



TTL-to-DIFFERENTIAL ECL TRANSLATOR

SY100ELT24

FEATURES

- 500ps typical propagation delay
- Differential ECL output
- PNP TTL input for minimal loading
- Flow-through pinouts
- Available in 8-pin SOIC package

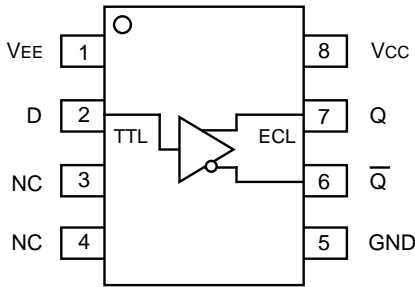
DESCRIPTION

The SY100ELT24 is a TTL-to-differential ECL translator. Because ECL levels are used, a +5V, -5.2V (or -4.5V) and ground are required. The small outline 8-lead SOIC package and the single gate of the ELT24 makes it ideal for those applications where performance, space and low power are at a premium.

PIN NAMES

| Pin | Function |
|--------------|-------------------------|
| Q, \bar{Q} | Differential ECL Output |
| D | TTL Input |
| Vcc | Positive Supply |
| VEE | Negative Supply |
| GND | Ground |

PACKAGE/ORDERING INFORMATION



8-Pin SOIC (Z8-1)

Ordering Information⁽¹⁾

| Part Number | Package Type | Operating Range | Package Marking | Lead Finish |
|----------------------------------|--------------|-----------------|--|----------------|
| SY100ELT24ZC | Z8-1 | Commercial | XEL24 | Sn-Pb |
| SY100ELT24ZCTR ⁽²⁾ | Z8-1 | Commercial | XEL24 | Sn-Pb |
| SY100ELT24ZI | Z8-1 | Industrial | XEL24 | Sn-Pb |
| SY100ELT24ZITR ⁽²⁾ | Z8-1 | Industrial | XEL24 | Sn-Pb |
| SY100ELT24ZG ⁽³⁾ | Z8-1 | Industrial | XEL24 with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY100ELT24ZGTR ^(2, 3) | Z8-1 | Industrial | XEL24 with with Pb-Free bar-line indicator | Pb-Free NiPdAu |

Notes:

1. Contact factory for die availability. Dice are guaranteed at $T_A = 25^\circ\text{C}$, 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} | ECL Output Current — Continuous — Surge | 50 100 | 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 | Q | \bar{Q} |
|------|---|-----------|
| H | H | L |
| L | L | H |
| Open | H | 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.

DC ELECTRICAL CHARACTERISTICSV_{CC} = 4.5V to 5.5V; V_{EE} = -4.2V to -5.5V

| 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 | — | 10 | — | 10 | — | 10 | — | 10 | mA | — |
| I _{EE} | Power Supply Current | — | 20 | — | 20 | — | 20 | — | 20 | mA | No output load |

AC ELECTRICAL CHARACTERISTICSV_{CC} = 4.5V to 5.5V; V_{EE} = -4.2V to -5.5V

| 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. | | |
| t _{PLH} t _{PHL} | Propagation Delay | 300 | 900 | 300 | 900 | 300 | 500 | 900 | 300 | 900 | ps | 50Ω to -2.0V |
| t _r t _f | Output Rise/Fall Time 20% to 80% | 200 | 700 | 200 | 700 | 200 | 300 | 700 | 200 | 700 | ps | 50Ω to -2.0V |
| f _{MAX} | Maximum Input Frequency | 200 | — | 200 | — | 200 | — | — | 200 | — | MHz | |

TTL DC ELECTRICAL CHARACTERISTICS

VCC = 4.5V to 5.5V; VEE = -4.2V to -5.5V

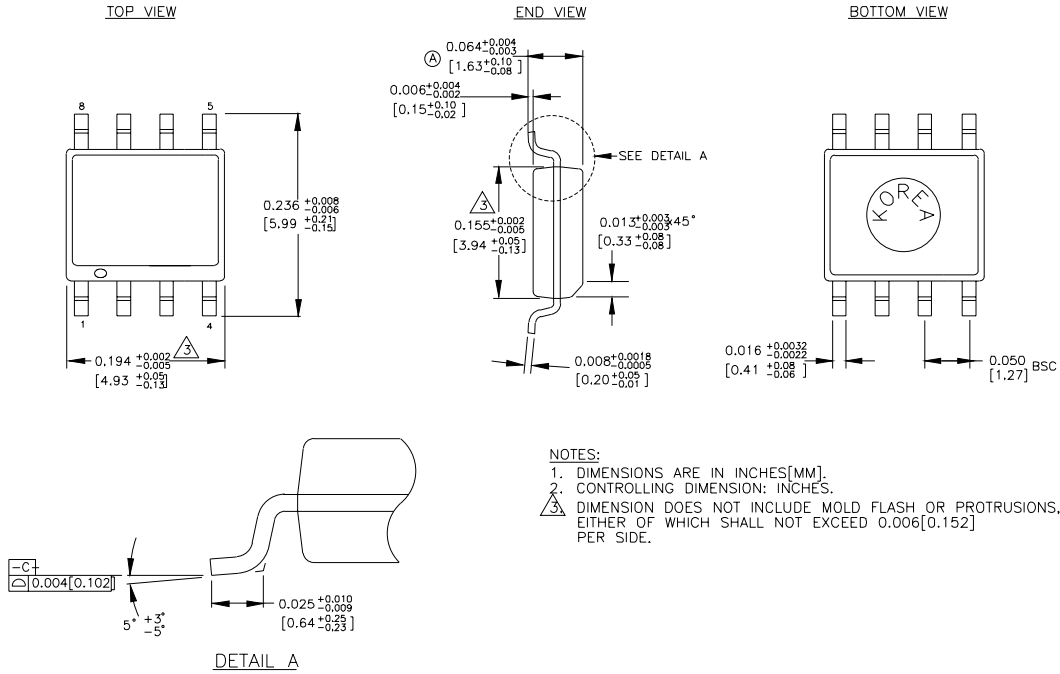
| Symbol | Parameter | TA = -40°C | | TA = 0°C | | TA = +25°C | | TA = +85°C | | Unit | Condition |
|-----------------|---------------------|------------|-----------|----------|-----------|------------|-----------|------------|-----------|------|---|
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | 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 | — | -0.6 | — | -0.6 | — | -0.6 | — | -0.6 | mA | V _{IN} = 0.5V |
| V _{IK} | Input Clamp Voltage | — | -1.2 | — | -1.2 | — | -1.2 | — | -1.2 | V | I _{IN} = -18mA |

ECL DC ELECTRICAL CHARACTERISTICS

VCC = 4.5V to 5.5V; VEE = -4.2V to -5.5V

| Symbol | Parameter | TA = -40°C | | TA = 0°C | | TA = +25°C | | TA = +85°C | | Unit | Condition |
|-----------------|---------------------|------------|-------|----------|-------|------------|-------|------------|-------|------|--------------|
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | | |
| V _{OH} | Output HIGH Voltage | -1085 | -880 | -1025 | -880 | -1025 | -880 | -1025 | -880 | mV | 50Ω to -2.0V |
| V _{OL} | Output LOW Voltage | -1830 | -1555 | -1810 | -1620 | -1810 | -1620 | -1810 | -1620 | mV | 50Ω to -2.0V |

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



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