

FEATURES

- 3.3V power supply
- 2.0ns typical propagation delay
- Low power
- Differential LVPECL inputs
- 24mA TTL outputs
- Flow-through pinouts
- Available in 8-pin SOIC package



Precision Edge®

DESCRIPTION

The SY10/100ELT21L are single differential LVPECL-to-LVTTL translators using a single +3.3V power supply. Because LVPECL (Low Voltage Positive ECL) levels are used, only +3.3V and ground are required. The small outline 8-lead SOIC package and low skew single gate design make the ELT21L ideal for applications that require the translation of a clock or data signal where minimal space, low power, and low cost are critical.

V_{BB} allows a differential, single-ended, or AC-coupled interface to the device. If used, the V_{BB} output should be bypassed to V_{CC} with 0.01 μ F capacitor.

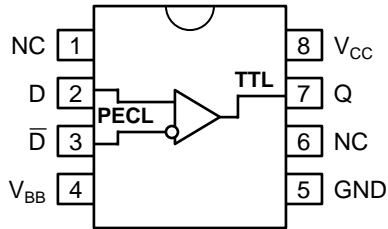
Under open input conditions, the /D will be biased at a $V_{CC}/2$ voltage level and the D input will be pulled to ground. This condition will force the Q output low to provide added stability.

The ELT21L is available in both ECL standards: the 10ELT is compatible with positive ECL 10H logic levels, while the 100ELT is compatible with positive ECL 100K logic levels.

PIN NAMES

| Pin | Function |
|----------|----------------------------|
| Q | TTL Output |
| D, /D | Differential LVPECL Inputs |
| V_{CC} | +3.3V Supply |
| V_{BB} | Reference Output |
| GND | Ground |

PACKAGE/ORDERING INFORMATION



8-Pin SOIC (Z8-1)

Ordering Information⁽¹⁾

| Part Number | Package Type | Operating Range | Package Marking | Lead Finish |
|---|--------------|-----------------|--|----------------|
| SY10ELT21LZC | Z8-1 | Commercial | HEL21L | Sn-Pb |
| SY10ELT21LZCTR ⁽²⁾ | Z8-1 | Commercial | HEL21L | Sn-Pb |
| SY100ELT21LZC | Z8-1 | Commercial | XEL21L | Sn-Pb |
| SY100ELT21LZCTR ⁽²⁾ | Z8-1 | Commercial | XEL21L | Sn-Pb |
| SY10ELT21LZI | Z8-1 | Industrial | HEL21L | Sn-Pb |
| SY10ELT21LZITR ⁽²⁾ | Z8-1 | Industrial | HEL21L | Sn-Pb |
| SY100ELT21LZI | Z8-1 | Industrial | XEL21L | Sn-Pb |
| SY100ELT21LZITR ⁽²⁾ | Z8-1 | Industrial | XEL21L | Sn-Pb |
| SY10ELT21LZG ⁽³⁾ | Z8-1 | Industrial | HEL21L with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY10ELT21LZGTR ^(2, 3) | Z8-1 | Industrial | HEL21L with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY100ELT21LZG ⁽³⁾ | Z8-1 | Industrial | XEL21L with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY100ELT21LZG ^(TR) ^(2, 3) | Z8-1 | Industrial | XEL21L with Pb-Free bar-line indicator | Pb-Free NiPdAu |

Notes:

1. Contact factory for die availability. Dice are guaranteed at T_A = 25°C, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

| Symbol | Parameter | Value | Unit |
|--------------------|---|---------------------------------|------|
| V _{CC} | Power Supply Voltage | -0.5 to +3.8 | V |
| V _I | PECL Input Voltage | 0V to V _{CC} +0.5 | V |
| V _O | Voltage Applied to Output at HIGH State | -0.5 to V _{CC} | V |
| I _O | Current Applied to Output at LOW State | Twice the Rated I _{OL} | mA |
| T _{LEAD} | Lead Temperature (soldering, 20sec.) | +260 | °C |
| T _{store} | Storage Temperature | -65 to +150 | °C |
| T _A | Operating Temperature | -40 to +85 | °C |

TRUTH TABLE

| D | /D | Q |
|------|------|---|
| L | H | L |
| H | L | H |
| Open | Open | L |

NOTE:

1. Permanent device damage may occur if absolute maximum ratings are exceeded. This is a stress rating only and functional operation is not implied at conditions other than those detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TTL DC ELECTRICAL CHARACTERISTICS

V_{CC} = +3.3V ±5%

| Symbol | Parameter | T _A = -40°C | | T _A = 0°C | | T _A = +25°C | | | T _A = +85°C | | Unit | Condition |
|-----------------|------------------------------|------------------------|------|----------------------|------|------------------------|------|------|------------------------|------|------|--------------------------|
| | | Min. | Max. | Min. | Max. | Min. | Typ. | Max. | Min. | Max. | | |
| I _{OS} | Output Short Circuit Current | -80 | -275 | -80 | -275 | -80 | — | -275 | -80 | -275 | mA | V _{OUT} = 0V |
| I _{CC} | Power Supply Current | — | 20 | — | 20 | — | 14 | 20 | — | 20 | mA | |
| V _{OH} | Output HIGH Voltage | 2.0 | — | 2.0 | — | 2.0 | — | — | 2.0 | — | V | I _{OH} = -3.0mA |
| V _{OL} | Output LOW Voltage | — | 0.5 | — | 0.5 | — | — | 0.5 | — | 0.5 | V | I _{OL} = 24mA |

PECL DC ELECTRICAL CHARACTERISTICS

V_{CC} = +3.3V ±5%

| Symbol | Parameter | T _A = -40°C | | T _A = 0°C | | T _A = +25°C | | | T _A = +85°C | | Unit | Condition | |
|-----------------|-----------------------------------|------------------------|------|----------------------|------|------------------------|------|------|------------------------|------|------|-----------|--|
| | | Min. | Max. | Min. | Max. | Min. | Typ. | Max. | Min. | Max. | | | |
| I _{IH} | Input HIGH Current | — | 150 | — | 150 | — | — | 150 | — | 150 | μA | | |
| I _{IL} | Input LOW Current | D | 0.5 | — | 0.5 | — | — | — | 0.5 | — | μA | | |
| | | /D | -300 | — | -300 | — | -300 | — | -300 | — | | | |
| V _{IH} | Input HIGH Voltage ⁽²⁾ | 10ELT | 2070 | 2410 | 2130 | 2460 | 2170 | — | 2490 | 2240 | 2580 | mV | |
| | | 100ELT | 2135 | 2420 | 2135 | 2420 | 2135 | — | 2420 | 2135 | 2420 | | |
| V _{IL} | Input LOW Voltage ⁽²⁾ | 10ELT | 1350 | 1800 | 1350 | 1820 | 1350 | — | 1820 | 1350 | 1855 | mV | |
| | | 100ELT | 1490 | 1825 | 1490 | 1825 | 1490 | — | 1825 | 1490 | 1825 | | |
| V _{BB} | Reference Output ⁽²⁾ | 10ELT | 1870 | 2000 | 1920 | 2030 | 1950 | 2000 | 2050 | 1990 | 2110 | mV | |
| | | 100ELT | 1920 | 2040 | 1920 | 2040 | 1920 | 1980 | 2040 | 1920 | 2040 | | |

NOTES:

1. These values are for V_{CC} = 3.3V. Level Specifications will vary 1:1 V_{CC}.

AC ELECTRICAL CHARACTERISTICS

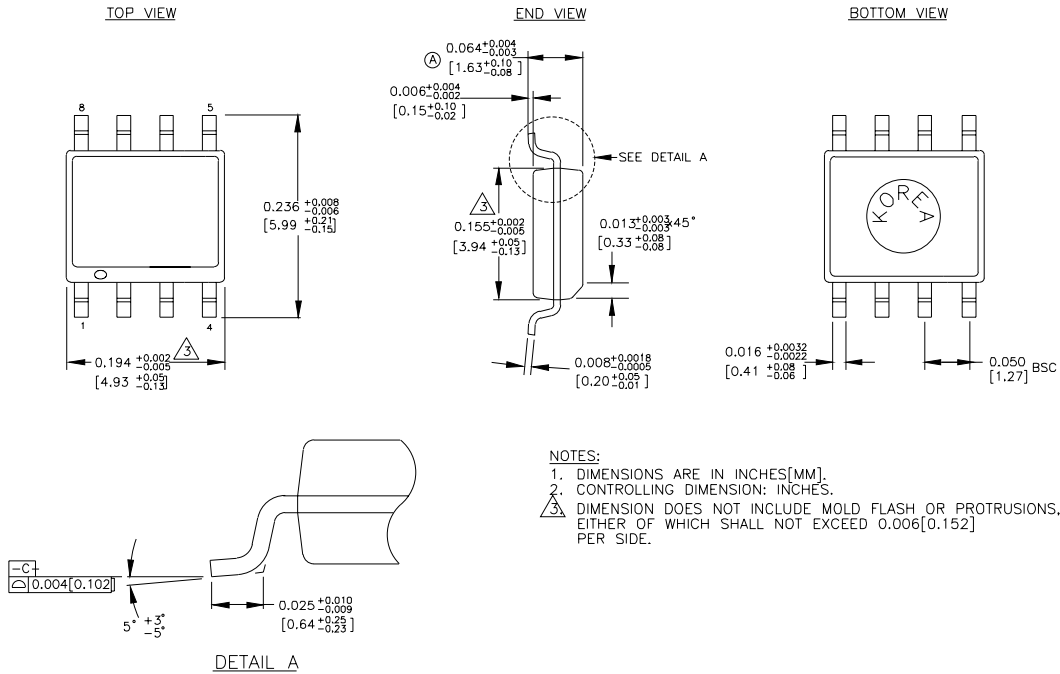
$V_{CC} = +3.3V \pm 5\%$

| Symbol | Parameter | TA = -40°C | | TA = 0°C | | TA = +25°C | | | TA = +85°C | | Unit | Condition |
|--------------------------------------|--|------------|-----------------|----------|-----------------|------------|------|-----------------|------------|-----------------|------|-----------------------|
| | | Min. | Max. | Min. | Max. | Min. | Typ. | Max. | Min. | Max. | | |
| t _{PLH} t _{PHL} | Propagation Delay | 1.5 | 2.5 | 1.5 | 2.5 | 1.5 | 2.0 | 2.5 | 1.5 | 2.5 | ns | C _L = 20pF |
| t _{skpp} | Part-to-Part Skew ^(1,2) | — | 0.5 | — | 0.5 | — | — | 0.5 | — | 0.5 | ns | C _L = 20pF |
| f _{MAX} | Maximum Input Frequency ^(2,3,4) | 275 | — | 275 | — | 275 | — | — | 275 | — | MHz | C _L = 20pF |
| V _{CMR} | Common Mode Range | 1.2 | V _{CC} | 1.2 | V _{CC} | 1.2 | — | V _{CC} | 1.2 | V _{CC} | V | |
| V _{PP} | Minimum Peak-to-Peak Input ⁽⁵⁾ | 100 | — | 100 | — | 100 | — | — | 100 | — | mV | |
| t _r t _f | Output Rise/Fall Time (1.0V to 2.0V) | 0.5 | 1.0 | 0.5 | 1.0 | 0.5 | — | 1.0 | 0.5 | 1.0 | ns | C _L = 20pF |

NOTES:

1. Part-to-Part Skew considering HIGH-to-HIGH transitions at common V_{CC} level.
2. These parameters are guaranteed but not tested.
3. Frequency at which output levels will meet a 0.8V to 2.0V minimum swing.
4. The f_{MAX} value is specified as the minimum guaranteed maximum frequency. Actual operational maximum frequency may be greater.
5. 100mV input guarantees full logic at output.

8-PIN SOIC .150" WIDE (Z8-1)



Rev. 03

MICREL, INC. 2180 FORTUNE DRIVE SAN JOSE, CA 95131 USA

TEL + 1 (408) 944-0800 FAX + 1 (408) 474-1000 WEB <http://www.micrel.com>

The information furnished by Micrel in this datasheet is believed to be accurate and reliable. However, no responsibility is assumed by Micrel for its use. Micrel reserves the right to change circuitry and specifications at any time without notification to the customer.

Micrel Products are not designed or authorized for use as components in life support appliances, devices or systems where malfunction of a product can reasonably be expected to result in personal injury. Life support devices or systems are devices or systems that (a) are intended for surgical implant into the body or (b) support or sustain life, and whose failure to perform can be reasonably expected to result in a significant injury to the user. A Purchaser's use or sale of Micrel Products for use in life support appliances, devices or systems is at Purchaser's own risk and Purchaser agrees to fully indemnify Micrel for any damages resulting from such use or sale.

© 2006 Micrel, Incorporated.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View SY100ELT21LZG on WIN SOURCE](#)
- ⊖ [Microchip Technology](#) Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management