

HIGH-PERFORMANCE PRODUCTS

Description

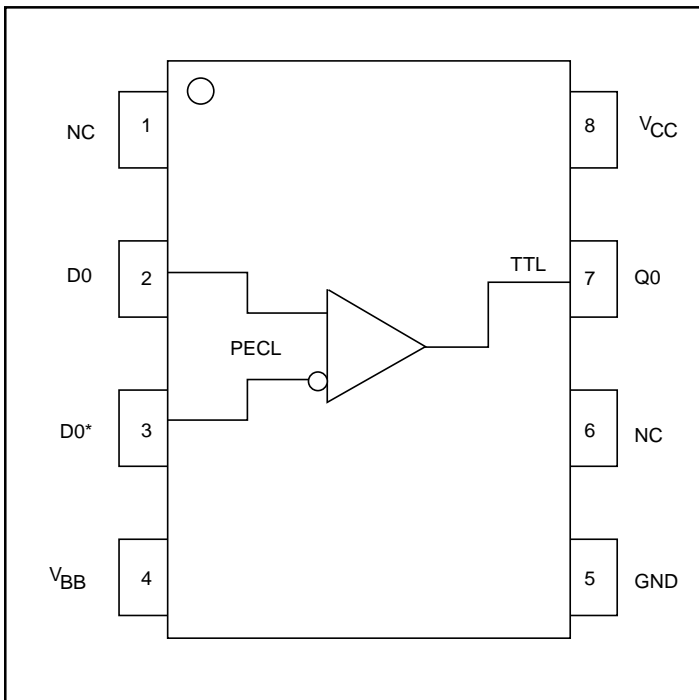
The SK10/100ELT21W is a single differential PECL to CMOS/TTL or LVPECL to LVCMOS/LVTTL Translator. Since PECL (Positive ECL) levels are used, only +V_{CC} and ground are required. The small outline, 8 lead SOIC package, low skew, and the single gate design of the SK10/100ELT21W makes it ideal for applications which require the translation of a clock and a data signal.

Unlike the TTL totem pole outputs, the outputs of the ELT21W can be interfaced directly to CMOS inputs with better V_{OH} (V_{CC} – 0.5V) levels. With extended supply voltage capability, the device is functionally compatible with MC10/100ELT21 (5V) and MC10/100LVELT21 (3.3V).

Features

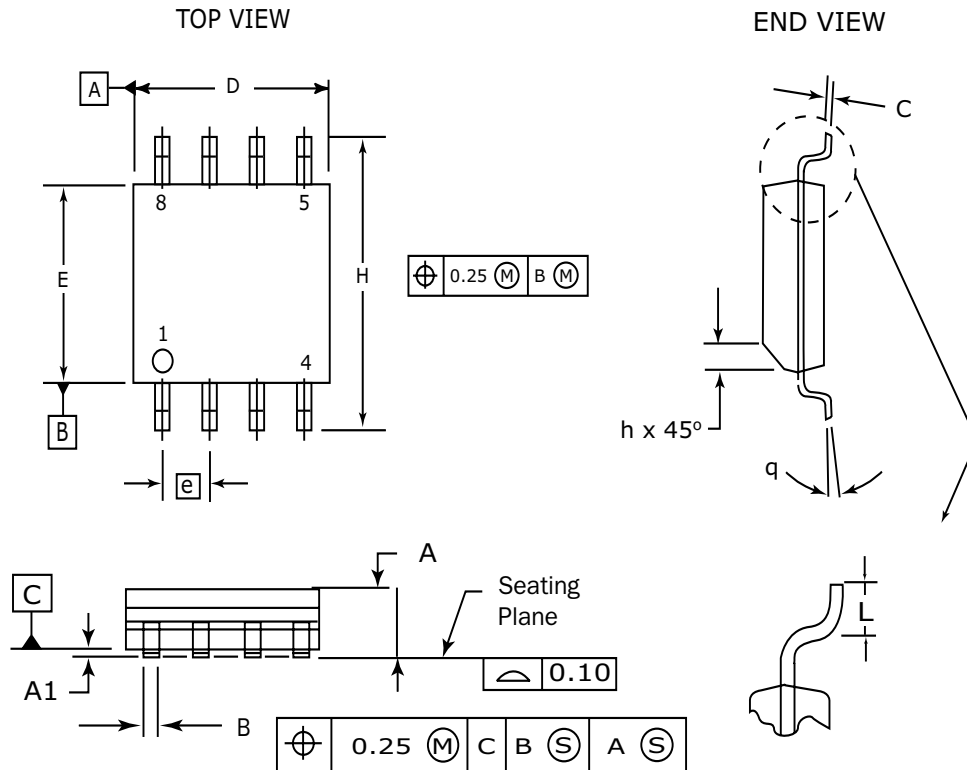
- Extended Supply Voltage Range (V_{CC} = +3.0V to 5.5V)
- 2.4 ns Typical Propagation Delay
- Differential PECL Inputs
- True Complementary CMOS/TTL Output
- Flow Through Pinouts
- Functionally compatible with MC10/100ELT21 and MC10/100LVELT21
- 75K Ω Internal Input Pulldown Resistors
- Specified Over Industrial Temperature Range: –40°C to 85°C
- ESD Protection of >4000V
- Small Outline 8 Lead SOIC (150 mils) Package
- Flammability Rate: UL-94 code V-0
- Moisture Sensitivity: Level 1

Functional Block Diagram



PIN Names

Pin	Function
Q0	CMOS/TTL Output
DO, DO*	Differential PECL Inputs
VBB	Referenced Voltage Output
V _{CC}	+V _{CC} Supply
GND	Ground
NC	No Connect

8 Lead 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.

HIGH-PERFORMANCE PRODUCTS
DC Characteristics
SK10/100ELT21W TTL Output DC Electrical Characteristics

 (V_{CC} = 3.0V to 5.5V; TA = -40 °C to +85 °C)

Symbol	Characteristic	Min	Typ	Max	Unit	Cond
V _{OH}	Output HIGH Voltage	V _{CC} - 0.5			V	I _{OH} = -3 mA
V _{OL}	Output LOW Voltage			0.5	V	I _{OL} = 8 mA
I _{CC}	Power Supply Current	16		32	mA	

SK10ELT21W PECL Input DC Electrical Characteristics

 (V_{CC} = 3.0V to 5.5V)

Symbol	Characteristic	TA = -40°C		TA = 0°C		TA = +25°C		TA = +85°C		Unit	Cond
		Min	Max	Min	Max	Min	Max	Min	Max		
V _{IH}	Input HIGH Voltage	3770 2070	4110 2410	3830 2130	4160 2460	3870 2170	4190 2490	3940 2240	4280 2580	mV mV	V _{CC} = 5.0V V _{CC} = 3.3V
V _{IL}	Input LOW Voltage	3050 1350	3500 1800	3050 1350	3520 1820	3050 1350	3520 1820	3050 1350	3555 1855	mV mV	V _{CC} = 5.0V V _{CC} = 3.3V
V _{PP}	Minimum Peak-to-Peak Input	200	1000	200	1000	200	1000	200	1000	mV	Note 1
I _{IN}	Input Current (Diff)	-150	150	-150	150	-150	150	-150	150	µA	
V _{BB}	Reference Output Voltage	3570 1870	3700 2000	3620 1920	3730 2030	3650 1950	3750 2050	3690 1990	3810 2110	mV mV	V _{CC} = 5.0V V _{CC} = 3.3V

SK100ELT21W PECL Input DC Electrical Characteristics

 (V_{CC} = 3.0V to 5.5V)

Symbol	Characteristics	TA = -40°C		TA = 0°C		TA = +25°C		TA = +85°C		Unit	Cond
		Min	Max	Min	Max	Min	Max	Min	Max		
V _{IH}	Input HIGH Voltage	3835 2135	4120 2420	3835 2135	4120 2420	3835 2135	4120 2420	3835 2135	4120 2420	mV mV	V _{CC} = 5.0V V _{CC} = 3.3V
V _{IL}	Input LOW Voltage	3190 1490	3525 1825	3190 1490	3525 1825	3190 1490	3525 1825	3190 1490	3525 1825	mV mV	V _{CC} = 5.0V V _{CC} = 3.3V
V _{PP}	Minimum Peak-to-Peak Input	200	1000	200	1000	200	1000	200	1000	mV	Note 1
I _{IN}	Input HIGH Current	-150	150	-150	150	-150	150	-150	150	µA	
V _{BB}	Reference Output Voltage	3620 1920	3740 2040	3620 1920	3740 2040	3620 1920	3740 2040	3620 1920	3740 2040	mV mV	V _{CC} = 5.0V V _{CC} = 3.3V

HIGH-PERFORMANCE PRODUCTS
AC Characteristics
SK10/100ELT21W AC Electrical Characteristics

 (V_{CC} = 3.0V to 5.5V)

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	
F _{max}	Max Input Frequency ³	180			180			180			180			MHz
t _{PLH} t _{PHL}	Propagation Delay ³	1.95		5.4	1.95		5.4	1.95		5.4	1.95		5.4	ns
t _r , t _f	Output Rise/Fall Time 1.0V to 2.0V	0.38	0.75	1.5	0.38	0.75	1.5	0.38	0.75	1.5	0.38	0.75	1.5	ns
V _{CMR}	Common Mode Range ²	GND + 1.2		V _{CC} - 0.7	GND + 1.2		V _{CC} - 0.7	GND + 1.2		V _{CC} - 0.7	GND + 1.2		V _{CC} - 0.7	V

Notes:

1. 200 mV input guarantees full logic swing at the output.
2. 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 GND and is equal to GND + 1.2V.
3. C_L = 20 pF.
4. For part ordering description, see HPP Part Ordering Information Data Sheet.

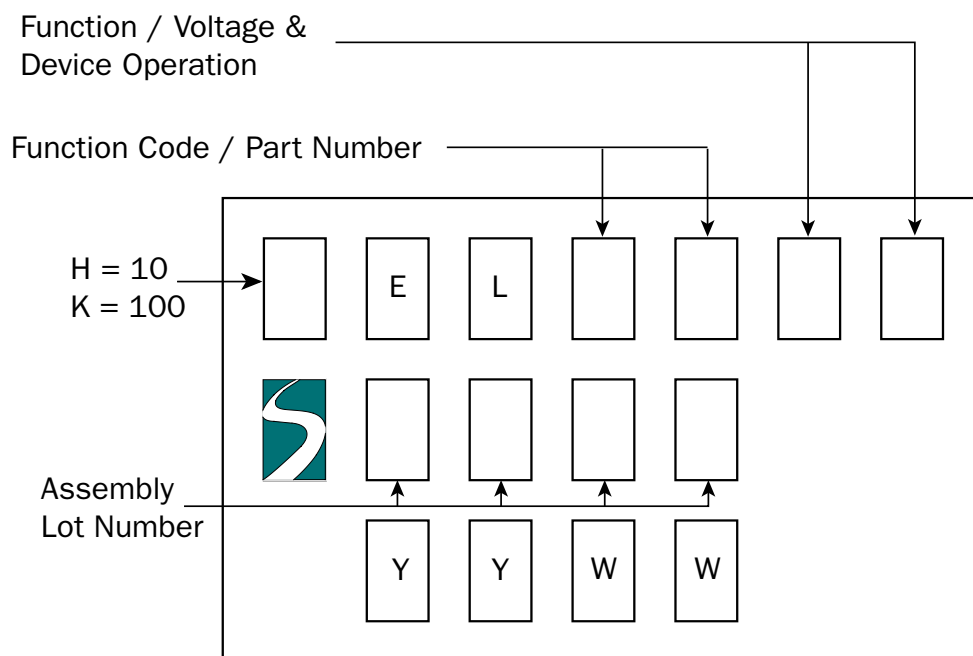
HIGH-PERFORMANCE PRODUCTS

Ordering Information

Ordering Code	Package ID	Temperature Range
SK10ELT21WD	8-SOIC	Industrial
SK10ELT21WDT	8-SOIC	Industrial
SK100ELT21WD	8-SOIC	Industrial
SK100ELT21WDT	8-SOIC	Industrial
SK10ELT21WU	Die	
SK100ELT21WU	Die	

Marking Information

8 PIN SOIC PACKAGE



YY: Last two digits of the Year

WW: Working Week

Contact Information

Division Headquarters
 10021 Willow Creek Road
 San Diego, CA 92131
 Phone: (858) 695-1808
 FAX: (858) 695-2633

Semtech Corporation High-Performance Products Division

Marketing Group
 1111 Comstock Street
 Santa Clara, CA 95054
 Phone: (408) 566-8776
 FAX: (408) 727-8994