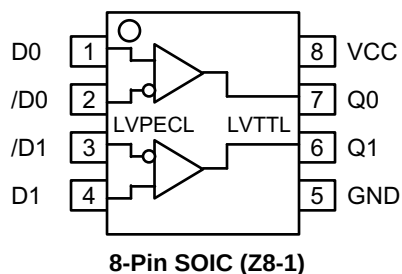


**PACKAGE/ORDERING INFORMATION<sup>(1)</sup>**

| Part Number                       | Package Type | Operating Range | Package Marking                        | Lead Finish    |
|-----------------------------------|--------------|-----------------|----------------------------------------|----------------|
| SY10ELT23LZC                      | Z8-1         | Commercial      | HEL23L                                 | Sn-Pb          |
| SY10ELT23LZCTR <sup>(2)</sup>     | Z8-1         | Commercial      | HEL23L                                 | Sn-Pb          |
| SY100ELT23LZC                     | Z8-1         | Commercial      | XEL23L                                 | Sn-Pb          |
| SY100ELT23LZCTR <sup>(2)</sup>    | Z8-1         | Commercial      | XEL23L                                 | Sn-Pb          |
| SY10ELT23LZI                      | Z8-1         | Industrial      | HEL23L                                 | Sn-Pb          |
| SY10ELT23LZITR <sup>(2)</sup>     | Z8-1         | Industrial      | HEL23L                                 | Sn-Pb          |
| SY100ELT23LZI                     | Z8-1         | Industrial      | XEL23L                                 | Sn-Pb          |
| SY100ELT23LZITR <sup>(2)</sup>    | Z8-1         | Industrial      | XEL23L                                 | Sn-Pb          |
| SY10ELT23LZG <sup>(3)</sup>       | Z8-1         | Industrial      | HEL23L with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY10ELT23LZGTR <sup>(2, 3)</sup>  | Z8-1         | Industrial      | HEL23L with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY100ELT23LZG <sup>(3)</sup>      | Z8-1         | Industrial      | XEL23L with Pb-Free bar-line indicator | Pb-Free NiPdAu |
| SY100ELT23LZGTR <sup>(2, 3)</sup> | Z8-1         | Industrial      | XEL23L 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<sup>(1)</sup>**

| Symbol            | Rating                                  | Value                           | Unit |
|-------------------|-----------------------------------------|---------------------------------|------|
| V <sub>CC</sub>   | Power Supply Voltage                    | −0.5 to +3.8                    | V    |
| V <sub>IN</sub>   | PECL Input Voltage                      | 0 to V <sub>CC</sub> +0.5       | V    |
| V <sub>OUT</sub>  | Voltage Applied to Output at HIGH State | −0.5 to V <sub>CC</sub>         | V    |
| I <sub>OUT</sub>  | Current Applied to Output at LOW State  | Twice the Rated I <sub>OL</sub> | mA   |
| T <sub>LEAD</sub> | Lead Temperature (soldering, 20sec.)    | +260                            | °C   |
| T <sub>S</sub>    | Storage Temperature                     | −65 to +150                     | °C   |
| T <sub>A</sub>    | Operating Temperature Range             | −40 to +85                      | °C   |

**Notes:**

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.

**LV TTL DC ELECTRICAL CHARACTERISTICS**V<sub>CC</sub> = +3.3V ±5%.

| Symbol          | Parameter                    | T <sub>A</sub> = −40°C |      | 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. | Min.                   | Max. |      |                          |
| V <sub>OH</sub> | Output HIGH Voltage          | 2.0                    | —    | 2.0                  | —    | 2.0                    | —    | 2.0                    | —    | V    | I <sub>OH</sub> = −3.0mA |
| V <sub>OL</sub> | Output LOW Voltage           | —                      | 0.5  | —                    | 0.5  | —                      | 0.5  | —                      | 0.5  | V    | I <sub>OL</sub> = 24mA   |
| I <sub>CC</sub> | Power Supply Current         | —                      | 30   | —                    | 30   | —                      | 30   | —                      | 30   | mA   |                          |
| I <sub>OS</sub> | Output Short-Circuit Current | −80                    | −240 | −80                  | −240 | −80                    | −240 | −80                    | −240 | mA   | V <sub>OUT</sub> = 0V    |

**LV PECL DC ELECTRICAL CHARACTERISTICS**V<sub>CC</sub> = +3.3V ±5%.

| Symbol           | Parameter                                 | T <sub>A</sub> = −40°C |      |                 | T <sub>A</sub> = 0°C |      |                 | T <sub>A</sub> = +25°C |      |                 | T <sub>A</sub> = +85°C |      |                 | Unit |
|------------------|-------------------------------------------|------------------------|------|-----------------|----------------------|------|-----------------|------------------------|------|-----------------|------------------------|------|-----------------|------|
|                  |                                           | Min.                   | Typ. | Max.            | Min.                 | Typ. | Max.            | Min.                   | Typ. | Max.            | Min.                   | Typ. | Max.            |      |
| I <sub>IH</sub>  | Input HIGH Current                        | —                      | —    | 150             | —                    | —    | 150             | —                      | —    | 150             | —                      | —    | 150             | μA   |
| I <sub>IL</sub>  | Input LOW Current                         | 0.5                    | —    | —               | 0.5                  | —    | —               | 0.5                    | —    | —               | 0.5                    | —    | —               | μA   |
| V <sub>CMR</sub> | Common Mode Range                         | 1.5                    | —    | V <sub>CC</sub> | 1.5                  | —    | V <sub>CC</sub> | 1.5                    | —    | V <sub>CC</sub> | 1.5                    | —    | V <sub>CC</sub> | V    |
| V <sub>PP</sub>  | Minimum Peak-to-Peak Input <sup>(1)</sup> | 200                    | —    | —               | 200                  | —    | —               | 200                    | —    | —               | 200                    | —    | —               | mV   |
| V <sub>IH</sub>  | Input HIGH Voltage <sup>(2)</sup>         |                        |      |                 |                      |      |                 |                        |      |                 |                        |      |                 | mV   |
|                  | 10ELT                                     | 2070                   | —    | 2410            | 2130                 | —    | 2460            | 2170                   | —    | 2490            | 2130                   | —    | 2565            |      |
|                  | 100ELT                                    | 2135                   | —    | 2420            | 2135                 | —    | 2420            | 2135                   | —    | 2420            | 2135                   | —    | 2420            |      |
| V <sub>IL</sub>  | Input LOW Voltage <sup>(2)</sup>          |                        |      |                 |                      |      |                 |                        |      |                 |                        |      |                 | mV   |
|                  | 10ELT                                     | 1350                   | —    | 1800            | 1350                 | —    | 1820            | 1350                   | —    | 1820            | 1350                   | —    | 1820            |      |
|                  | 100ELT                                    | 1490                   | —    | 1825            | 1490                 | —    | 1825            | 1490                   | —    | 1825            | 1490                   | —    | 1825            |      |

**Notes:**

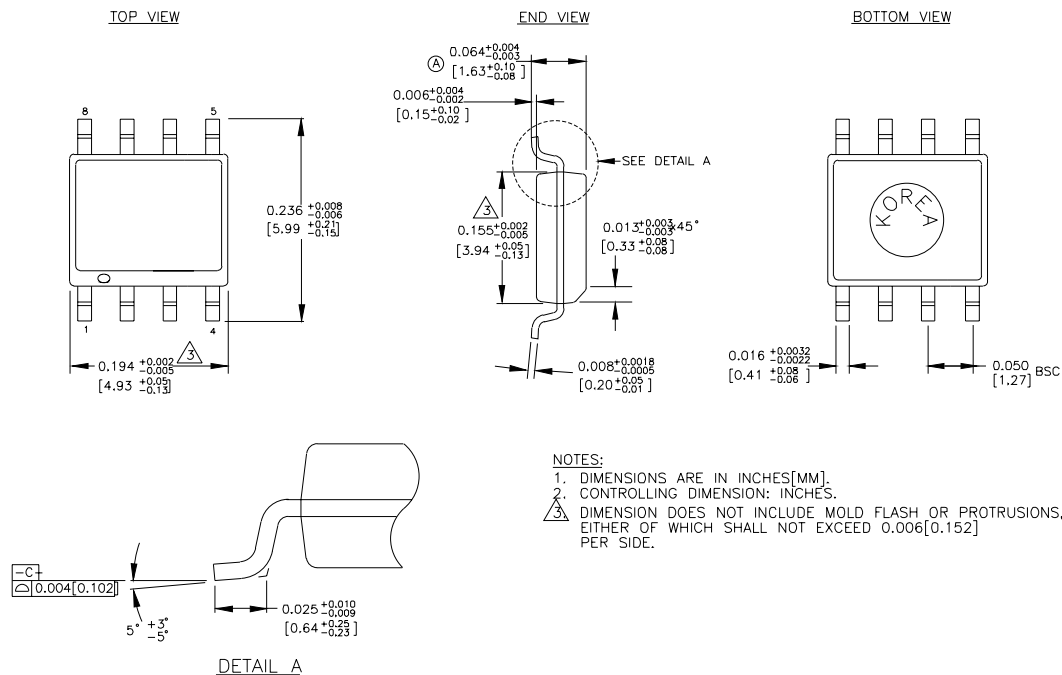
1. 200mV input guaranteed full logic at output.
2. These values are for V<sub>CC</sub> = 3.3V. Level specification will vary 1:1 with V<sub>CC</sub>.

**AC ELECTRICAL CHARACTERISTICS** $V_{CC} = +3.3V \pm 5\%$ .

| Symbol       | Parameter                                 | $T_A = -40^\circ C$ |      | $T_A = 0^\circ C$ |      | $T_A = +25^\circ C$ |      | $T_A = +85^\circ C$ |      | Unit | Condition    |
|--------------|-------------------------------------------|---------------------|------|-------------------|------|---------------------|------|---------------------|------|------|--------------|
|              |                                           | Min.                | Max. | Min.              | Max. | Min.                | Max. | Min.                | Max. |      |              |
| $f_{MAX}$    | Maximum Input Frequency <sup>(1, 2)</sup> | 160                 | —    | 160               | —    | 160                 | —    | 160                 | —    | MHz  | $C_L = 20pF$ |
| $t_{PD}$     | Propagation Delay                         | 1.5                 | 2.5  | 1.5               | 2.5  | 1.5                 | 2.5  | 1.5                 | 2.5  | ns   | $C_L = 20pF$ |
| $t_{skpp}$   | Part-to-Part Skew <sup>(3, 6)</sup>       | —                   | 0.5  | —                 | 0.5  | —                   | 0.5  | —                   | 0.5  | ns   | $C_L = 20pF$ |
| $t_{SKEW++}$ | Within-Device Skew <sup>(4, 6)</sup>      | —                   | 0.3  | —                 | 0.3  | —                   | 0.3  | —                   | 0.3  | ns   | $C_L = 20pF$ |
| $t_{SKEW--}$ | Within-Device Skew <sup>(5, 6)</sup>      | —                   | 0.3  | —                 | 0.3  | —                   | 0.3  | —                   | 0.3  | ns   | $C_L = 20pF$ |
| $t_r, t_f$   | Output Rise/Fall Times<br>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. Frequency at which output levels will meet a 0.8V to 2.0V minimum swing.
2. The  $f_{MAX}$  value is specified as the minimum guaranteed maximum frequency. Actual operational maximum frequency may be greater.
3. Device-to-Device skew considering HIGH-to-HIGH transitions at common  $V_{CC}$  level.
4. Within-device skew considering HIGH-to-HIGH transitions at common  $V_{CC}$  level.
5. Within-device skew considering LOW-to-LOW transitions at common  $V_{CC}$  level.
6. All skew parameters are guaranteed, but not tested.

**8-PIN SOIC .300" 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>

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