630 | -1950 | | -1595 | mV |
| V _{IH} | Input HIGH Voltage | -1230 | | -890 | -1170 | | -840 | -1130 | | -810 | -1060 | | -720 | mV |
| V _{IL} | Input LOW Voltage | -1950 | | -1500 | -1950 | | -1480 | -1950 | | -1480 | -1950 | | -1445 | mV |
| I _{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | | | 150 | μA |
| I _{IL} | Input LOW Current | 0.5 | | | 0.5 | | | 0.5 | | | 0.5 | | | μA |
| I _{EE} | Power Supply Current | | 14 | 17 | | 14 | 17 | | 14 | 17 | | 14 | 17 | mA |

- Each output is terminated through a 50Ω resistor to V_{CC} - 2V.

10K PECL DC Characteristics (V_{EE} = GND, V_{CC} = +5.0V)

| Symbol | Characteristic | -40°C | | | 0°C | | | 25°C | | | 85°C | | | Unit |
|-----------------|------------------------------------|-------|-----|------|------|-----|------|------|-----|------|------|-----|------|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| V _{OH} | Output HIGH Voltage ^{1,2} | 3920 | | 4110 | 3980 | | 4160 | 4020 | | 4190 | 4090 | | 4280 | mV |
| V _{OL} | Output LOW Voltage ^{1,2} | 3050 | | 3350 | 3050 | | 3370 | 3050 | | 3370 | 3050 | | 3405 | mV |
| V _{IH} | Input HIGH Voltage ¹ | 3770 | | 4110 | 3830 | | 4160 | 3870 | | 4190 | 3940 | | 4280 | mV |
| V _{IL} | Input LOW Voltage ¹ | 3050 | | 3500 | 3050 | | 3520 | 3050 | | 3520 | 3050 | | 3555 | mV |
| I _{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | | | 150 | μA |
| I _{IL} | Input LOW Current | 0.5 | | | 0.5 | | | 0.5 | | | 0.5 | | | μA |
| I _{EE} | Power Supply Current | | 14 | 17 | | 14 | 17 | | 14 | 17 | | 14 | 17 | mA |

- For supply voltages other than 5.0V, use the ECL table values and ADD supply voltage value.
- Each output is terminated through a 50Ω resistor to V_{CC} - 2V.

100K ECL DC Characteristics (V_{EE} = -4.2V to -5.5V, V_{CC} = GND)

| Symbol | Characteristic | -40°C | | | 0°C | | | 25°C | | | 85°C | | | Unit |
|-----------------|----------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| V _{OH} | Output HIGH Voltage ¹ | -1085 | -1005 | -880 | -1025 | -955 | -880 | -1025 | -955 | -880 | -1025 | -955 | -880 | mV |
| V _{OL} | Output LOW Voltage ¹ | -1830 | -1695 | -1555 | -1810 | -1705 | -1620 | -1810 | -1705 | -1620 | -1810 | -1705 | -1620 | mV |
| V _{IH} | Input HIGH Voltage | -1165 | | -880 | -1165 | | -880 | -1165 | | -880 | -1165 | | -880 | mV |
| V _{IL} | Input LOW Voltage | -1810 | | -1475 | -1810 | | -1475 | -1810 | | -1475 | -1810 | | -1475 | mV |
| I _{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | | | 150 | μA |
| I _{IL} | Input LOW Current | 0.5 | | | 0.5 | | | 0.5 | | | 0.5 | | | μA |
| I _{EE} | Power Supply Current | | 14 | 17 | | 14 | 17 | | 14 | 17 | | 16 | 19 | mA |

- Each output is terminated through a 50Ω resistor to V_{CC} - 2V.

100K PECL DC Characteristics (V_{EE} = GND, V_{CC} = +5.0V)

| Symbol | Characteristic | -40°C | | | 0°C | | | 25°C | | | 85°C | | | Unit |
|-----------------|------------------------------------|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| V _{OH} | Output HIGH Voltage ^{1,2} | 3915 | 3995 | 4120 | 3975 | 4045 | 4120 | 3975 | 4045 | 4120 | 3975 | 4045 | 4120 | mV |
| V _{OL} | Output LOW Voltage ^{1,2} | 3170 | 3305 | 3445 | 3190 | 3295 | 3380 | 3190 | 3295 | 3380 | 3190 | 3295 | 3380 | mV |
| V _{IH} | Input HIGH Voltage ¹ | 3835 | | 4120 | 3835 | | 4120 | 3835 | | 4120 | 3835 | | 4120 | mV |
| V _{IL} | Input LOW Voltage ¹ | 3190 | | 3525 | 3190 | | 3525 | 3190 | | 3525 | 3190 | | 3525 | mV |
| I _{IH} | Input HIGH Current | | | 150 | | | 150 | | | 150 | | | 150 | μA |
| I _{IL} | Input LOW Current | 0.5 | | | 0.5 | | | 0.5 | | | 0.5 | | | μA |
| I _{EE} | Power Supply Current | | 14 | 17 | | 14 | 17 | | 14 | 17 | | 16 | 19 | mA |

- For supply voltages other than 5.0V, use the ECL table values and ADD supply voltage value.
- Each output is terminated through a 50Ω resistor to V_{CC} - 2V.

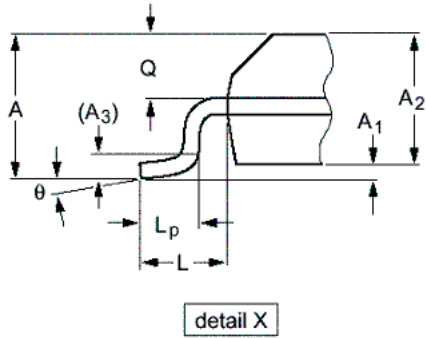
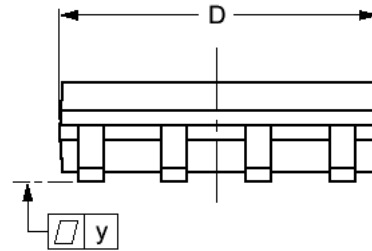
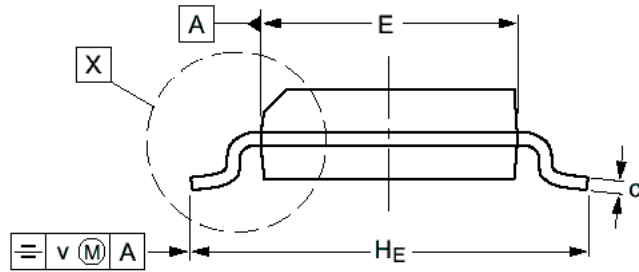
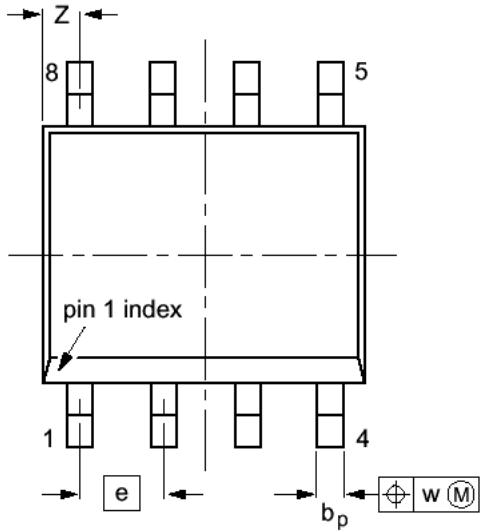
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AC Characteristics ($V_{EE} = 10E(-4.75V \text{ to } -5.5V)$, $100E(-4.2V \text{ to } -5.5V)$; $V_{CC} = GND$ or $V_{EE} = GND$, $V_{CC} = 10E(+4.75V \text{ to } +5.5V)$, $100E(+4.2V \text{ to } +5.5V)$)

| Symbol | Characteristic | -40°C | | | 0°C | | | 25°C | | | 85°C | | | Unit |
|---------------------|-----------------------------|-------|-----|-----|-----|-----|-----|------|-----|-----|------|-----|-----|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| t_{PLH} / t_{PHL} | Propagation Delay to Output | 60 | 220 | 380 | 110 | 220 | 330 | 120 | 230 | 340 | 140 | 250 | 360 | ps |
| | D to Q SEL to Q | 90 | 250 | 410 | 140 | 250 | 360 | 150 | 260 | 370 | 170 | 280 | 390 | |
| t_r / t_f | Rise/Fall Time 20 – 80% | 100 | | 350 | 100 | | 350 | 100 | | 350 | 100 | | 350 | ps |

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**PACKAGE DIAGRAM
SOIC 8**



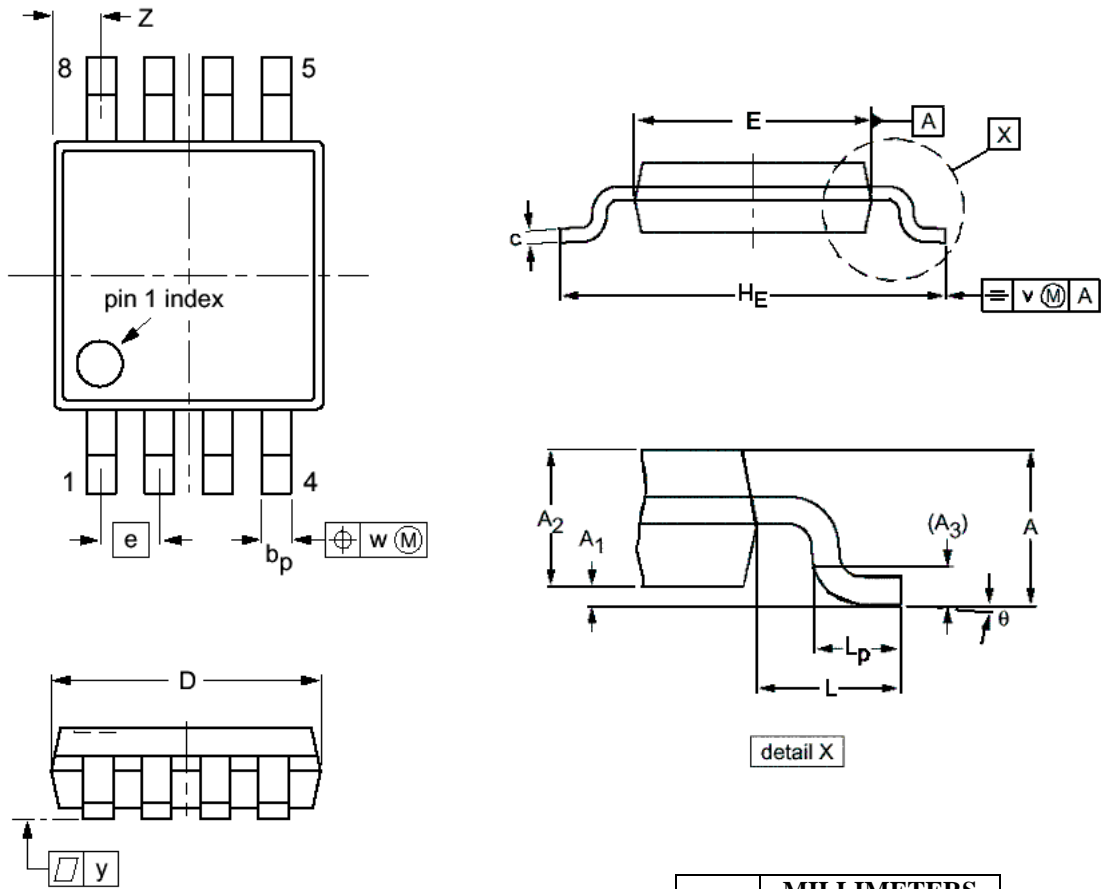
| DIM | MILLIMETERS | | INCHES | |
|----------------|-------------|------|--------|--------|
| | MIN | MAX | MIN | MAX |
| A | | 1.75 | | 0.069 |
| A ₁ | 0.10 | 0.25 | 0.004 | 0.010 |
| A ₂ | 1.25 | 1.45 | 0.049 | 0.057 |
| A ₃ | 0.25 | | 0.01 | |
| b _p | 0.36 | 0.49 | 0.014 | 0.019 |
| c | 0.19 | 0.25 | 0.0075 | 0.0100 |
| D | 4.8 | 5.0 | 0.19 | 0.20 |
| E | 3.8 | 4.0 | 0.15 | 0.16 |
| e | 1.27 | | 0.050 | |
| H _E | 5.80 | 6.20 | 0.228 | 0.244 |
| L | 1.05 | | 0.041 | |
| L _p | 0.40 | 1.00 | 0.016 | 0.039 |
| Q | 0.60 | 0.70 | 0.024 | 0.028 |
| v | 0.25 | | 0.01 | |
| w | 0.25 | | 0.01 | |
| y | 0.10 | | 0.004 | |
| Z | 0.30 | 0.70 | 0.012 | 0.028 |
| θ | 0° | 8° | 0° | 8° |

NOTES:

1. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
2. MAXIMUM MOLD PROTRUSION FOR D IS 0.15mm.
3. MAXIMUM MOLD PROTRUSION FOR E IS 0.25mm.

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**PACKAGE DIAGRAM
TSSOP 8**



- NOTES:
1. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
 2. MAXIMUM MOLD PROTRUSION FOR D IS 0.15mm.
 3. MAXIMUM MOLD PROTRUSION FOR E IS 0.25mm.

| DIM | MILLIMETERS | |
|----------------|-------------|------|
| | MIN | MAX |
| A | | 1.10 |
| A ₁ | 0.05 | 0.15 |
| A ₂ | 0.80 | 0.95 |
| A ₃ | 0.25 | |
| b _p | 0.25 | 0.45 |
| c | 0.15 | 0.28 |
| D | 2.90 | 3.10 |
| E | 2.90 | 3.10 |
| e | 0.65 | |
| H _E | 4.70 | 5.10 |
| L | 0.94 | |
| L _p | 0.40 | 0.70 |
| v | 0.10 | |
| w | 0.10 | |
| y | 0.10 | |
| Z | 0.35 | 0.70 |
| θ | 0° | 6° |

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