

### HIGH-PERFORMANCE PRODUCTS

#### Description

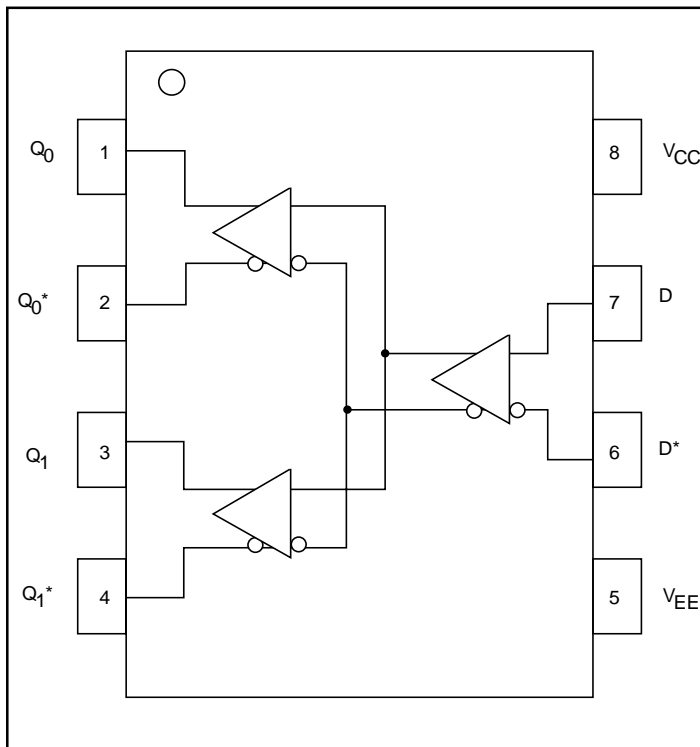
The SK10/100EL11W is a differential 1:2 fanout buffer. This device is fully compatible with MC10/100EL11 and MC100LVEL11. With output transition time much faster than the E111, the EL11W is ideally suited for those applications which require ultimate AC performance.

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.

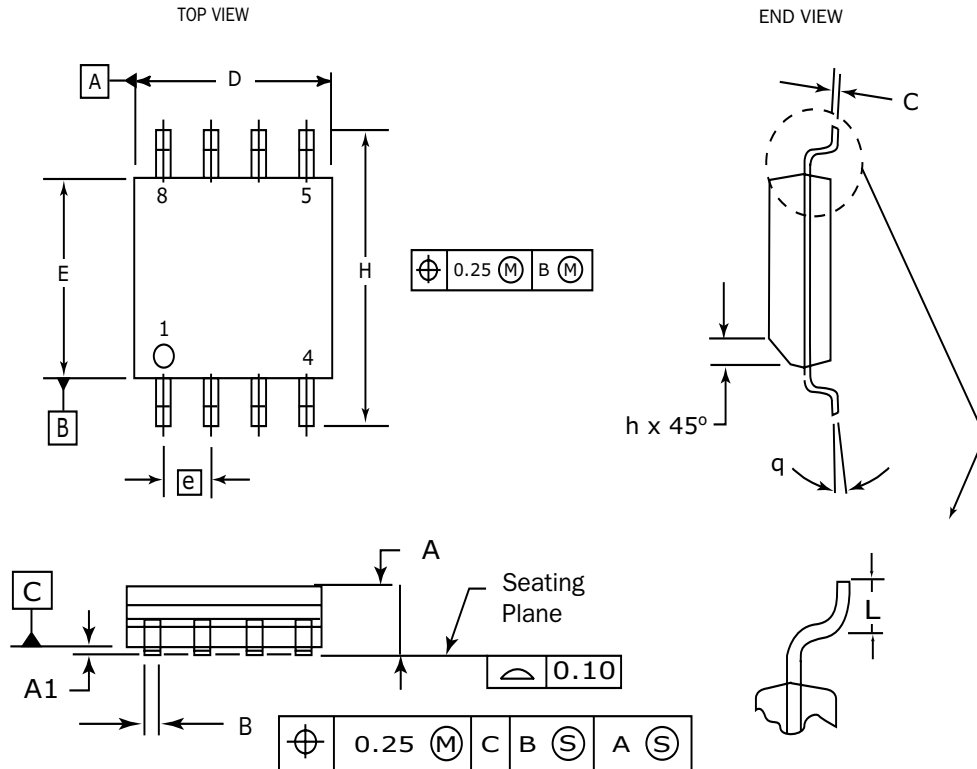
#### Functional Block Diagram



#### Pin Names

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

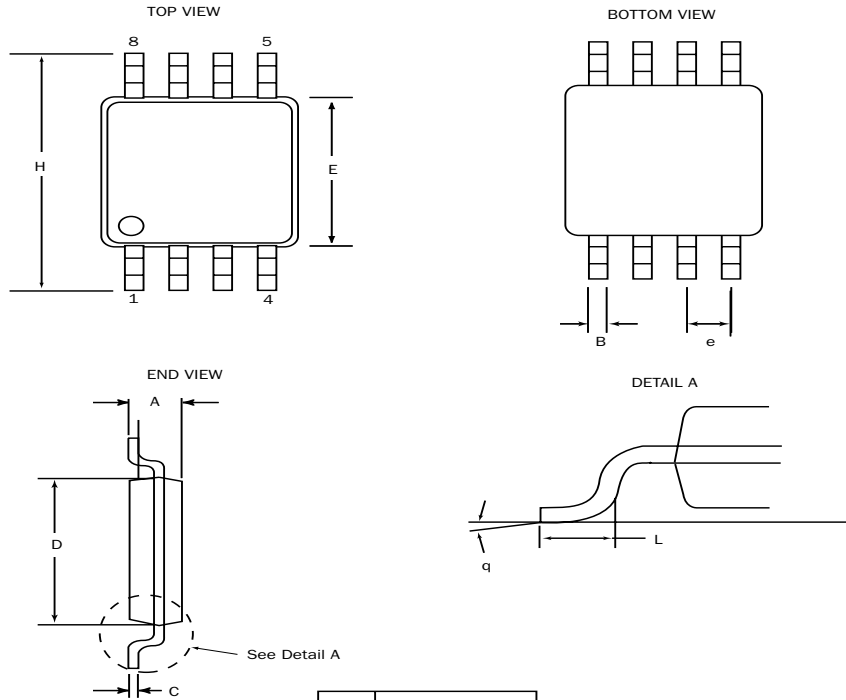
8 Pin SOIC Package



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 <sub>IN</sub>	Input Current D, D*	-150		150	-150		150	-150		150	-150		150	μA
I <sub>EE</sub>	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 <sub>PLH</sub> t <sub>PHL</sub>	Input to Output Delay Q <sub>n</sub> , Q <sub>n</sub> *	200	260	350	200	260	350	200	265	340	215	290	365	ps
t <sub>skew</sub>	Within Device Skew <sup>3</sup>		5			5	20		5	20		5	20	ps
	Duty Cycle Skew <sup>4</sup>		5			5	20		5	20		5	20	ps
V <sub>pp</sub>	Minimum Input Swing <sup>5</sup>	150		1000	150		1000	150		1000	150		1000	mV
V <sub>CMR</sub>	Common Mode Range <sup>6</sup>	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 <sub>r</sub> , t <sub>f</sub>	Output Rise/Fall Times (20% to 80%) Q <sub>n</sub> , Q <sub>n</sub> *	100	170	240	100	175	250	100	180	260	100	185	270	ps

**HIGH-PERFORMANCE PRODUCTS**
**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

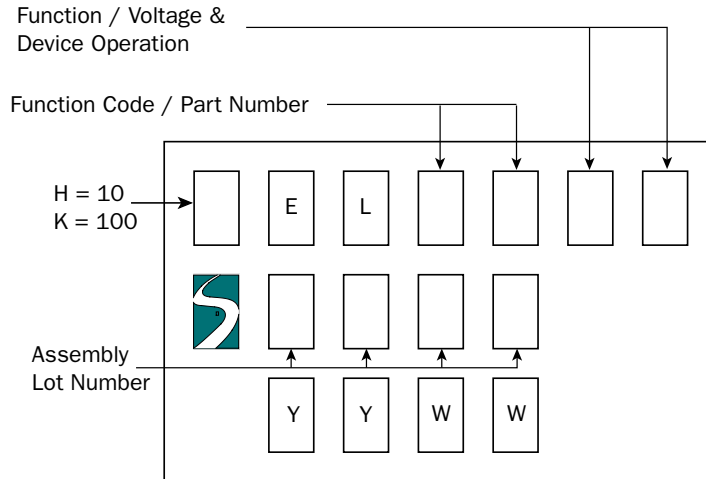
**Ordering Information**

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

## HIGH-PERFORMANCE PRODUCTS

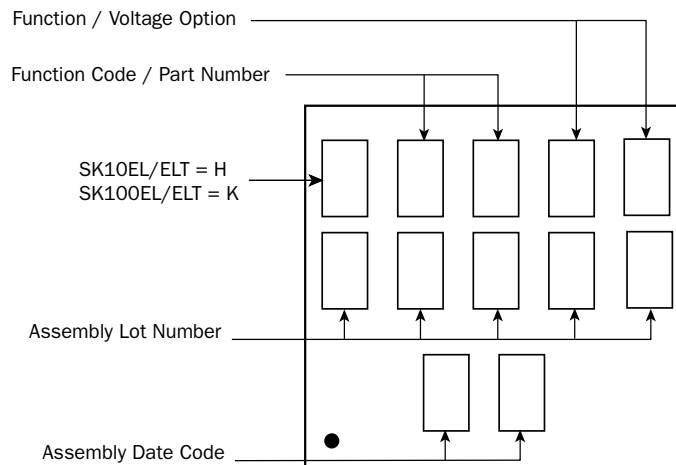
### Marking Information

#### 8 PIN SOIC PACKAGE



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

#### 8/10 PIN MSOP PACKAGES



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