

FEATURES

- 3.3V power supply
- 2.0ns typical propagation delay
- <500ps typical output-to-output skew
- Differential LVPECL inputs
- 24mA LVTTL outputs
- Flow-through pinouts
- Available in 8-pin SOIC package



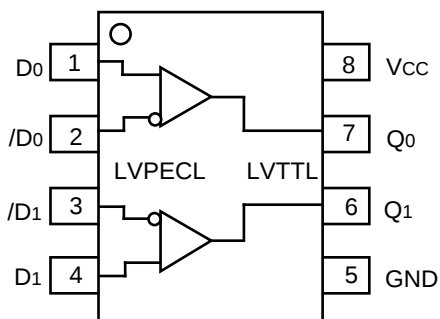
Precision Edge™

DESCRIPTION

The SY10/100ELT23L are dual differential LVPECL-to-LVTTL translators with +3.3V power supply. Because LVPECL (Low Voltage Positive ECL) levels are used, only +3.3V and ground are required. The small outline 8-lead SOIC package and the low skew, dual gate design of the ELT23L makes it ideal for applications which require the translation of a clock and a data signal.

The ELT23L is available in both ECL standards: the 10ELT is compatible with positive ECL 10H logic levels, while the 100ELT is compatible with positive ECL 100K logic levels.

PIN CONFIGURATION/BLOCK DIAGRAM



PIN NAMES

Pin	Function
Q _n	LVTTL Outputs
D _n	Differential LVPECL Inputs
V _{CC}	+3.3V Supply
GND	Ground

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

Symbol	Parameter	Value	Unit
V _{CC}	Power Supply Voltage	-0.5 to +3.8	V
V _I	PECL Input Voltage	0V to V _{CC} +0.5	V
V _O	Voltage Applied to Output at HIGH State	-0.5 to V _{CC}	V
I _O	Current Applied to Output at LOW State	Twice the Rated I _{OL}	mA
T _{store}	Storage Temperature	-65 to +150	°C
T _{amb}	Operating Temperature	-40 to +85	°C

TRUTH TABLE

D	$\bar{D}$	Q
L	H	L
H	L	H
Open	Open	L

NOTE:

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 CHARACTERISTICSV_{CC} = +3.3V ±5%

Symbol	Parameter	T _A = -40°C		T _A = 0°C		T _A = +25°C		T _A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
V _{OH}	Output HIGH Voltage	2.0	—	2.0	—	2.0	—	2.0	—	V	I _{OH} = -3.0mA
V _{OL}	Output LOW Voltage	—	0.5	—	0.5	—	0.5	—	0.5	V	I _{OL} = 24mA
I _{CC}	Power Supply Current	—	30	—	30	—	30	—	30	mA	
I _{OS}	Output Short Circuit Current	-80	-240	-80	-240	-80	-240	-80	-240	mA	V _{OUT} = 0V

LVPECL DC ELECTRICAL CHARACTERISTICSV_{CC} = +3.3V ±5%

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

NOTES:

1. 200mV input guarantees full logic at output.
2. These values are for V_{CC} = 3.3V. Level Specifications will vary 1:1 with V_{CC}.

AC ELECTRICAL CHARACTERISTICS

VCC = +3.3V ±5%

Symbol	Parameter	TA = -40°C		TA = 0°C		TA = +25°C		TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
tPLH tPHL	Propagation Delay	1.5	2.5	1.5	2.5	1.5	2.5	1.5	2.5	ns	CL = 20pF
tskpp	Part-to-Part Skew ^(1,4)	—	0.5	—	0.5	—	0.5	—	0.5	ns	CL = 20pF
tskew++	Within-Device Skew ^(2,4)	—	0.3	—	0.3	—	0.3	—	0.3	ns	CL = 20pF
tskew--	Within-Device Skew ^(3,4)	—	0.3	—	0.3	—	0.3	—	0.3	ns	CL = 20pF
tr tf	Output Rise/Fall Time 1.0V to 2.0V	0.5	1.0	0.5	1.0	0.5	1.0	0.5	1.0	ns	CL = 20pF
fMAX	Maximum Input Frequency ^(5,6)	160	—	160	—	160	—	160	—	MHz	CL = 20pF

NOTES:

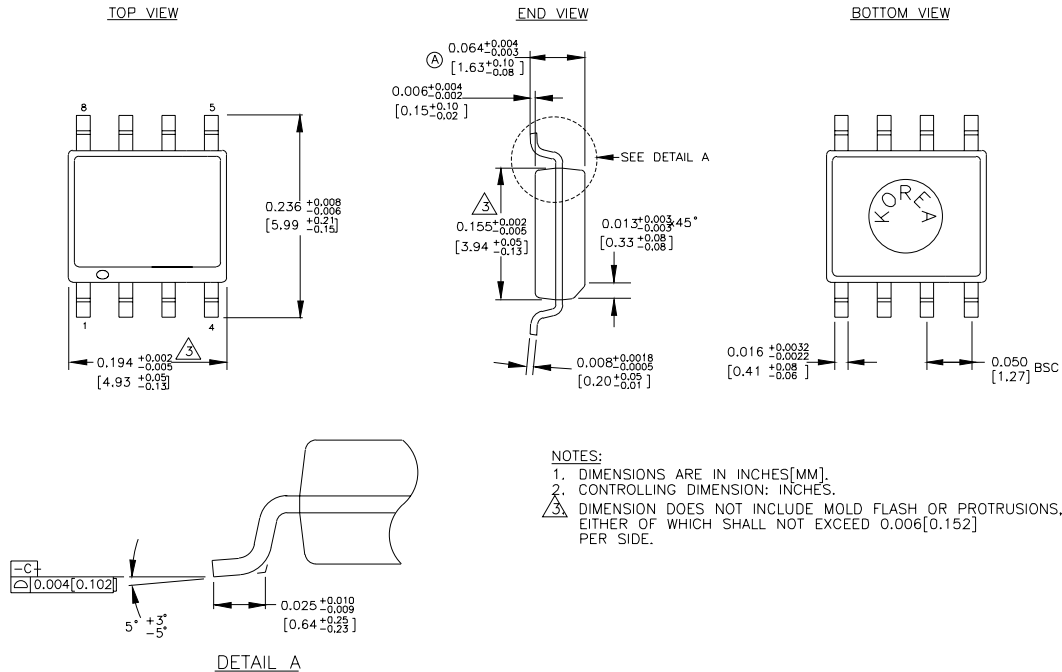
1. Device-to-Device Skew considering HIGH-to-HIGH transitions at common Vcc level.
2. Within-Device Skew considering HIGH-to-HIGH transitions at common Vcc level.
3. Within-Device Skew considering LOW-to-LOW transitions at common Vcc level.
4. All skew parameters are guaranteed but not tested.
5. Frequency at which output levels will meet a 0.8V to 2.0V minimum swing.
6. The fMAX value is specified as the minimum guaranteed maximum frequency. Actual operational maximum frequency may be greater.

PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range	Marking Code	Ordering Code	Package Type	Operating Range	Marking Code
SY10ELT23LZC	Z8-1	Commercial	HEL23L	SY10ELT23LZI ⁽¹⁾	Z8-1	Industrial	HEL23L
SY10ELT23LZCTR*	Z8-1	Commercial	HEL23L	SY10ELT23LZITR* ⁽¹⁾	Z8-1	Industrial	HEL23L
SY100ELT23LZC	Z8-1	Commercial	XEL23L	SY100ELT23LZI ⁽¹⁾	Z8-1	Industrial	XEL23L
SY100ELT23LZCTR*	Z8-1	Commercial	XEL23L	SY100ELT23LZITR* ⁽¹⁾	Z8-1	Industrial	XEL23L

*Tape and Reel

Note 1. Recommended for new designs.

8 LEAD SOIC .150" WIDE (Z8-1)

Rev. 03

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