

## FEATURES

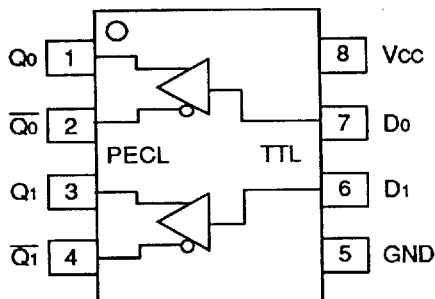
- 300ps typical propagation delay
- <100ps typical output-to-output skew
- ESD protection of 2000V
- Differential PECL outputs
- PNP TTL inputs for minimal loading
- Flow-through pinouts
- Small outline SOIC package

## DESCRIPTION

The SY10ELT/100ELT22L are dual TTL-to-differential PECL translators. Because PECL (Positive ECL) levels are used, only +3.3V and ground are required. The small outline 8-lead SOIC package and the low skew, dual gate design of the ELT22L makes it ideal for applications which require the translation of a clock and a data signal.

The ELT22L 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 CONFIGURATION/BLOCK DIAGRAM



SOIC  
TOP VIEW

## PIN NAMES

| Pin   | Function                  |
|-------|---------------------------|
| $Q_n$ | Differential PECL Outputs |
| $D_n$ | TTL Inputs                |
| Vcc   | +3.3V Supply              |
| GND   | Ground                    |

## ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup>

| Rating                                        | Symbol             | Value        | Unit |
|-----------------------------------------------|--------------------|--------------|------|
| Power Supply Voltage                          | V <sub>CC</sub>    | -0.5 to +7.0 | V    |
| TTL Input Voltage <sup>(2)</sup>              | V <sub>I</sub>     | -0.5 to 6.0  | V    |
| TTL Input Current <sup>(2)</sup>              | I <sub>I</sub>     | -30 to +5.0  | mA   |
| ECL Output Current<br>— Continuous<br>— Surge | I <sub>OUT</sub>   | 50<br>100    | mA   |
| Storage Temperature                           | T <sub>store</sub> | -65 to +150  | °C   |
| Operating Temperature                         | T <sub>amb</sub>   | 0 to +85     | °C   |

## TRUTH TABLE

| D    | Q | $\overline{Q}$ |
|------|---|----------------|
| 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.
- Either voltage limit or current limit is sufficient to protect input.

## DC ELECTRICAL CHARACTERISTICS

V<sub>CC</sub> = 3.3V ±0.3V

| Symbol          | Parameter            | T <sub>A</sub> = 0°C |      | T <sub>A</sub> = +25°C |      | T <sub>A</sub> = +85°C |      | Unit | Condition |
|-----------------|----------------------|----------------------|------|------------------------|------|------------------------|------|------|-----------|
|                 |                      | Min.                 | Max. | Min.                   | Max. | Min.                   | Max. |      |           |
| I <sub>CC</sub> | Power Supply Current | —                    | 25   | —                      | 25   | —                      | 25   | mA   | —         |

## AC ELECTRICAL CHARACTERISTICS

V<sub>CC</sub> = 3.3V ±0.3V

| Symbol                               | Parameter                             | T <sub>A</sub> = 0°C |      | T <sub>A</sub> = +25°C |      | T <sub>A</sub> = +85°C |      | Unit | Condition                       |
|--------------------------------------|---------------------------------------|----------------------|------|------------------------|------|------------------------|------|------|---------------------------------|
|                                      |                                       | Min.                 | Max. | Min.                   | Max. | Min.                   | Max. |      |                                 |
| t <sub>PLH</sub><br>t <sub>PHL</sub> | Propagation Delay to Output D         | 100                  | 600  | 100                    | 600  | 100                    | 600  | ps   | 50Ω to (V <sub>CC</sub> - 2.0V) |
| t <sub>r</sub><br>t <sub>f</sub>     | Output Rise/Fall Time<br>20% to 80%   | 200                  | 500  | 200                    | 500  | 200                    | 500  | ps   | 50Ω to (V <sub>CC</sub> - 2.0V) |
| t <sub>skpp</sub>                    | Part-to-Part Skew <sup>(1)</sup>      | —                    | 500  | —                      | 500  | —                      | 500  | ps   | 50Ω to (V <sub>CC</sub> - 2.0V) |
| t <sub>skwd</sub>                    | Within-Device Skew <sup>(1),(2)</sup> | —                    | 200  | —                      | 200  | —                      | 200  | ps   | 50Ω to (V <sub>CC</sub> - 2.0V) |

### NOTE:

- Guaranteed, but not tested.
- Same transition @common VCC levels.

## TTL DC ELECTRICAL CHARACTERISTICS

VCC = 3.3V ±0.3V

| Symbol | Parameter           | TA = 0°C |           | TA = +25°C |           | TA = +85°C |           | Unit | Condition               |
|--------|---------------------|----------|-----------|------------|-----------|------------|-----------|------|-------------------------|
|        |                     | Min.     | Max.      | Min.       | Max.      | Min.       | Max.      |      |                         |
| VIH    | Input HIGH Voltage  | 2.0      | —         | 2.0        | —         | 2.0        | —         | V    | —                       |
| VIL    | Input LOW Voltage   | —        | 0.8       | —          | 0.8       | —          | 0.8       | V    | —                       |
| IiH    | Input HIGH Current  | —        | 20<br>100 | —          | 20<br>100 | —          | 20<br>100 | μA   | VIN = 2.7V<br>VIN = VCC |
| IiL    | Input LOW Current   | —        | -0.2      | —          | -0.2      | —          | -0.2      | mA   | VIN = 0.5V              |
| VIK    | Input Clamp Voltage | —        | -1.2      | —          | -1.2      | —          | -1.2      | V    | IIN = -18mA             |

## 10EL PECL DC ELECTRICAL CHARACTERISTICS

VCC = 3.3V

| Symbol | Parameter           | TA = 0°C |      | TA = +25°C |      | TA = +85°C |      | Unit | Condition |
|--------|---------------------|----------|------|------------|------|------------|------|------|-----------|
|        |                     | Min.     | Max. | Min.       | Max. | Min.       | Max. |      |           |
| VOH    | Output HIGH Voltage | 2280     | 2460 | 2320       | 2490 | 2390       | 2580 | mV   | —         |
| VOL    | Output LOW Voltage  | 1350     | 1670 | 1350       | 1670 | 1350       | 1705 | mV   | —         |

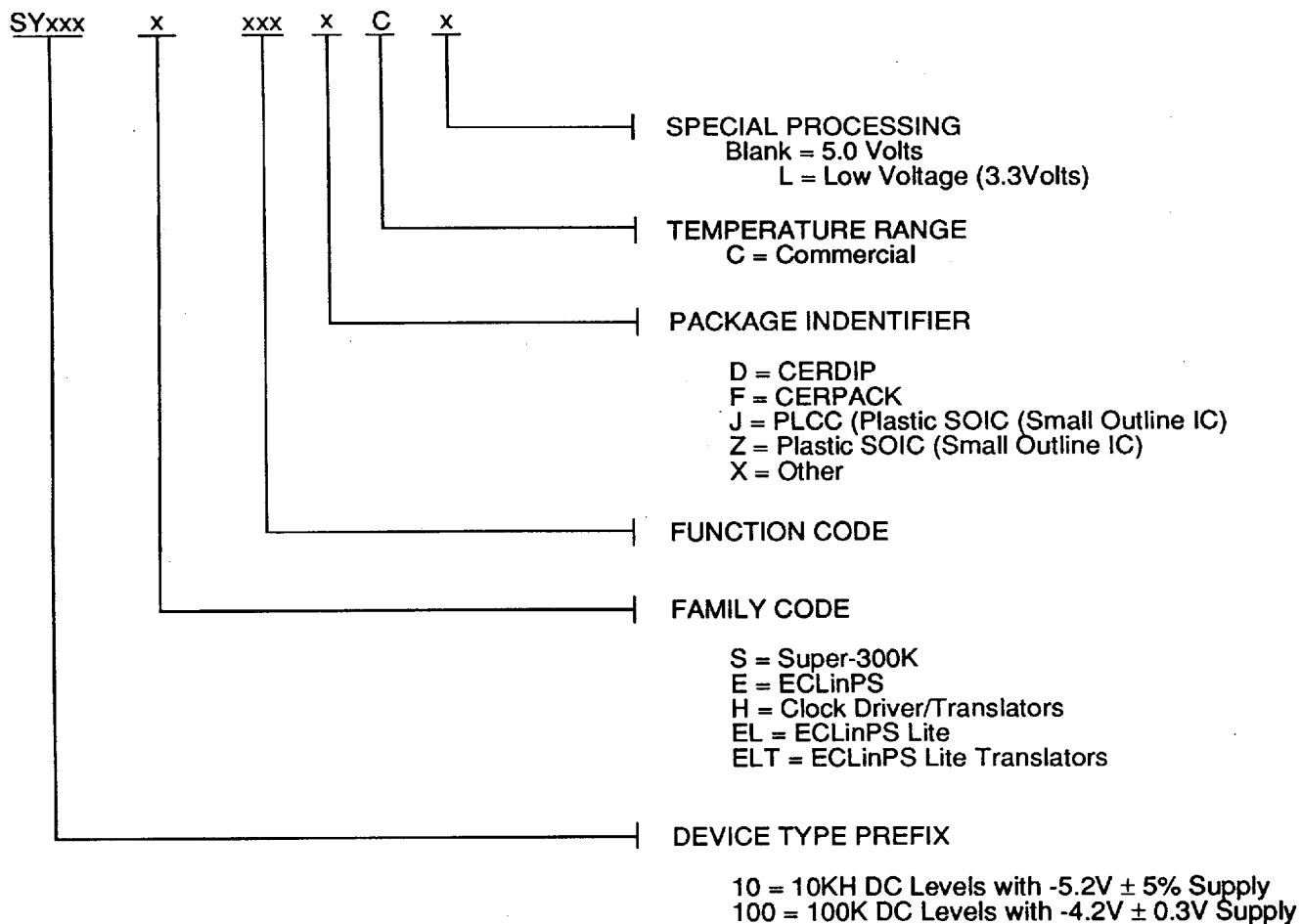
## 100EL PECL DC ELECTRICAL CHARACTERISTICS

VCC = 3.3V

| Symbol | Parameter           | TA = 0°C |      | TA = +25°C |      | TA = +85°C |      | Unit | Condition |
|--------|---------------------|----------|------|------------|------|------------|------|------|-----------|
|        |                     | Min.     | Max. | Min.       | Max. | Min.       | Max. |      |           |
| VOH    | Output HIGH Voltage | 2275     | 2420 | 2275       | 2420 | 2275       | 2420 | mV   | —         |
| VOL    | Output LOW Voltage  | 1490     | 1680 | 1490       | 1680 | 1490       | 1680 | mV   | —         |

## PRODUCT ORDERING CODE

| Ordering Code | Package Type | Operating Range |
|---------------|--------------|-----------------|
| SY10ELT22LZC  | Z8-1         | Commercial      |
| SY100ELT22LZC | Z8-1         | Commercial      |



## ECLINPS LITE MARKING INFORMATION

