

AZ100ELT20

CMOS/TTL to Differential PECL Translator

www.azmicrotek.com

DESCRIPTION

The [AZ100ELT20](#) is a CMOS/TTL to differential PECL translator. It operates with a single power supply of +3.0 to +5.5 volts, making it ideal for both LVC MOS/LVTTL and CMOS/TTL applications. The extremely small MLP8 2.0x2.0mm package makes it ideal for those applications where space, performance and low power are at a premium.

The AZ100ELT20 is a direct replacement for the ON Semi MC100ELT20, MC100LVELT20 and Micrel SY89329V

FEATURES

- 0.5ns typical propagation delay
- Differential PECL outputs
- Flow through pinouts
- Available in MLP8 (2.0x2.0mm) package

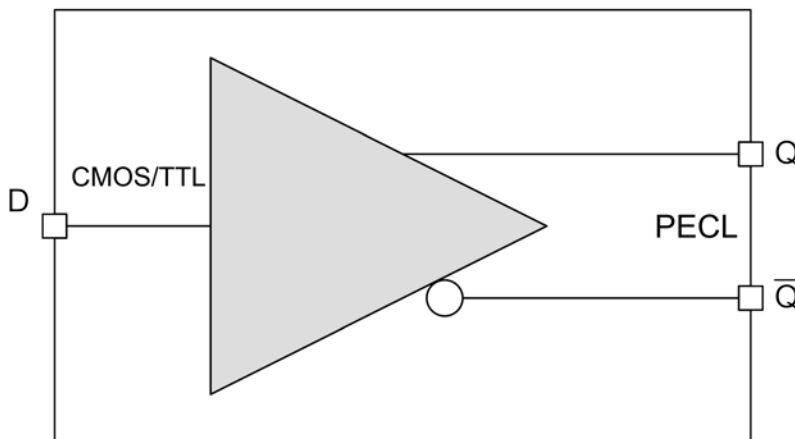
APPLICATIONS

- LVC MOS/LVTTL to LVPECL translations
- CMOS/TTL to PECL translations

PACKAGE AVAILABILITY

- MLP8
 - Green/RoHS/Pb-Free
- MSOP8
 - Green/RoHS/Pb-Free
- SOIC8
 - Green/RoHS/Pb-Free

BLOCK DIAGRAM



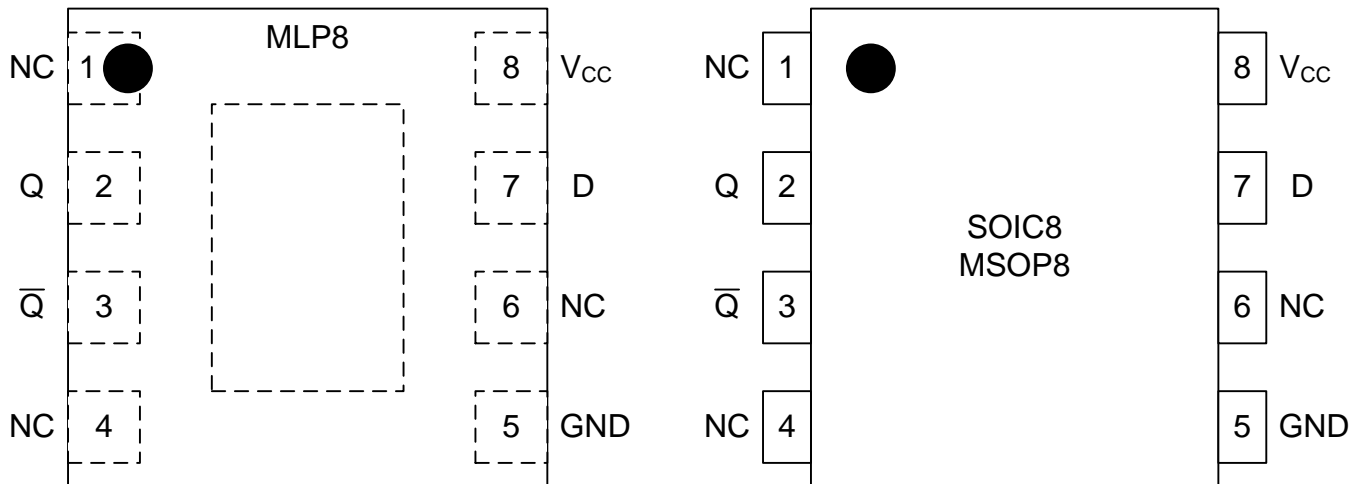
| Order Number | Package | Marking |
|---------------------------|---------|------------------------------|
| AZ100ELT20NG ¹ | MLP8 | TCG <Date Code> ² |
| AZ100ELT20DG ¹ | SOIC8 | AZM100GELT20 ² |
| AZ100ELT20TG ¹ | MSOP8 | AZHGLT20 ² |

¹ [Tape & Reel](#) - Add 'R1' at end of order number for 7in (1k parts), 'R2' (2.5k) for 13in

² See www.azmicrotek.com for [date code format](#)

PIN DESCRIPTION AND CONFIGURATION**Table 1 - Pin Description**

| Pin | Name | Type | Function |
|-----|-----------------|--------|-----------------|
| 1 | NC | | |
| 2 | Q | Output | PECL Output |
| 3 | \bar{Q} | Output | PECL Output |
| 4 | NC | | |
| 5 | GND | Power | Ground |
| 6 | NC | | |
| 7 | D | Input | Data Input |
| 8 | V _{CC} | Power | Positive Supply |

**Figure 1 - Pin Configuration for MLP8 & SOIC8/MSOP8, respectively**

ENGINEERING NOTES

When the D input is left floating, the Q output is forced HIGH, and the Q output is forced LOW.

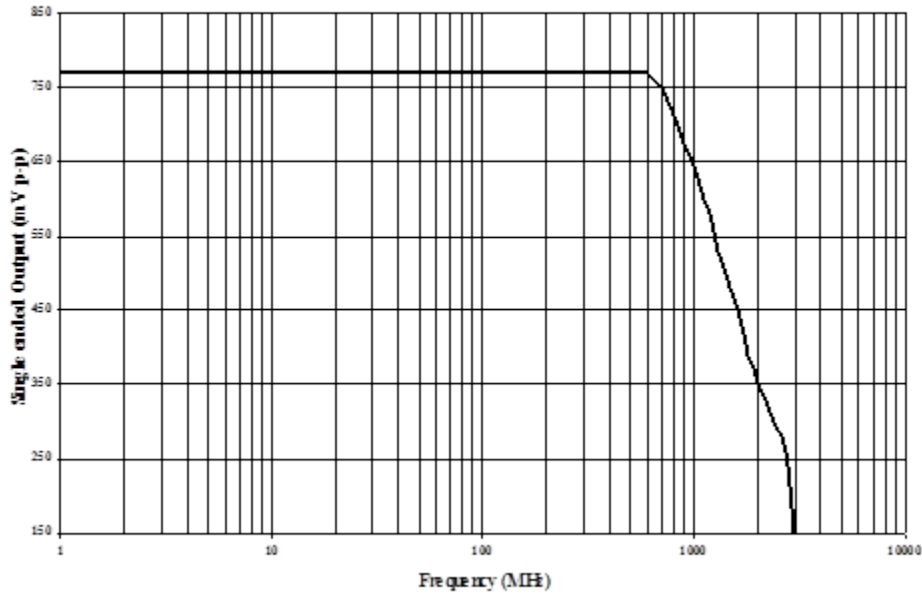


Figure 2 – AZ100ELT20 Large Signal Bandwidth

PERFORMANCE DATA**Table 2 – Absolute Maximum Ratings**

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

| Symbol | Characteristic | Condition | Rating | Unit |
|--------------------|-----------------------------|------------------------|-------------|------|
| V _{CC} | DC Power Supply | (V _{EE} = 0V) | 0 to +8.0 | V |
| V _{IN} | Input Voltage | (V _{EE} = 0V) | 0 to +6.0 | V |
| I _{OUT} | Output Current | Continuous | 50 | mA |
| | | Surge | 100 | |
| T _A | Operating Temperature Range | | -40 to +85 | °C |
| T _{STG} | Storage Temperature Range | | -65 to +150 | °C |
| ESD _{HBM} | Human Body Model | | 2500 | V |
| ESD _{MM} | Machine Model | | 200 | V |
| ESD _{CDM} | Charged Device Model | | 2500 | V |

Table 3 – TTL/CMOS Input DC CharacteristicsTTL/CMOS Input DC Characteristics (GND = 0.0V, V_{CC} = +3.3V to 5.5V)

| Symbol | Characteristic | Condition | Min | Typ | Max | Unit |
|------------------|---------------------------|-----------------------------------|-----|-----|------|------|
| I _{IH} | Input HIGH Current | V _{IN} = 2.7V | | | 15 | μA |
| I _{IHH} | Input HIGH Current | V _{IN} = V _{CC} | | | 20 | μA |
| I _{IL} | Input LOW Current | V _{IN} = 0.5V | | | -0.1 | mA |
| V _{IK} | Input Clamp Diode Voltage | I _{IN} = -18mA | | | -1.2 | V |
| V _{IH} | Input HIGH Voltage | | 2 | | | V |
| V _{IL} | Input LOW Voltage | | | | 0.8 | V |

Table 4 - LVPECL DC CharacteristicsLVPECL DC Characteristics (GND = 0.0V, 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 _{OH} | Output HIGH Voltage ^{1,2} | 2220 | | 2420 | 2275 | | 2420 | 2275 | | 2420 | 2275 | | 2420 | mV |
| V _{OL} | Output LOW Voltage ^{1,2} | 1400 | | 1750 | 1400 | | 1680 | 1400 | | 1680 | 1400 | | 1680 | mV |
| I _{EE} | Power Supply Current ³ | | | 16 | | | 16 | | | 16 | | | 16 | mA |

¹ Each output is terminated through a 50Ω resistor to V_{CC} - 2V.² Output parameters vary 1:1 with V_{CC}³ I_{CC} measurements must be done with outputs open

Table 5 - PECL DC Characteristics

PECL DC Characteristics (GND = 0.0V, 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 | | 4120 | 3975 | | 4120 | 3975 | | 4120 | 3975 | | 4120 | mV |
| V _{OL} | Output LOW Voltage ^{1,2} | 3100 | | 3450 | 3100 | | 3380 | 3100 | | 3380 | 3100 | | 3380 | mV |
| I _{EE} | Power Supply Current ³ | | | 16 | | | 16 | | | 16 | | | 16 | mA |

¹ Each output is terminated through a 50Ω resistor to V_{CC} - 2V.

² Output parameters vary 1:1 with V_{CC}

³ I_{CC} measurements must be done with outputs open

Table 6 - AC Characteristics

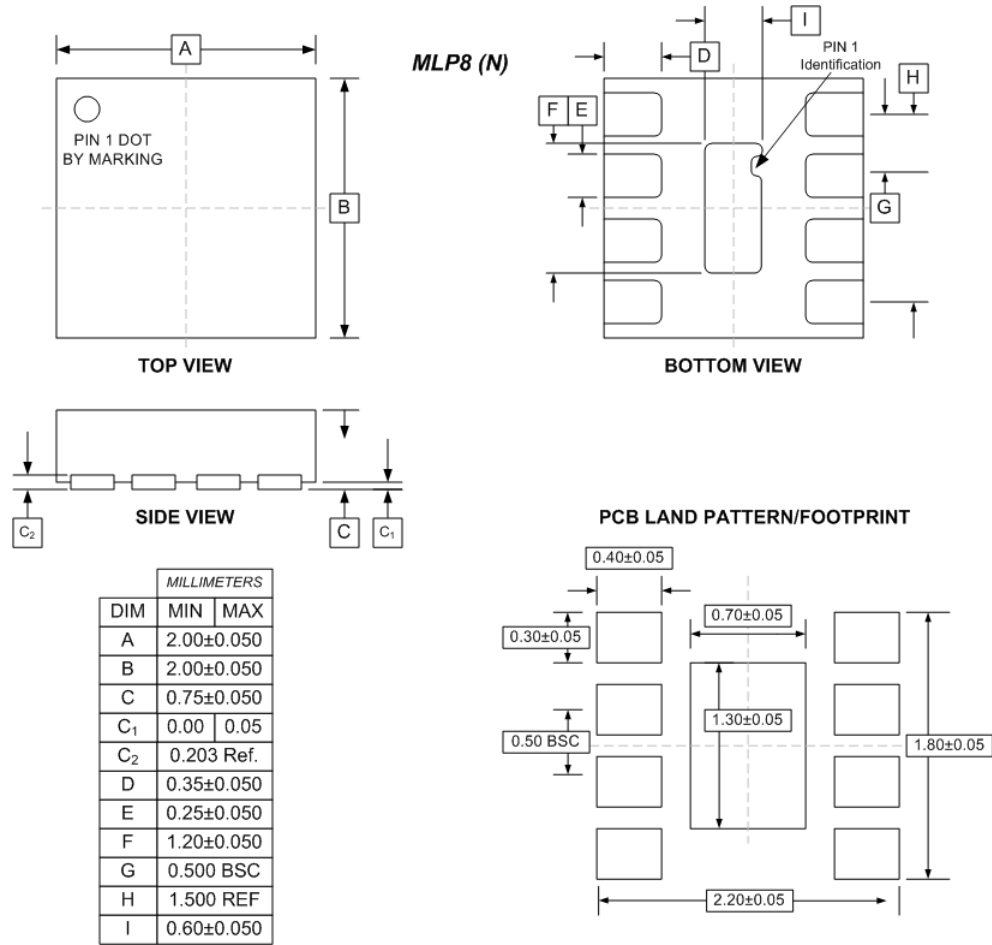
AC Characteristics (GND = 0.0V, V_{CC} = +3.0V to +5.5V)

| 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 | 100 | | 550 | 100 | | 500 | 100 | | 450 | 100 | | 600 | ps |
| t _r /t _f | Output Rise/Fall Times Q (20%-80%) | 80 | | 250 | 80 | | 250 | 80 | | 250 | 80 | | 250 | ps |
| f _{max} | Maximum Frequency ² | 800 | | | 800 | | | 800 | | | 800 | | | MHz |

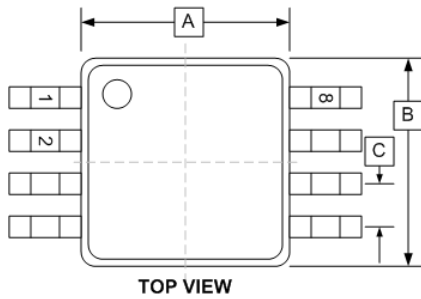
¹ Propagation delay is measured from +1.5V on the input to 50% of the PECL output swing

² Output as -3dB

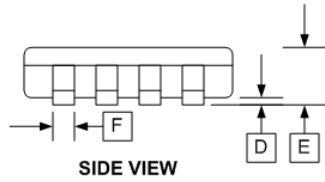
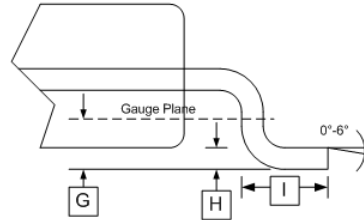
PACKAGE DIAGRAM
MLP8
Green/RoHS compliant/Pb-Free
MSL=1



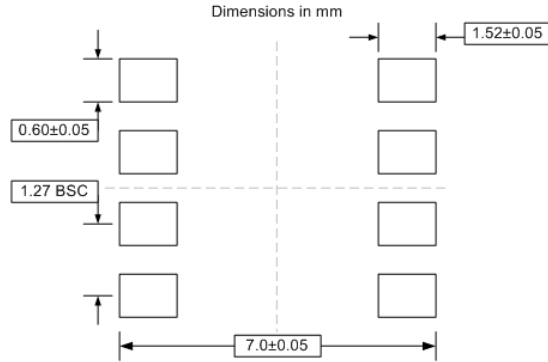
PACKAGE DIAGRAM
SOIC8
 Green/RoHS compliant/Pb-Free
 MSL=1



SOIC8 (D)

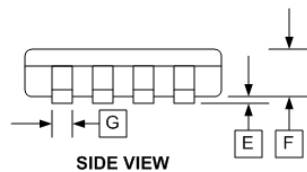
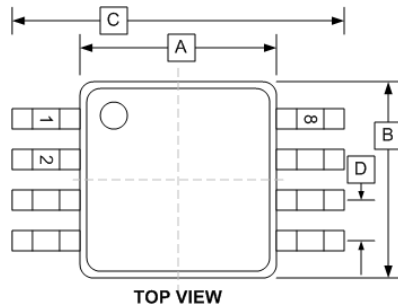


PCB LAND PATTERN/FOOTPRINT

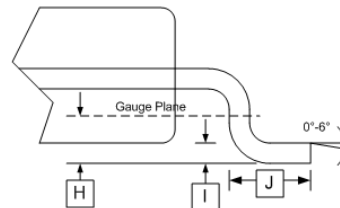


| DIM | INCHES | |
|-----|-----------|--------|
| | MIN | MAX |
| A | 0.189 | 0.196 |
| B | 0.150 | 0.157 |
| C | 0.050 BSC | |
| D | 0.004 | 0.01 |
| E | 0.054 | 0.068 |
| F | 0.014 | 0.019 |
| G | 0.010 | |
| H | 0.0075 | 0.0098 |
| I | 0.016 | 0.034 |

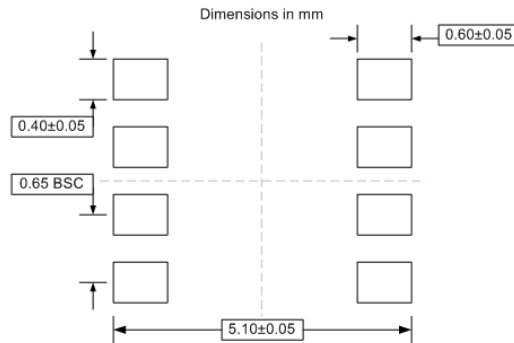
PACKAGE DIAGRAM
MSOP8
 Green/RoHS compliant/Pb-Free
 MSL=1



MSOP8 (T)



PCB LAND PATTERN/FOOTPRINT



| DIM | INCHES | |
|-----|-------------|-----|
| | MIN | MAX |
| A | 0.118±0.004 | |
| B | 0.118±0.004 | |
| C | 0.192±0.008 | |
| D | 0.0256 TYP | |
| E | 0.004±0.002 | |
| F | 0.034±0.002 | |
| G | 0.009±0.014 | |
| H | 0.010 | |
| I | 0.006±0.002 | |
| J | 0.021±0.004 | |

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