

AZ100ELT21

Differential PECL to CMOS/TTL Translator

FEATURES

- Green / RoHS Compliant / Lead (Pb) Free Package Available
- 3.5ns Typical Propagation Delay
- Differential PECL Inputs
- CMOS/TTL Outputs
- Flow Through Pinouts
- Operating Range of 3.0V to 5.5V
- Direct Replacement for ON Semiconductor MC100ELT21
- Use AZ100ELT21 for 10K Applications

PACKAGE AVAILABILITY

| PACKAGE | PART NO. | MARKING | NOTES |
|---|--------------|---------------------------------|-------|
| SOIC 8 | AZ100ELT21D | AZM100 ELT21 <Date Code> | 1,2 |
| SOIC 8 Green / RoHS Compliant / Lead (Pb) Free | AZ100ELT21DG | AZM100G ELT21 <Date Code> | 1,2 |
| TSSOP 8 | AZ100ELT21T | AZH T21 <Date Code> | 1,2 |
| TSSOP 8 Green / RoHS Compliant / Lead (Pb) Free | AZ100ELT21TG | AZHG T21 <Date Code> | 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 format: "Y" for year followed by "WW" for week.

DESCRIPTION

The AZ100ELT21 is a differential PECL to CMOS/TTL translator. Because PECL (Positive ECL) levels are used, only V_{CC} and ground are required. The small outline 8-lead packaging and the single gate of the ELT21 makes it ideal for those applications where space, performance and low power are at a premium.

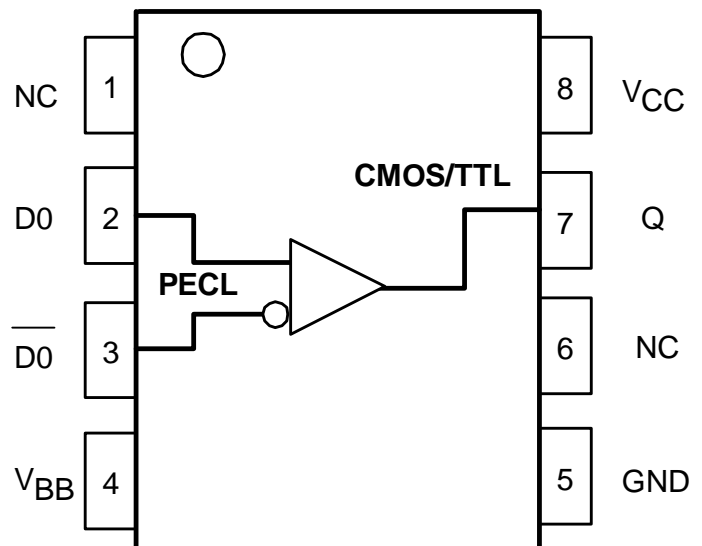
The ELT21 provides a V_{BB} output for single-ended use or a DC bias reference for AC coupling to the device. For single-ended input applications, the V_{BB} reference should be connected to one side of the D0/D0 differential input pair. The input signal is then fed to the other D0/D0 input. The V_{BB} pin should be used only as a bias for the ELT21 as its sink/source capability is limited. When used, the V_{BB} pin should be bypassed to ground via a 0.01 μ F capacitor.

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

PIN DESCRIPTION

| PIN | FUNCTION |
|----------|--------------------------|
| Q | CMOS/TTL Output |
| D0, D0 | Differential Inputs |
| V_{CC} | Positive Supply |
| V_{BB} | Reference Voltage Output |
| GND | Ground |
| NC | No Connect |

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



AZ100ELT21

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

| Symbol | Character | Value | Unit |
|------------------|---|-------------|------|
| V _{CC} | DC Supply Voltage (Referenced to GND) | 7.0 | V |
| T _A | Operating Temperature Range (In Free-Air) | -40 to +85 | °C |
| T _{STG} | Storage Temperature Range | -65 to +150 | °C |

CMOS/TTL DC CHARACTERISTICS (V_{CC} = +3.0V to +5.5V)

| Symbol | Characteristic | Min | Typ | Max | Unit | Condition |
|-----------------|------------------------------|-----------------------|-----|------|------|--------------------------|
| V _{OH} | Output HIGH Voltage | V _{CC} - 0.5 | | | V | I _{OH} = -24 mA |
| V _{OL} | Output LOW Voltage | | | 0.5 | V | I _{OL} = 24 mA |
| I _{CC} | Power Supply Current | | 9.0 | 15 | mA | 0°C to 85°C |
| I _{CC} | Power Supply Current | | 9.0 | 17.6 | mA | -40°C to 85°C |
| I _{OS} | Output Short Circuit Current | | 100 | | mA | |

100K LVPECL DC Characteristics (V_{CC} = +3.3V)

| Symbol | Characteristic | -40°C | | | 0°C | | | 25°C | | | 85°C | | | Unit |
|------------------|----------------------------------|-------|-----|-----------------|------|-----|-----------------|------|-----|-----------------|------|-----|-----------------|------|
| | | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | |
| V _{IH} | Input HIGH Voltage | 2135 | | 2420 | 2135 | | 2420 | 2135 | | 2420 | 2135 | | 2420 | mV |
| V _{IL} | Input LOW Voltage | 1490 | | 1825 | 1490 | | 1825 | 1490 | | 1825 | 1490 | | 1825 | mV |
| V _{BB} | Reference Voltage | 1920 | | 2090 | 1920 | | 2090 | 1920 | | 2090 | 1920 | | 2090 | mV |
| V _{PP} | Minimum Input Swing ¹ | 200 | | | 200 | | | 200 | | | 200 | | | mV |
| V _{CMR} | Common Mode Range | 1.2 | | V _{CC} | 1.2 | | V _{CC} | 1.2 | | V _{CC} | 1.2 | | V _{CC} | V |
| I _{IL} | Input LOW Current | 0.5 | | | 0.5 | | | 0.5 | | | 0.5 | | | μA |
| I _{IH} | Input HIGH Current | | | 150 | | | | | | 150 | | | | μA |

1. 200mV input guarantees full logic swing at the output.

100K PECL DC Characteristics (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 _{IH} | Input HIGH Voltage | 3835 | | 4120 | 3835 | | 4120 | 3835 | | 4120 | 3835 | | 4120 | mV |
| V _{IL} | Input LOW Voltage | 3190 | | 3525 | 3190 | | 3525 | 3190 | | 3525 | 3190 | | 3525 | mV |
| V _{BB} | Reference Voltage | 3620 | | 3790 | 3620 | | 3790 | 3620 | | 3790 | 3620 | | 3790 | mV |
| V _{PP} | Minimum Input Swing ¹ | 200 | | | 200 | | | 200 | | | 200 | | | mV |
| V _{CMR} | Common Mode Range | 1.2 | | V _{CC} | 1.2 | | V _{CC} | 1.2 | | V _{CC} | 1.2 | | V _{CC} | V |
| I _{IL} | Input LOW Current | 0.5 | | | 0.5 | | | 0.5 | | | 0.5 | | | μA |
| I _{IH} | Input HIGH Current | | | 150 | | | | | | 150 | | | | μA |

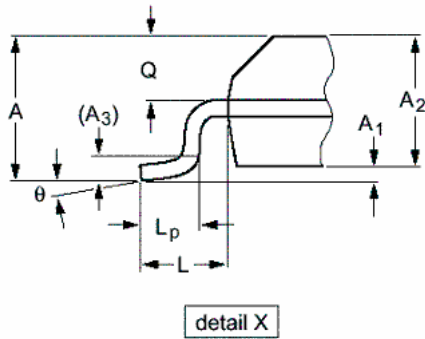
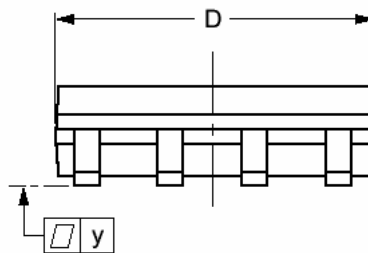
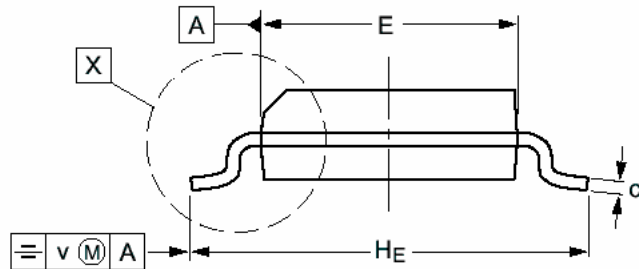
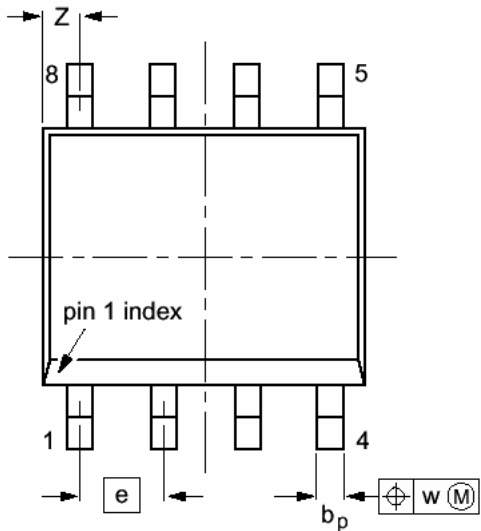
1. 200mV input guarantees full logic swing at the output.

AC Characteristics (V_{CC} = +3.0V 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 ¹ V _{CC} = 4.5V to 5.5V V _{CC} = 3.0V to 3.6V | 2.0 3.5 | | 5.5 7.0 | 2.0 3.5 | | 5.5 7.0 | 2.0 3.5 | | 5.5 7.0 | 2.0 3.5 | | 5.5 7.0 | ns |

1. C_L=20pF

**PACKAGE DIAGRAM
SOIC 8**

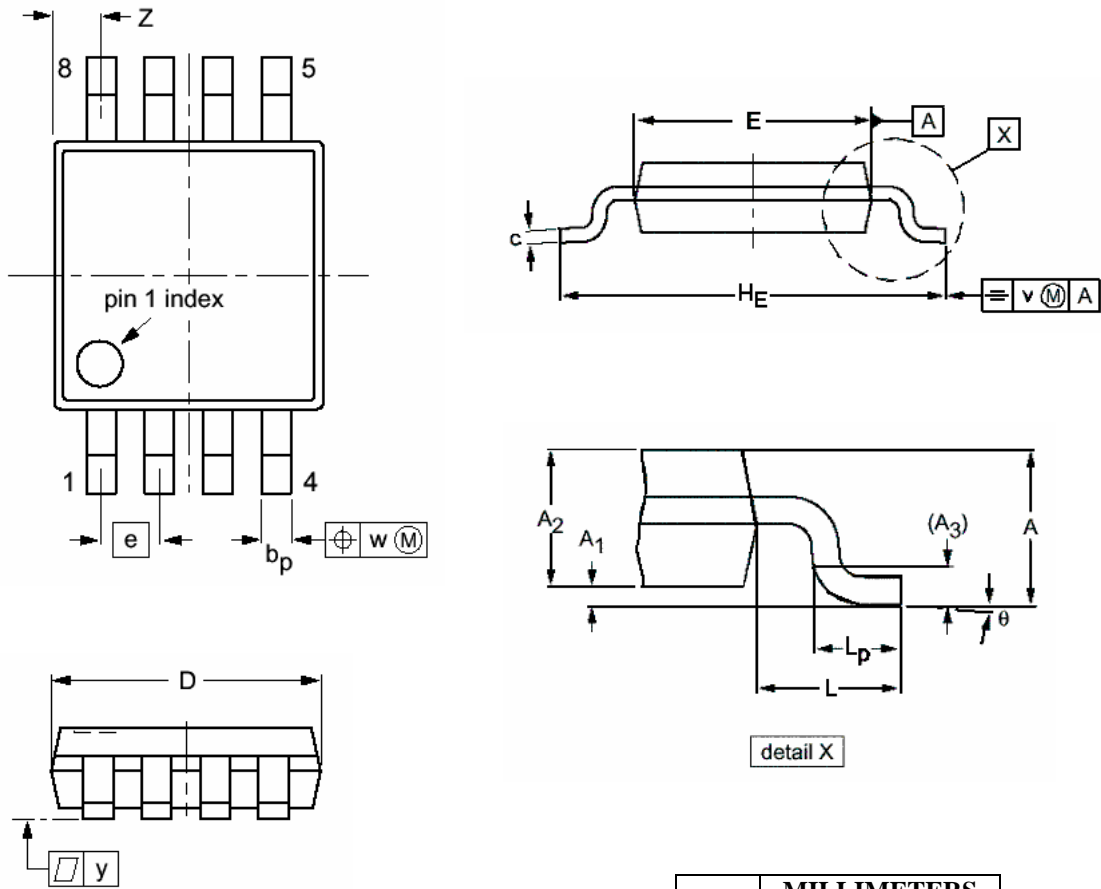


| DIM | MILLIMETERS | | INCHES | |
|----------------|-------------|------|--------|--------|
| | MIN | MAX | MIN | MAX |
| A | 1.35 | 1.75 | 0.053 | 0.069 |
| A ₁ | 0.10 | 0.25 | 0.004 | 0.010 |
| A ₂ | 1.28 | 1.57 | 0.050 | 0.062 |
| A ₃ | 0.25 | | 0.01 | |
| b _p | 0.36 | 0.49 | 0.014 | 0.019 |
| c | 0.19 | 0.25 | 0.0075 | 0.0100 |
| D | 4.80 | 5.00 | 0.19 | 0.20 |
| E | 3.80 | 4.00 | 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 | 1.27 | 0.016 | 0.050 |
| 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.

**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 | 0.75 | 0.95 |
| A ₃ | 0.25 | |
| b _p | 0.22 | 0.40 |
| c | 0.13 | 0.23 |
| D | 2.90 | 3.10 |
| E | 2.90 | 3.10 |
| e | 0.65 | |
| H _E | 4.75 | 5.05 |
| L | 0.95 | |
| L _p | 0.40 | 0.70 |
| v | 0.10 | |
| w | 0.08 | |
| y | 0.10 | |
| Z | 0.38 | 0.64 |
| θ | 0° | 6° |

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