

FEATURES

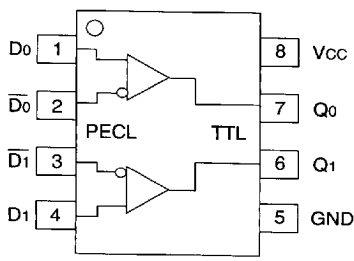
- 3.0ns typical propagation delay
- <500ps typical output-to-output skew
- Differential PECL outputs
- 24mA TTL outputs
- Flow-through pinouts
- ESD protection of 2000V
- Small outline SOIC package

DESCRIPTION

The SY10/100ELT23 are dual differential PECL-to-TTL translators. Because PECL (Positive ECL) levels are used, only +5V and ground are required. The small outline 8-lead SOIC package and the low skew, dual gate design of the ELT23 makes it ideal for applications which require the translation of a clock and a data signal.

The ELT23 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



SOIC
TOP VIEW

PIN NAMES

Pin	Function
Q _n	TTL Outputs
D _n	Differential PECL Inputs
V _{CC}	+5.0V 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

TRUTH TABLE

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

NOTES:

- 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.

DC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{CC} = V_{CC} (Min.) to V_{CC} (Max.)

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:

- Parametric values specified at: 5 volt Power Supply Range 100ELT23 Series: +4.2V to +5.5V.
10ELT23 Series: +4.75V to +5.5V.

AC ELECTRICAL CHARACTERISTICS⁽¹⁾

V_{CC} = V_{CC} (Min.) to V_{CC} (Max.)

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 D to Output Q	2.5	3.5	2.5	3.5	2.5	3.5	2.5	3.5	ns	CL = 50pF
t _{skpp}	Part-to-Part Skew ^(2,5)	—	0.5	—	0.5	—	0.5	—	0.5	ns	CL = 50pF
t _{skew++}	Within-Device Skew ^(3,5)	—	0.3	—	0.3	—	0.3	—	0.3	ns	CL = 50pF
t _{skew--}	Within-Device Skew ^(4,5)	—	0.3	—	0.3	—	0.3	—	0.3	ns	CL = 50pF
t _r	Output Rise/Fall Time 1.0V to 2.0V	—	1.5	—	1.5	—	1.5	—	1.5	ns	CL = 50pF
f _{MAX}	Maximum Input Frequency ^(6,7)	160	—	160	—	160	—	160	—	MHz	CL = 50pF

NOTES:

- Parametric values specified at: 5 volt Power Supply Range 100ELT23 Series: +4.2V to +5.5V.
10ELT23 Series: +4.75V to +5.5V.
- Device-to-Device Skew considering HIGH-to-HIGH transitions at common V_{CC} level.
- Within-Device Skew considering HIGH-to-HIGH transitions at common V_{CC} level.
- Within-Device Skew considering LOW-to-LOW transitions at common V_{CC} level.
- All skew parameters are guaranteed but not tested.
- Frequency at which output levels will meet a 0.8V to 2.0V minimum swing.
- The f_{MAX} value is specified as the minimum guaranteed maximum frequency. Actual operational maximum frequency may be greater.

TTL DC ELECTRICAL CHARACTERISTICS⁽¹⁾

VCC = VCC (Min.) to VCC (Max.)

Symbol	Parameter	TA = -40°C		TA = 0°C		TA = +25°C		TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
VOH	Output HIGH Voltage	2.5	—	2.5	—	2.5	—	2.5	—	V	IOH = -3.0mA
		2.0	—	2.0	—	2.0	—	2.0	—	V	IOH = -15mA
VOL	Output LOW Voltage	—	0.5	—	0.5	—	0.5	—	0.5	V	IOL = 24mA
Ios	Output Short Circuit Current	-80	-200	-80	-200	-80	-200	-80	-200	mA	VOUT = 0V

NOTE:

- Parametric values specified at: 5 volt Power Supply Range 100ELT23 Series: +4.2V to +5.5V.
10ELT23 Series: +4.75V to +5.5V.

PECL DC ELECTRICAL CHARACTERISTICS⁽¹⁾

VCC = VCC (Min.) to VCC (Max.)

Symbol	Parameter	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.	
IiH	Input HIGH Current	—	—	150	—	—	150	—	—	150	—	—	150	μA
IiL	Input HIGH Current	0.5	—	—	0.5	—	—	0.5	—	—	0.5	—	—	μA
VCMR	Common Mode Range	2.2	—	VCC	2.2	—	VCC	2.2	—	VCC	2.2	—	VCC	V
VPP	Minimum Peak-to-Peak Input ⁽²⁾	200	—	—	200	—	—	200	—	—	200	—	—	mV
ViH	Input HIGH Voltage ⁽³⁾													mV
	10ELT	3770	—	4110	3830	—	4160	3870	—	4190	3940	—	4280	
	100ELT	3838	—	4120	3835	—	4120	3835	—	4120	3835	—	4120	
ViL	Input LOW Voltage ⁽³⁾													mV
	10ELT	3050	—	3500	3050	—	3520	3050	—	3520	3050	—	3555	
	100ELT	3190	—	3525	3190	—	3525	3190	—	3525	3190	—	3525	

NOTES:

- Parametric values specified at: 5 volt Power Supply Range 100ELT23 Series: +4.2V to +5.5V.
10ELT23 Series: +4.75V to +5.5V.
- 200mV input guarantees full logic at output.
- These values are for VCC = 5.0V. Level Specifications will vary 1:1 VCC.

PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range	VCC Range (V)
SY10ELT23ZC	Z8-1	Commercial	+4.75 to +5.5
SY10ELT23ZCTR	Z8-1	Commercial	+4.75 to +5.5
SY100ELT23ZC	Z8-1	Commercial	+4.2 to +5.5
SY100ELT23ZCTR	Z8-1	Commercial	+4.2 to +5.5

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