Product Change Notification / SYST-13CKLA508

## Date:

18-Apr-2022

## Product Category:

Clock and Timing - Clock and Data Distribution

## PCN Type:

Document Change

## Notification Subject:

Data Sheet - SY100ELT23 - Dual Differential PECL-to-TTL Translator Revision

## Affected CPNs:

SYST-13CKLA508_Affected_CPN_04182022.pdf
SYST-13CKLA508_Affected_CPN_04182022.csv

## Notification Text:

SYST-13CKLA508

Microchip has released a new Product Documents for the SY100ELT23 - Dual Differential PECL-to-TTL Translator of devices. If you are using one of these devices please read the document located at SY100ELT23 - Dual Differential PECL-to-TTL Translator

**Notification Status:** Final

**Description of Change:**1. Corrected the description for Pins 1 and 2 in Table 2-1.

**Impacts to Data Sheet:** See above details.

**Reason for Change:** To Improve Productivity

**Change Implementation Status:** Complete

**Date Document Changes Effective:** 18 April 2022

**NOTE:** Please be advised that this is a change to the document only the product has not been changed.

**Markings to Distinguish Revised from Unrevised Devices:** N/A

## Attachments:

SY100ELT23 - Dual Differential PECL-to-TTL Translator

Please contact your local Microchip sales office with questions or concerns regarding this notification.

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Affected Catalog Part Numbers (CPN)

SY100ELT23LZG
SY100ELT23ZG
SY100ELT23LZG-TR
SY100ELT23ZG-TR

# SY100ELT23

## Dual Differential PECL-to-TTL Translator

### Features

- 3.0 ns Typical Propagation Delay
- <300 ps Typical Within-Device Skew
- Differential PECL Inputs
- 24 mA TTL Outputs
- Flow-Through Pinouts
- Internal Input 50 kΩ Pull-Down Resistors
- Available in 8-Lead SOIC Package

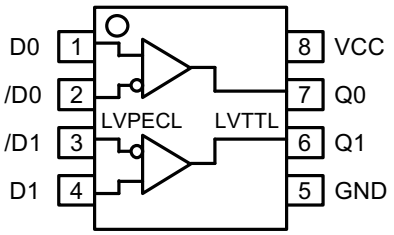
### General Description

The SY100ELT23 is a dual differential PECL-to-TTL translator. Because PECL (positive ECL) levels are used, only +5V and ground are required. The small outline 8-lead SOIC package and low skew, dual gate design make the ELT23 ideal for applications that require the translation of a clock or data signal.

The ELT23 is compatible with positive ECL 100K logic levels.

### Package Type

**SY100ELT23**
8-Lead SOIC
(Top View)



## 1.0 ELECTRICAL CHARACTERISTICS

### Absolute Maximum Ratings †

Power Supply Voltage ($V_{CC}$) ..... –0.5V to +7.0V
PECL Input Voltage ($V_{IN}$) ..... 0V to $V_{CC}$+0.5V
Voltage Applied to Output at High State ($V_{OUT}$) ..... –0.5V to +5.5V
Current Applied to Output at Low State ($I_{OUT}$) ..... Twice the Rated $I_{OL}$ in mA

**† Notice:** Permanent device damage can 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 Note 1

**Electrical Characteristics:** $V_{CC}$ = $V_{CC}$ (Min.) to $V_{CC}$ (Max.); Values valid from –40°C to +85°C unless otherwise noted.

| Parameter | Symbol | Min. | Typ. | Max. | Units | Conditions |
|---|---|---|---|---|---|---|
| Power Supply Current | $I_{CC}$ | — | — | 30 | mA | — |
| Output High Voltage | $V_{OH}$ | 2.5 | — | — | V | $I_{OH}$ = –3.0 mA |
| | | 2.0 | — | — | | $I_{OH}$ = –15 mA |
| Output Low Voltage | $V_{OL}$ | — | — | 0.5 | V | $I_{OL}$ = 24 mA |
| Output Short Circuit Current | $I_{OS}$ | –200 | — | –80 | mA | $V_{OUT}$ = 0V |

**Note 1:** Parametric values specified at 5V power supply range for ELT23 series: +4.5V to +5.5V.

### PECL DC ELECTRICAL CHARACTERISTICS Note 1

**Electrical Characteristics:** $V_{CC}$ = $V_{CC}$ (Min.) to $V_{CC}$ (Max.); Values valid from –40°C to +85°C unless otherwise noted.

| Parameter | Symbol | Min. | Typ. | Max. | Units | Conditions |
|---|---|---|---|---|---|---|
| Input High Current | $I_{IH}$ | — | — | 150 | µA | — |
| Input Low Current | $I_{IL}$ | 0.5 | — | — | µA | — |
| Common Mode Range | $V_{CMR}$ | 2.2 | — | $V_{CC}$ | V | — |
| Input High Voltage | $V_{IH}$ | 3835 | — | 4120 | mV | Note 2 |
| Input Low Voltage | $V_{IL}$ | 3190 | — | 3525 | mV | Note 2 |

**Note 1:** Parametric values specified at 5V power supply range for ELT23 series: +4.5V to +5.5V.
**2:** These values are for $V_{CC}$ = 5.0V. Level specifications will vary 1:1 $V_{CC}$.

## AC ELECTRICAL CHARACTERISTICS

**Electrical Characteristics:** $V_{CC}$ = $V_{CC}$ (Min.) to $V_{CC}$ (Max.); Values valid from –40°C to +85°C unless otherwise noted.

| Parameter | Symbol | Min. | Typ. | Max. | Units | Condition |
|---|---|---|---|---|---|---|
| Maximum Input Frequency | $f_{MAX}$ | 160 | — | — | MHz | $C_L$ = 50 pF |
| Propagation Delay D to Output Q | $t_{PLH}$, $t_{PHL}$ | 2.5 | 3.0 | 3.5 | ns | $C_L$ = 50 pF |
| Part-to-Part Skew | $t_{SKPP}$ | — | — | 0.5 | ns | $C_L$ = 50 pF, Note 2, Note 5 |
| Within-Device Skew | $t_{SKEW++}$ | — | — | 0.3 | ns | $C_L$ = 50 pF, Note 3, Note 5 |
| | $t_{SKEW--}$ | — | — | | | $C_L$ = 50 pF, Note 4, Note 5 |
| Input Swing | $V_{PP}$ | 200 | — | 1000 | mV | Note 6 |
| Output Rise/Fall Time (1.0V to 2.0V) | $t_r/t_f$ | — | — | 1.5 | ns | $C_L$ = 50 pF |

**Note 1:** Parametric values specified at 5V power supply range for ELT23 series: +4.5V to +5.5V.

**2:** Part-to-Part skew considering High-to-High transitions at common $V_{CC}$ level

**3:** Within-Device skew considering High-to-High transitions at common $V_{CC}$ level.

**4:** Within-Device skew considering Low-to-Low transitions at common $V_{CC}$ level.

**5:** All skew parameters are guaranteed, but not tested.

**6:** Input swing for which AC parameters are guaranteed.200 mV input guarantees full logic at output.

## TEMPERATURE SPECIFICATIONS

| Parameters | Symbol | Min. | Typ. | Max. | Units | Conditions |
|---|---|---|---|---|---|---|
| **Temperature Ranges** | | | | | | |
| Ambient Operating Temperature | $T_A$ | –40 | — | +85 | °C | — |
| Storage Temperature | $T_S$ | –65 | — | +150 | °C | — |
| Lead Temperature | — | — | — | +260 | °C | Soldering, 20 sec. |

## TRUTH TABLE

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

## 2.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in Table 2-1.

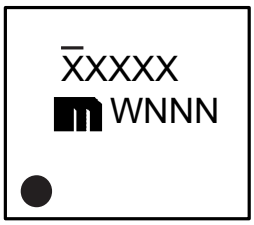
**TABLE 2-1: PIN FUNCTION TABLE**

| Pin Number | Pin Name | Description |
|---|---|---|
| 1, 2 | D0, /D0 | Differential PECL Inputs. |
| 4, 3 | D1, /D1 | Differential PECL Inputs. |
| 5 | GND | Ground. |
| 7, 6 | Q0, Q1 | TTL Outputs. |
| 8 | VCC | +5.0V Supply. |

## 3.0 PACKAGING INFORMATION

### 3.1 Package Marking Information

8-Lead SOIC*




Example


| | | |
|---|---|---|
| **Legend:** | XX...X | Product code or customer-specific information |
| | Y | Year code (last digit of calendar year) |
| | YY | Year code (last 2 digits of calendar year) |
| | WW | Week code (week of January 1 is week '01') |
| | NNN | Alphanumeric traceability code |
| | (e3) | Pb-free JEDEC® designator for Matte Tin (Sn) |
| | * | This package is Pb-free. The Pb-free JEDEC designator ((e3)) can be found on the outer packaging for this package. |
| | ●, ▲, ▼ | Pin one index is identified by a dot, delta up, or delta down (triangle mark). |

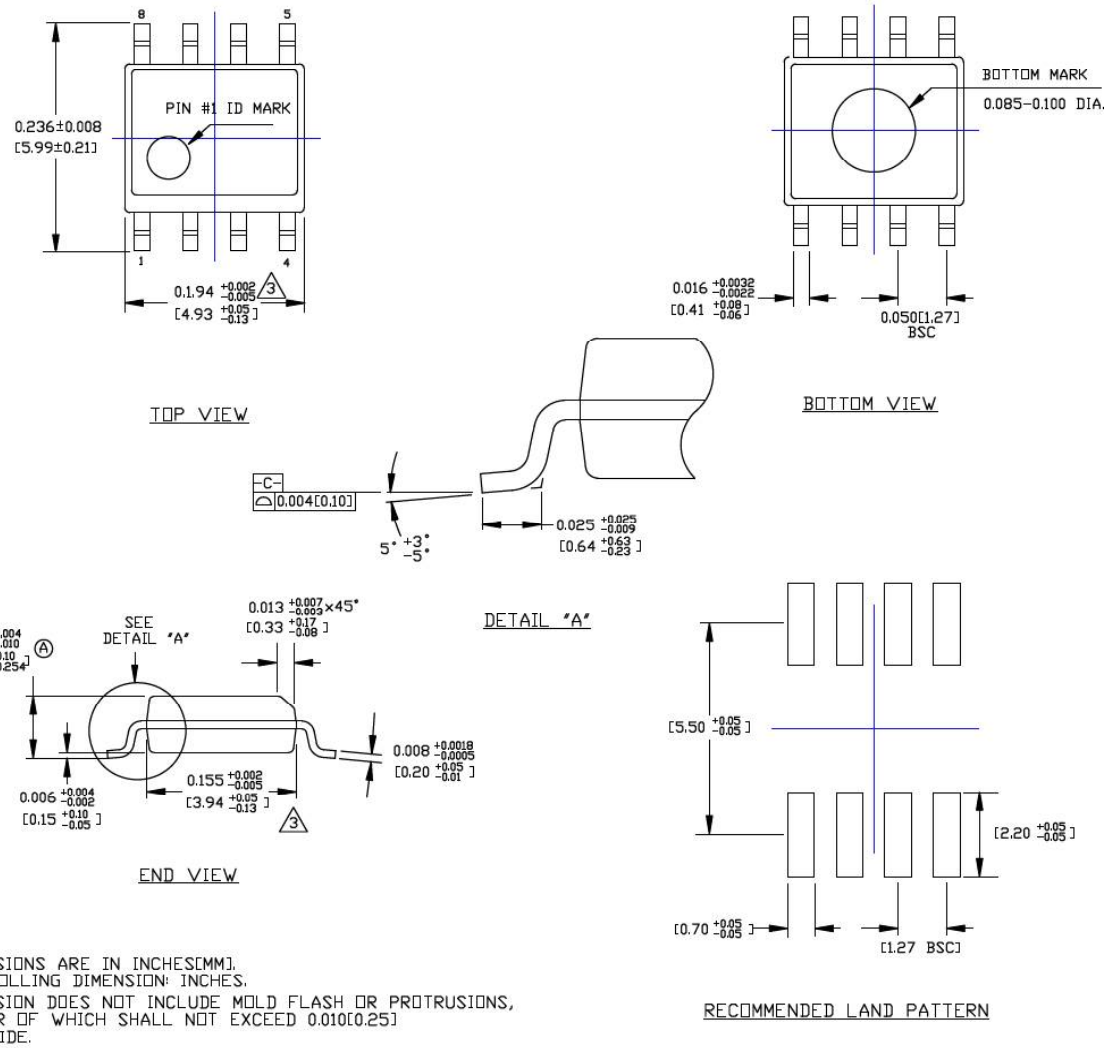
**Note**: In the event the full Microchip part number cannot be marked on one line, it will be carried over to the next line, thus limiting the number of available characters for customer-specific information. Package may or may not include the corporate logo.

Underbar (_) and/or Overbar (¯) symbol may not be to scale.

**TITLE**

8 LEAD SOICN PACKAGE OUTLINE & RECOMMENDED LAND PATTERN

| DRAWING # | SOICN-8LD-PL-1 | UNIT | INCH [MM] |
|---|---|---|---|




NOTES:
1. DIMENSIONS ARE IN INCHES[MM].
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.010[0.25] PER SIDE.

Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging.

# APPENDIX A: REVISION HISTORY

## Revision A (August 2019)

- Converted Micrel document SY100ELT23 to Microchip data sheet DS20006235A.
- Minor text changes throughout.
- Removal of all reference to the discontinued SY10ELT23.

## Revision B (April 2022)

- Corrected the description for Pins 1 and 2 in Table 2-1.

**NOTES:**

## PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, contact your local Microchip representative or sales office.

| Part No. | X | X | -XX |
|---|---|---|---|
| Device | Package | Temp. Range | Packing |

| | | | |
|---|---|---|---|
| **Device:** | SY100ELT23: Dual Differential PECL-to-TTL Translator | | |
| **Package:** | Z | = | 8-Lead SOIC |
| **Temperature Range:** | G | = | –40°C to +85°C (NiPdAu Lead-Free) |
| **Tape and Reel:** | <blank>= | | 95/Tube |
| | TR | = | 1,000/Reel |

**Examples:**

a) SY100ELT23ZG:
SY100ELT23,8 -Lead SOIC,
–40°C to +85°C Temperature Range, 95/Tube

b) SY100ELT23ZG-TR:
SY100ELT23, 8-Lead SOIC,
–40°C to +85°C Temperature Range, 1,000/Reel

**Note 1:** Tape and Reel identifier only appears in the catalog part number description. This identifier is used for ordering purposes and is not printed on the device package. Check with your Microchip Sales Office for package availability with the Tape and Reel option.

**NOTES:**

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