

FEATURES

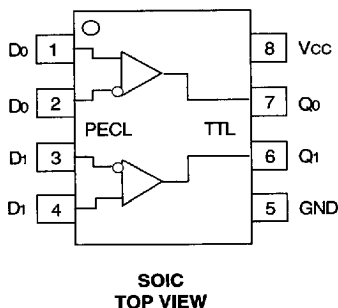
- 2.5ns typical propagation delay
- <500ps typical output-to-output skew
- Differential PECL outputs
- 24mA TTL outputs
- Flow-through pinouts
- ESD protection of 2000V
- Small outline SOIC package

DESCRIPTION

The SY10/100ELT23L are dual differential PECL-to-TTL translators with +3.3V power supply. Because PECL (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 only the ECL 100K standard. Since there are no PECL outputs or an external VBB reference, the ELT23L does not require both ECL standard versions. The PECL inputs are differential input 10H and 100K standards. Therefore, the SY100ELT23L can accept any standard differential PECL input referenced from a Vcc of +3.3V.

PIN CONFIGURATION/BLOCK DIAGRAM



PIN NAMES

Pin	Function
Q _n	TTL Outputs
D _n	Differential PECL Inputs
Vcc	+3.3V Supply
GND	Ground

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

Symbol	Parameter	Value	Unit
V _{CC}	Power Supply Voltage	-0.5 to +7.0	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 +5.5	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

NOTES:

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.

TRUTH TABLE

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

DC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{CC} = +3.0V to +3.8V

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.		
I _{CC}	Power Supply Current	—	30	—	30	—	30	—	30	mA	—

NOTE:

1. Parametric values specified at: 3 volt Power Supply Range 10/100ELT23L Series: +3.0V to +3.8V.

AC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{CC} = +3.0V to +3.8V

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.		
t _{PLH} t _{PHL}	Propagation Delay	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0	ns	C _L = 20pF
t _{skpp}	Part-to-Part Skew ^(1,4)	—	0.5	—	0.5	—	0.5	—	0.5	ns	C _L = 20pF
t _{skew++}	Within-Device Skew ^(2,4)	—	0.3	—	0.3	—	0.3	—	0.3	ns	C _L = 20pF
t _{skew--}	Within-Device Skew ^(3,4)	—	0.3	—	0.3	—	0.3	—	0.3	ns	C _L = 20pF
t _r t _f	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	C _L = 20pF
f _{MAX}	Maximum Input Frequency ^(5,6)	160	—	160	—	160	—	160	—	MHz	C _L = 20pF

NOTES:

1. Device-to-Device Skew considering HIGH-to-HIGH transitions at common V_{CC} level.
2. Within-Device Skew considering HIGH-to-HIGH transitions at common V_{CC} level.
3. Within-Device Skew considering LOW-to-LOW transitions at common V_{CC} 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 f_{MAX} value is specified as the minimum guaranteed maximum frequency. Actual operational maximum frequency may be greater.

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TTL DC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{CC} = +3.0V to +3.8V

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

NOTE:

1. Parametric values specified at: 3 volt Power Supply Range 10/100ELT23L Series: +3.0V to +3.8V.

PECL DC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{CC} = +3.0V to +3.8V

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 HIGH Current	0.5	—	—	0.5	—	—	0.5	—	—	0.5	—	—	μA
V _{CMR}	Common Mode Range	1.2	—	V _{CC}	1.2	—	V _{CC}	1.2	—	V _{CC}	1.2	—	V _{CC}	V
V _{PP}	Minimum Peak-to-Peak Input ⁽²⁾	200	—	—	200	—	—	200	—	—	200	—	—	mV
V _{IH}	Input HIGH Voltage ⁽³⁾	10ELT	2070	—	2410	2130	—	2460	2170	—	2490	2130	—	V
		100ELT	2135	—	2420	2135	—	2420	2135	—	2420	2135	—	
V _{IL}	Input LOW Voltage ⁽³⁾	10ELT	1350	—	1800	1350	—	1820	1350	—	1820	1350	—	V
		100ELT	1490	—	1825	1490	—	1825	1490	—	1825	1490	—	

NOTES:

1. Parametric values specified at: 3 volt Power Supply Range 10/100ELT23L Series: +3.0V to +3.8V.
2. 200mV input guarantees full logic at output.
3. These values are for V_{CC} = 3.3V. Level Specifications will vary 1:1 with V_{CC}.

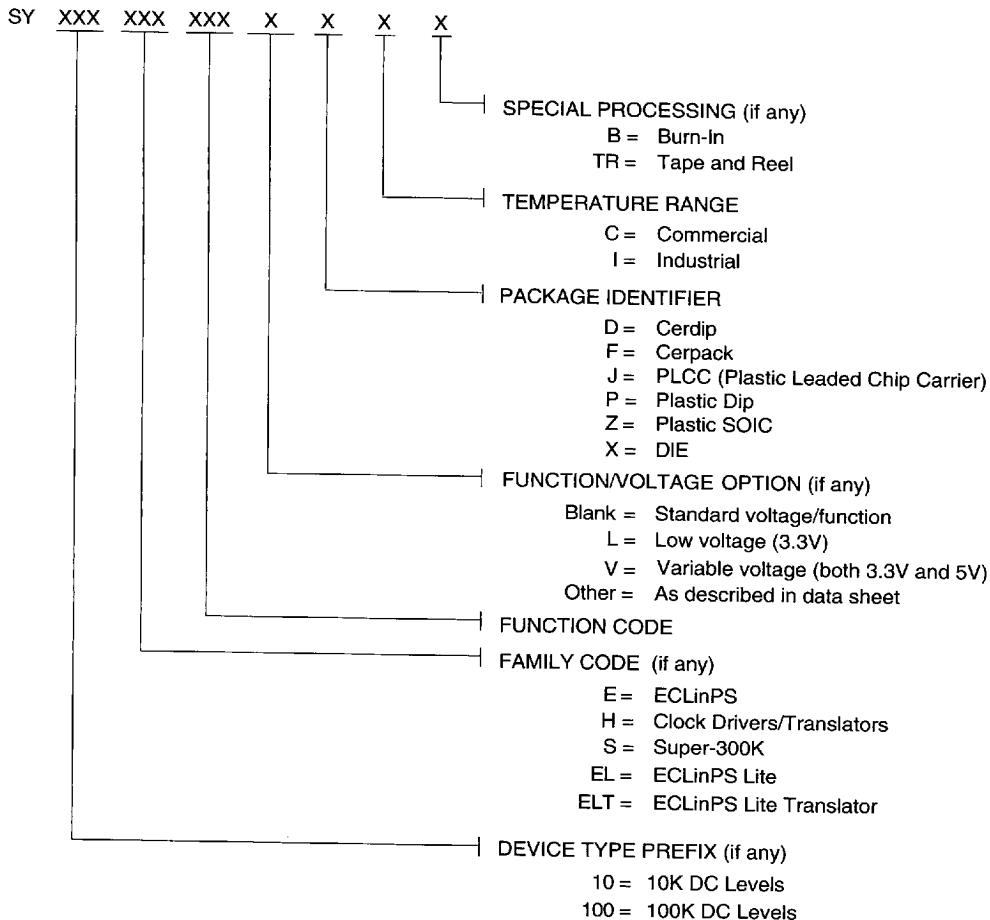
PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range	V _{CC} Range (V)
SY10ELT23LZC	Z8-1	Commercial	+3.0 to +3.8
SY10ELT23LZCTR	Z8-1	Commercial	+3.0 to +3.8
SY100ELT23LZC	Z8-1	Commercial	+3.0 to +3.8
SY100ELT23LZCTR	Z8-1	Commercial	+3.0 to +3.8



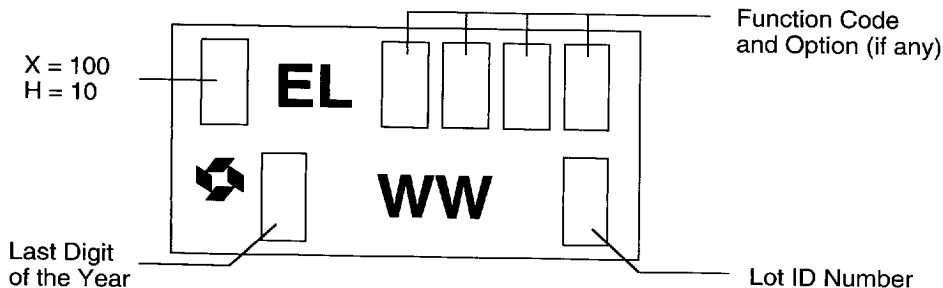
SYNERGY
SEMICONDUCTOR

LOGIC ORDERING INFORMATION



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ECLinPS LITE MARKING INFORMATION



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