SK100ELT23W
Dual Differential PECL to CMOS/TTL or LVPECL to LVCMOS/LVTTL Translator

HIGH-PERFORMANCE PRODUCTS

Description

The SK100ELT23W is a dual differential PECL to CMOS/TTL or LVPECL to LVCMOS/LVTTL Translator. Since PECL (Positive ECL) levels are used, only positive V_{CC} and ground are required. The small outline, 8 lead SOIC package, low skew, and the dual gate design of the SK100ELT23W makes it ideal for applications which require the translation of a clock and a data signal.

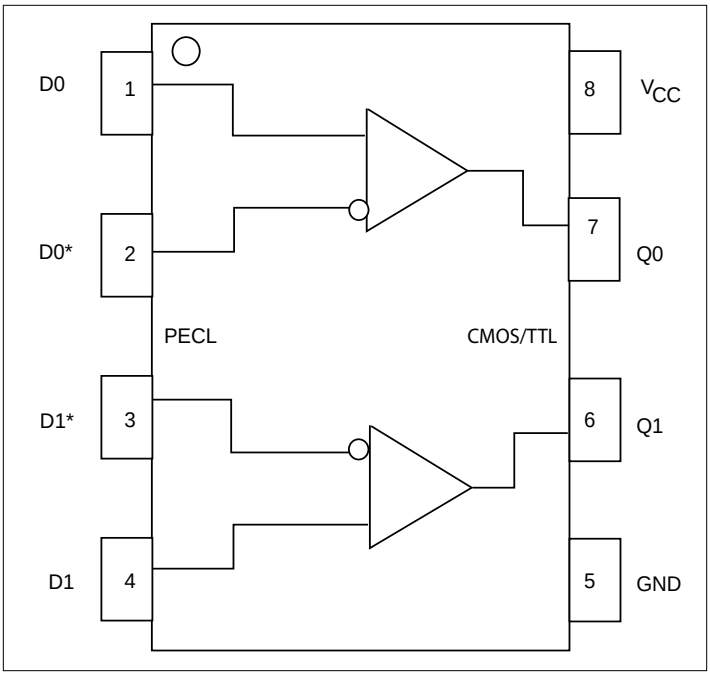
Unlike the TTL totem pole outputs, the outputs of the ELT23W can be interfaced directly to CMOS inputs with better VOH (vcc - 0.5V) levels. With extended supply voltage capability, the device is functionally compatible with MC100ELT23 (5V) and MC100LVELT23 (3.3V).

The SK100ELT23W is available in only the ECL 100K standard. Since there are no PECL outputs or an external V_{BB} reference, the SK100ELT23W does not require both ECL standard versions. The PECL inputs are differential; there is no specified difference between the differential input 10H and 100K standards. Therefore, the SK100ELT23W can accept any standard differential PECL input referenced from a V_{CC} of 3.0V to 5.5V.

Features

- Extended Supply Voltage Range: (VCC = +3.0V to 5.5V, VEE = 0V)
- 2.4 ns Typical Propagation Delay
- Differential PECL Inputs
- True Complementary CMOS/TTL Output
- Flow Through Pinouts
- Functionally compatible with MC100ELT23 and MC100LVELT23
- Internal 75KΩ 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

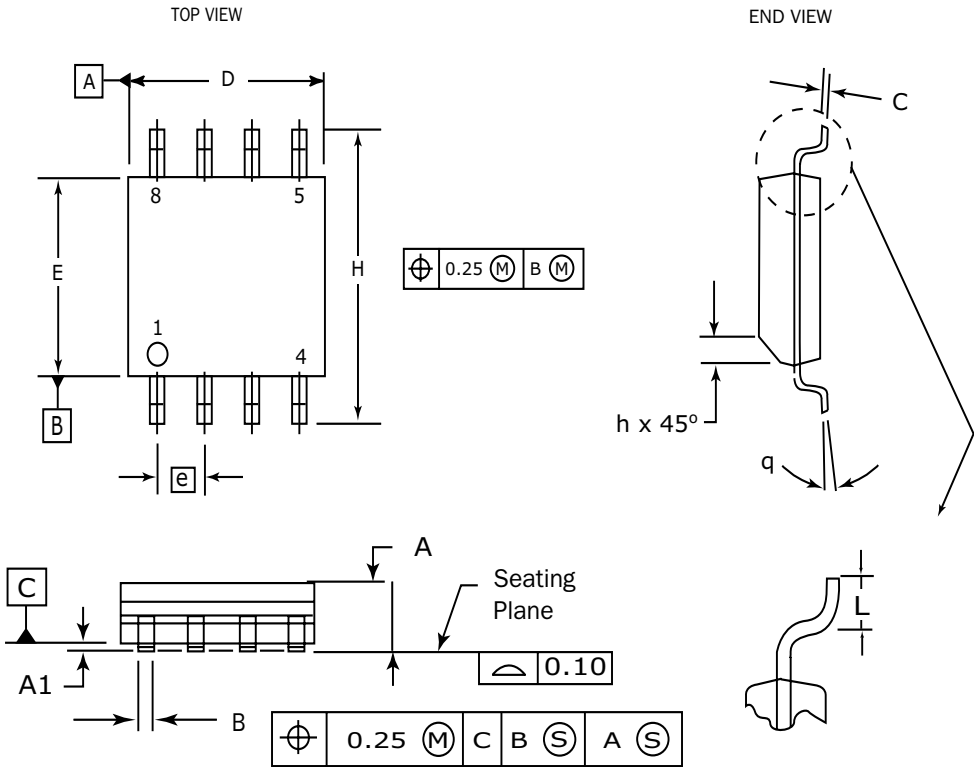
Functional Block Diagram



PIN Names

Pin	Function
Q0, Q1	CMOS/TTL Outputs
D0, D0*, D1, D1*	Differential PECL Inputs
V_{CC}	Positive V_{CC} Supply
GND	Ground

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 no 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.

DC Characteristics

SK100ELT23W TTL Output DC Electrical Characteristics

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

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
V_{OH}	Output HIGH Voltage	VCC - 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	30	38	mA	

SK100ELT23W 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	3835 2135	4120 2420	3835 2135	4120 2420	3835 2135	4120 2420	3835 2135	4120 2420	mV mV	VCC = 5.0V VCC = 3.3V
VIL	Input LOW Voltage	3190 1490	3525 1825	3190 1490	3525 1825	3190 1490	3525 1825	3190 1490	3525 1825	mV mV	VCC = 5.0V VCC = 3.3V
V_{PP}	Minimum Peak-to-Peak Input	200	1000	200	1000	200	1000	200	1000	mV	Note 1
I_{IN}	Input Current	-150	150	-150	150	-150	150	-150	150	µA	

AC Characteristics

SK100ELT23W 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	
Fmax	Max Input Frequency1	180			180			180			180			MH_Z
t_{skpp}	Part-to-Part Skew[1]			0.5			0.5			0.5			0.5	ps
t_{sk++}	Output-to-Output Skew			60			60			60			110	ps
T_{sk--}	Output-to-Output Skew			25			25			25			25	ps
t_{PLH} t_{PHL}	Propagation Delay[1]	2.6	3.1	3.6	2.4	3.0	3.4	2.2	2.6	3.0	2.0	2.4	2.6	ns
t_r, t_f	Output Rise/Fall 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
VCMR	Common Mode Range[2]	GND + 1.2		VCC - 0.7	GND + 1.2		VCC - 0.7	GND + 1.2		VCC - 0.7	GND + 1.2		VCC - 0.7	v

AC Characteristics *(continued)*

Notes:

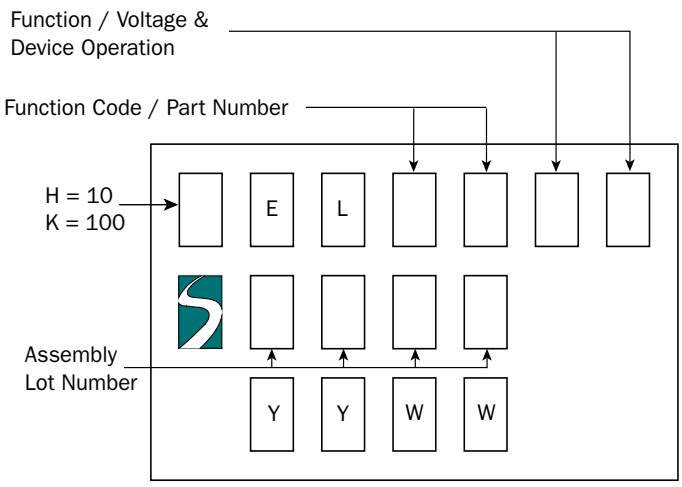
1. C_L = 20pF
2. CMR range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the high level falls within the specified range and the peak-to-peak voltage lies between $VPP_{(min)}$ and 1V. The lower end of the CMR range varies 1:1 with GND and is equal to GND + 1.2V.
3. For part ordering description, see HPP Part Ordering Information Data Sheet.

Ordering Information

Ordering Code	Package ID	Temperature Range
SK100ELT23WD	8-SOIC	Industrial
SK100ELT23WDT	8-SOIC	Industrial
SK100ELT23WU	Die	

Marking Information

8 PIN SOIC PACKAGE



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

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