

HIGH-PERFORMANCE PRODUCTS

Description

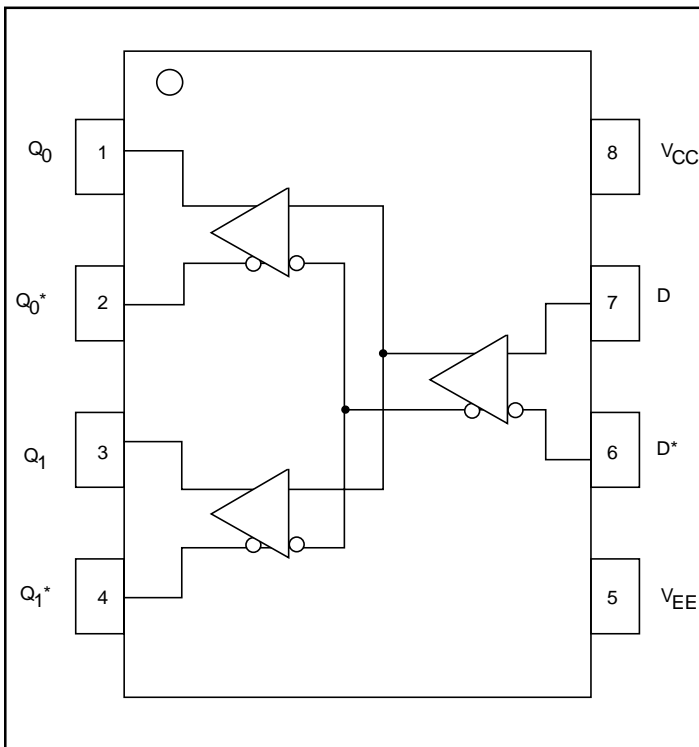
The SK10/100EL11W is a differential 1:2 fanout buffer. This device is fully compatible with MC10/100EL11 and MC100LVEL11. With output transition time much faster than the E111, the EL11W is ideally suited for those applications which require ultimate AC performance.

Under open input conditions, the pulldown resistors will force the Q_0 and Q_1 outputs low and Q_0^* and Q_1^* high.

Features

- Extended Supply Voltage Range: ($V_{EE} = -5.5V$ to $-3.0V$, $V_{CC} = 0V$) or ($V_{CC} = +3.0V$ to $+5.5V$, $V_{EE}=0V$)
- High Bandwidth Output Transition
- 260 ps Propagation Delay
- 5 ps Skew Between Outputs
- Internal Input Pulldown Resistors
- Q Output will Default Low with Inputs Open or at V_{EE}
- New Differential Input Common Mode Range
- Fully compatible with MC10/100EL11 and MC10/100LVEL11
- ESD Protection of $>4000V$
- Industrial Temperature Range: $-40^{\circ}C$ to $+85^{\circ}C$
- Available in both 8 Pin SOIC (150 mils) and MSOP (3mm x 3mm) Packages
- Flammability Rate: UL-94 code V-0.
- Moisture Sensitivity: Level 1.

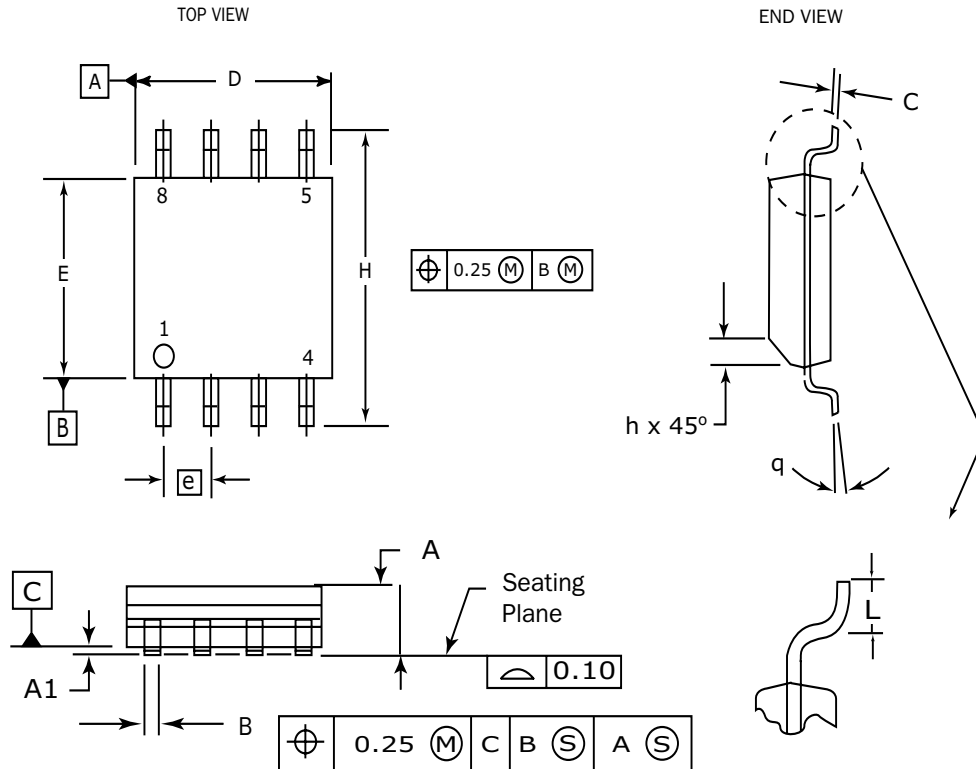
Functional Block Diagram



Pin Names

| Pin | Function |
|------------------|---------------------------|
| D, D* | Differential data Inputs |
| Q0, Q0*, Q1, Q1* | Differential data Outputs |

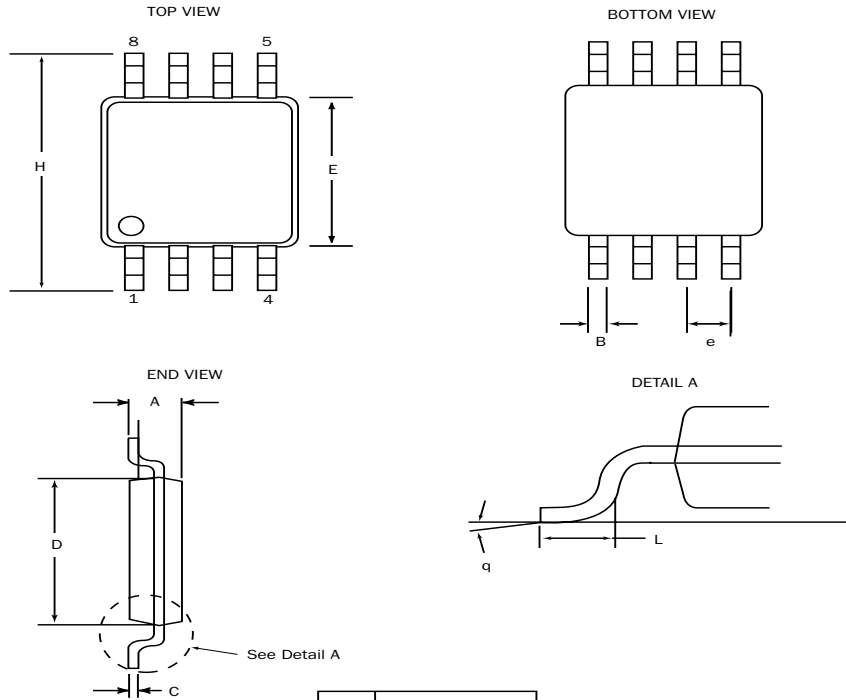
8 Pin SOIC Package



| DIM | MILLIMETERS | |
|-----|-------------|------|
| | MIN | MAX |
| A | 1.35 | 1.75 |
| A1 | 0.10 | 0.25 |
| B | 0.33 | 0.51 |
| C | 0.19 | 0.25 |
| D | 4.80 | 5.00 |
| E | 3.80 | 4.00 |
| e | 1.27 BSC | |
| H | 5.80 | 6.20 |
| h | 0.25 | 0.50 |
| L | 0.40 | 1.27 |
| θ | 0° | 8° |

NOTES:

1. Dimensions are in millimeters.
2. Dimensions D and E do not include mold protrusion.
3. Maximum mold protrusion 0.15 per side.
4. Dimension B does not include Dambar protrusion. Allowable Dambar protrusion shall be 0.127 total in excess of the B dimension at maximum material condition.

8 Pin MSOP Package
8 Pin MSOP Package


| DIM | MILLIMETERS | |
|-----|-------------|------|
| | MIN | MAX |
| A | 0.94 | 1.1 |
| B | 0.25 | 0.40 |
| C | 0.13 | 0.23 |
| D | 2.90 | 3.10 |
| E | 2.90 | 3.10 |
| e | 0.65 | BSC |
| H | 4.75 | 5.1 |
| L | 0.4 | 0.7 |
| θ | 0° | 6° |

- NOTES:**
1. Dimensions are in mm
 2. Controlling dimension: mm
 3. Dimension does not include mold flash or protrusions, either of which shall not exceed 0.20

HIGH-PERFORMANCE PRODUCTS
DC Characteristics
SK10/100EL11W DC Electrical Characteristics (Notes 1, 2, 7)
 $(V_{CC} - V_{EE} = 3.0V \text{ to } 5.5V; V_{OUT} \text{ Loaded } 50\Omega \text{ to } V_{CC} - 2.0V)$

| Symbol | Characteristic | 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 | |
| I _{IN} | Input Current D, D* | -150 | | 150 | -150 | | 150 | -150 | | 150 | -150 | | 150 | μA |
| I _{EE} | Power Supply Current | | | | | | | | | | | | | |
| | 10EL | 17 | 24 | 33 | 17 | 24 | 33 | 17 | 24 | 33 | 17 | 24 | 33 | mA |
| | 100EL | 16 | 25 | 37 | 16 | 25 | 37 | 16 | 25 | 37 | 16 | 25 | 37 | mA |

AC Characteristics
SK10/100EL11W AC Electrical Characteristics (Notes 1, 2, 7)
 $(V_{CC} - V_{EE} = 3.0V \text{ to } 5.5V; V_{OUT} \text{ Loaded } 50\Omega \text{ to } V_{CC} - 2.0V)$

| Symbol | Characteristic | 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 | |
| t _{PLH} t _{PHL} | Input to Output Delay Q _n , Q _n * | 200 | 260 | 350 | 200 | 260 | 350 | 200 | 265 | 340 | 215 | 290 | 365 | ps |
| t _{skew} | Within Device Skew ³ | | 5 | | | 5 | 20 | | 5 | 20 | | 5 | 20 | ps |
| | Duty Cycle Skew ⁴ | | 5 | | | 5 | 20 | | 5 | 20 | | 5 | 20 | ps |
| V _{pp} | Minimum Input Swing ⁵ | 150 | | 1000 | 150 | | 1000 | 150 | | 1000 | 150 | | 1000 | mV |
| V _{CMR} | Common Mode Range ⁶ | VEE + 1.6 | | VCC - 0.4 | VEE + 1.6 | | VCC - 0.4 | VEE + 1.6 | | VCC - 0.4 | VEE + 1.6 | | VCC - 0.4 | V |
| t _r , t _f | Output Rise/Fall Times (20% to 80%) Q _n , Q _n * | 100 | 170 | 240 | 100 | 175 | 250 | 100 | 180 | 260 | 100 | 185 | 270 | ps |

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AC Characteristics (continued)
Notes:

1. 10EL circuits are designed to meet the DC specifications shown in the table after thermal equilibrium has been established. The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500 lfpm is maintained. Outputs are terminated through a 50Ω resistor to VCC -2.0V except where otherwise specified on the individual data sheets.
2. 100K circuits are designed to meet the DC specifications shown in the table where transverse airflow greater than 500 lfpm is maintained.
3. Within-device skew defined as identical transitions on similar paths through a device.
4. Duty cycle skew is the difference between a T_{PLH} and T_{PHL} propagation delay through a device.
5. Minimum input swing for which AC parameters guaranteed.
6. CMR range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the high level falls within the specified range and the peak-to-peak voltage lies between $V_{PP(min)}$ and 1V. The lower end of the CMR range varies 1:1 with VEE and is equal to $VEE + 1.6V$.
7. For standard ECL DC specifications, refer to the ECL Logic Family Standard DC Specifications Data Sheet.
8. For part ordering descriptions, see HPP Part Ordering Information Data Sheet.

Application Notes
AN1003 - Termination Techniques for ECL / LVECL / PECL / LVPECL Devices

AN1004 - Interfacing Between LVDS and ECL / LVECL / PECL / LVPECL

AN1005 - Using ECL / LVECL Devices as PECL / LVPECL

AN1006 - Designing with 10K and 100K ECL / PECL Devices

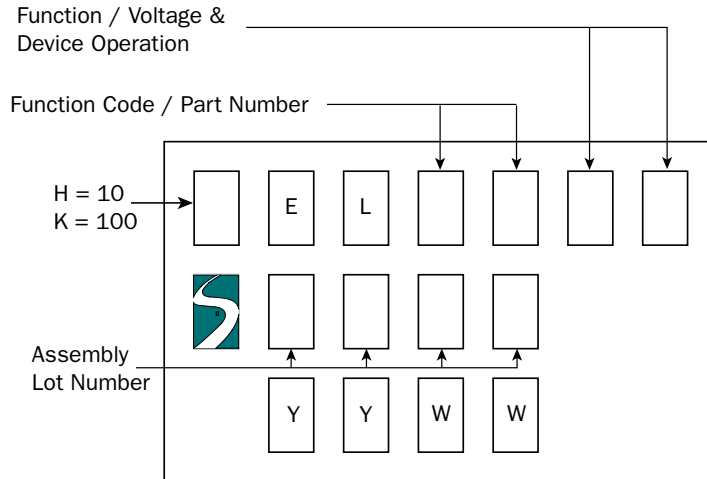
Ordering Information

| Ordering Code | Package ID |
|---------------|------------|
| SK10EL11WD | 8-SOIC |
| SK10EL11WDT | 8-SOIC |
| SK100EL11WD | 8-SOIC |
| SK100EL11WDT | 8-SOIC |
| SK10EL11WMS | 8-MSOP |
| SK10EL11WMST | 8-MSOP |
| SK100EL11WMS | 8-MSOP |
| SK100EL11WMST | 8-MSOP |
| SK10EL11WU | Die |
| SK100EL11WU | Die |

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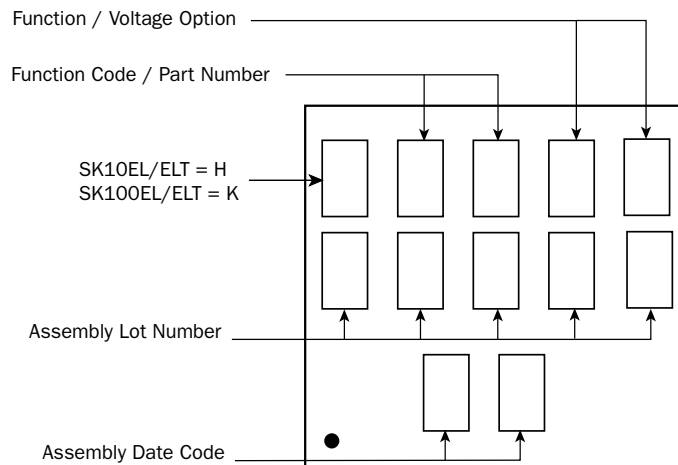
Marking Information

8 PIN SOIC PACKAGE



YY: Last two digits of the Year
WW: Working Week

8/10 PIN MSOP PACKAGES



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