



DUAL TTL-to-DIFFERENTIAL PECL TRANSLATOR

SY10ELT22
SY100ELT22

FEATURES

- 300ps typical propagation delay
- <100ps output-to-output skew
- Differential PECL outputs
- PNP TTL inputs for minimal loading
- Flow-through pinouts
- Available in 8-pin SOIC package

DESCRIPTION

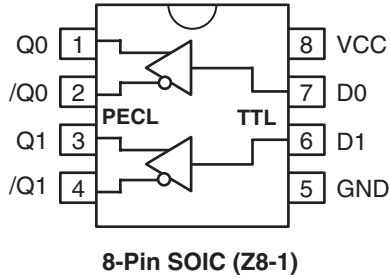
The SY10/100ELT22 are dual TTL-to-differential PECL translators. Because PECL (Positive ECL) levels are used, only +5V and ground are required. The small outline 8-lead SOIC package and the low skew, dual gate design of the ELT22 makes it ideal for applications which require the translation of a clock and a data signal.

The ELT22 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 _n | Differential PECL Outputs |
| D _n | TTL Inputs |
| V _{cc} | +5.0V Supply |
| GND | Ground |

PACKAGE/ORDERING INFORMATION



Ordering Information⁽¹⁾

| Part Number | Package Type | Operating Range | Package Marking | Lead Finish |
|----------------------------------|--------------|-----------------|---------------------------------------|----------------|
| SY10ELT22ZC | Z8-1 | Commercial | HEL22 | Sn-Pb |
| SY10ELT22ZCTR ⁽²⁾ | Z8-1 | Commercial | HEL22 | Sn-Pb |
| SY100ELT22ZC | Z8-1 | Commercial | XEL22 | Sn-Pb |
| SY100ELT22ZCTR ⁽²⁾ | Z8-1 | Commercial | XEL22 | Sn-Pb |
| SY10ELT22ZG ⁽³⁾ | Z8-1 | Industrial | HEL22 with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY10ELT22ZGTR ^(2, 3) | Z8-1 | Industrial | HEL22 with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY100ELT22ZG ⁽³⁾ | Z8-1 | Industrial | XEL22 with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY100ELT22ZGTR ^(2, 3) | Z8-1 | Industrial | XEL22 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 +7.0 | V |
| V _I | TTL Input Voltage | -0.5 to V _{CC} | V |
| I _I | TTL Input Current | -30 to +5.0 | mA |
| I _{OUT} | PECL Output Current | | mA |
| | — Continuous | 50 | |
| | — Surge | 100 | |
| 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 | Q | \bar{Q} |
|------|---|-----------|
| H | H | L |
| L | L | H |
| Open | H | L |

NOTE:

- 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.

DC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{CC} = V_{CC} (Min.) to V_{CC} (Max.)

| 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. | Max. | Min. | Max. | | |
| I _{CC} | Power Supply Current | — | 30 | — | 30 | — | 30 | — | 30 | mA | — |

NOTE:

- Parametric values specified at: 5 volt Power Supply Range 100ELT22 Series: +4.2V to +5.5V.
10ELT22 Series +4.75V to +5.5V.

TTL DC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{CC} = V_{CC} (Min.) to V_{CC} (Max.)

| 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. | Max. | Min. | Max. | | |
| V _{IH} | Input HIGH Voltage | 2.0 | — | 2.0 | — | 2.0 | — | 2.0 | — | V | — |
| V _{IL} | Input LOW Voltage | — | 0.8 | — | 0.8 | — | 0.8 | — | 0.8 | V | — |
| I _{IH} | Input HIGH Current | — | 20 100 | — | 20 100 | — | 20 100 | — | 20 100 | μA | V _{IN} = 2.7V V _{IN} = V _{CC} |
| I _{IL} | Input LOW Current | — | -0.2 | — | -0.2 | — | -0.2 | — | -0.2 | mA | V _{IN} = 0.5V |
| V _{IK} | Input Clamp Voltage | — | -1.2 | — | -1.2 | — | -1.2 | — | -1.2 | V | I _{IN} = -18mA |

NOTE:

- Parametric values specified at: 5 volt Power Supply Range 100ELT22 Series: +4.2V to +5.5V.
10ELT22 Series +4.75V to +5.5V.

PECL DC ELECTRICAL CHARACTERISTICS⁽¹⁾

VCC = VCC (Min.) to VCC (Max.)

| Symbol | Parameter | TA = -40°C | | | TA = 0°C | | | TA = +25°C | | | TA = +85°C | | | Unit |
|--------|------------------------------------|------------|------|------|----------|------|------|------------|------|------|------------|------|------|------|
| | | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | Min. | Typ. | Max. | |
| VOH | Output HIGH Voltage ⁽²⁾ | | | | | | | | | | | | | mV |
| | 10ELT | 3920 | — | 4110 | 3980 | — | 4160 | 4020 | — | 4190 | 4090 | — | 4280 | |
| | 100ELT | 3915 | — | 4120 | 3975 | — | 4120 | 3975 | — | 4120 | 3975 | — | 4120 | |
| VOL | Output LOW Voltage ⁽²⁾ | | | | | | | | | | | | | mV |
| | 10ELT | 3050 | — | 3350 | 3050 | — | 3370 | 3050 | — | 3370 | 3050 | — | 3405 | |
| | 100ELT | 3170 | — | 3445 | 3190 | — | 3380 | 3190 | — | 3380 | 3190 | — | 3380 | |

NOTES:

- Parametric values specified at: 5 volt Power Supply Range 100ELT22 Series: +4.2V to +5.5V.
10ELT22 Series +4.75V to +5.5V.
- These values are for VCC = 5.0V. Level Specifications will vary 1:1 with VCC.

AC ELECTRICAL CHARACTERISTICS⁽¹⁾

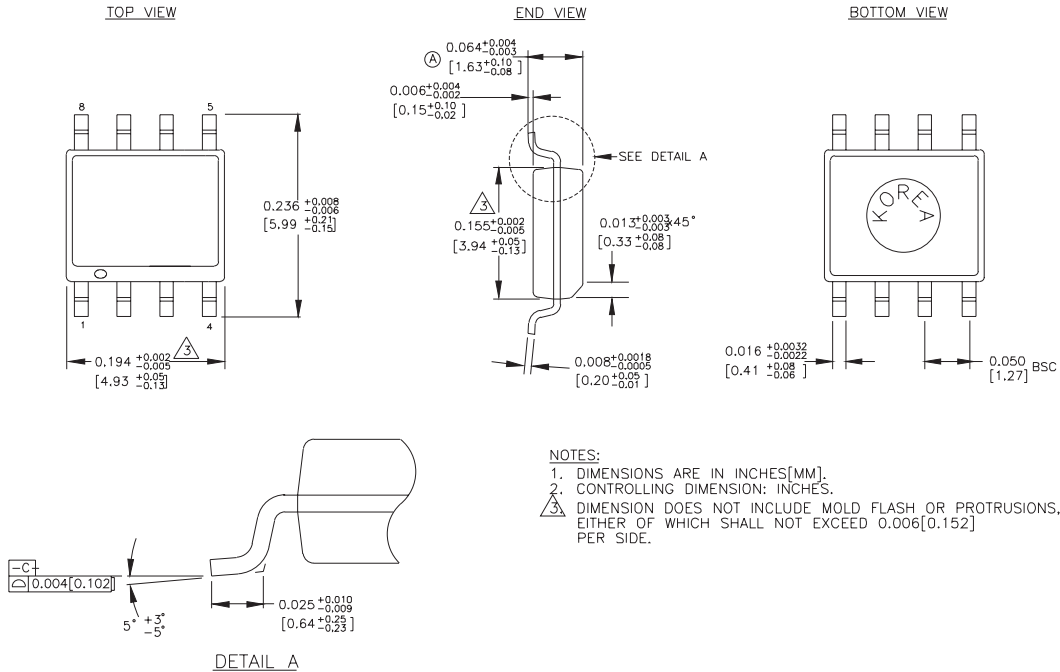
VCC = VCC (Min.) to VCC (Max.)

| Symbol | Parameter | TA = -40°C | | TA = 0°C | | TA = +25°C | | TA = +85°C | | Unit | Condition |
|----------|--|------------|------|----------|------|------------|------|------------|------|------|-------------------|
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | | |
| tPD | Propagation Delay to Output D, ENECL/ENTTL | 100 | 600 | 100 | 600 | 100 | 600 | 100 | 600 | ps | 50Ω to VCC – 2.0V |
| tr tf | Output Rise/Fall Time 20% to 80% | 200 | 500 | 200 | 500 | 200 | 500 | 200 | 500 | ps | 50Ω to VCC – 2.0V |
| tskpp | Part-to-Part Skew ⁽²⁾ | — | 500 | — | 500 | — | 500 | — | 500 | ps | 50Ω to VCC – 2.0V |
| tskew | Within-Device Skew ^(2,3) | — | 100 | — | 100 | — | 100 | — | 100 | ps | 50Ω to VCC – 2.0V |

NOTE:

- Parametric values specified at: 5 volt Power Supply Range 100ELT22 Series: +4.2V to +5.5V.
10ELT22 Series +4.75V to +5.5V.
- Guaranteed, but not tested.
- Same transition @common VCC levels.

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



Rev. 03

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