

FEATURES

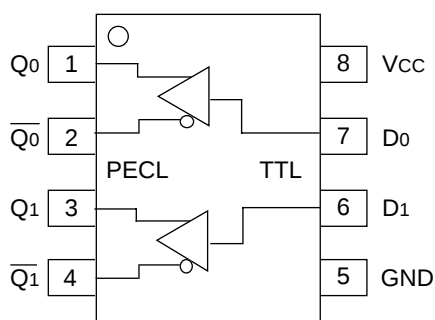
- 300ps typical propagation delay
- <100ps output-to-output skew
- Differential PECL outputs
- PNP TTL inputs for minimal loading
- Flow-through pinouts
- Available in 8-pin SOIC package

DESCRIPTION

The SY10/100ELT22 are dual TTL-to-differential PECL 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 ELT22 makes it ideal for applications which require the translation of a clock and a data signal.

The ELT22 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	Differential PECL Outputs
D _n	TTL 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	TTL Input Voltage	−0.5 to V _{CC}	V
I _I	TTL Input Current	−30 to +5.0	mA
I _{OUT}	PECL Output Current — Continuous — Surge	50 100	mA
T _{store}	Storage Temperature	−65 to +150	°C
T _A	Operating Temperature	−40 to +85	°C
ESD	Mil Std. 883 Human Body Model, All Pins	>1.5k	V

TRUTH TABLE

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

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 1. Parametric values specified at: 5 volt Power Supply Range 100ELT22 Series: +4.2V to +5.5V.
10ELT22 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 to Output D, ENECL/ENTTL	100	600	100	600	100	600	100	600	ps	50Ω to V _{CC} − 2.0V
t _r t _f	Output Rise/Fall Time 20% to 80%	200	500	200	500	200	500	200	500	ps	50Ω to V _{CC} − 2.0V
t _{skpp}	Part-to-Part Skew ⁽²⁾	—	500	—	500	—	500	—	500	ps	50Ω to V _{CC} − 2.0V
t _{skew}	Within-Device Skew ^(2,3)	—	100	—	100	—	100	—	100	ps	50Ω to V _{CC} − 2.0V

Note 1. Parametric values specified at: 5 volt Power Supply Range 100ELT22 Series: +4.2V to +5.5V.
10ELT22 Series +4.75V to +5.5V.

Note 2. Guaranteed, but not tested.

Note 3. Same transition @common VCC levels.

TTL 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.		
V _{IH}	Input HIGH Voltage	2.0	—	2.0	—	2.0	—	2.0	—	V	—
V _{IL}	Input LOW Voltage	—	0.8	—	0.8	—	0.8	—	0.8	V	—
I _{IH}	Input HIGH Current	—	20 100	—	20 100	—	20 100	—	20 100	μA	V _{IN} = 2.7V V _{IN} = V _{CC}
I _{IL}	Input LOW Current	—	-0.2	—	-0.2	—	-0.2	—	-0.2	mA	V _{IN} = 0.5V
V _{IK}	Input Clamp Voltage	—	-1.2	—	-1.2	—	-1.2	—	-1.2	V	I _{IN} = -18mA

Note 1. Parametric values specified at: 5 volt Power Supply Range 100ELT22 Series: +4.2V to +5.5V.
10ELT22 Series +4.75V to +5.5V.

PECL 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
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
V _{OH}	Output HIGH Voltage ⁽²⁾													mV
	10ELT	3920	—	4110	3980	—	4160	4020	—	4190	4090	—	4280	
	100ELT	3915	—	4120	3975	—	4120	3975	—	4120	3975	—	4120	
V _{OL}	Output LOW Voltage ⁽²⁾													mV
	10ELT	3050	—	3350	3050	—	3370	3050	—	3370	3050	—	3405	
	100ELT	3170	—	3445	3190	—	3380	3190	—	3380	3190	—	3380	

Note 1. Parametric values specified at: 5 volt Power Supply Range 100ELT22 Series: +4.2V to +5.5V.
10ELT22 Series +4.75V to +5.5V.

Note 2. These values are for V_{CC} = 5.0V. Level Specifications will vary 1:1 with V_{CC}.

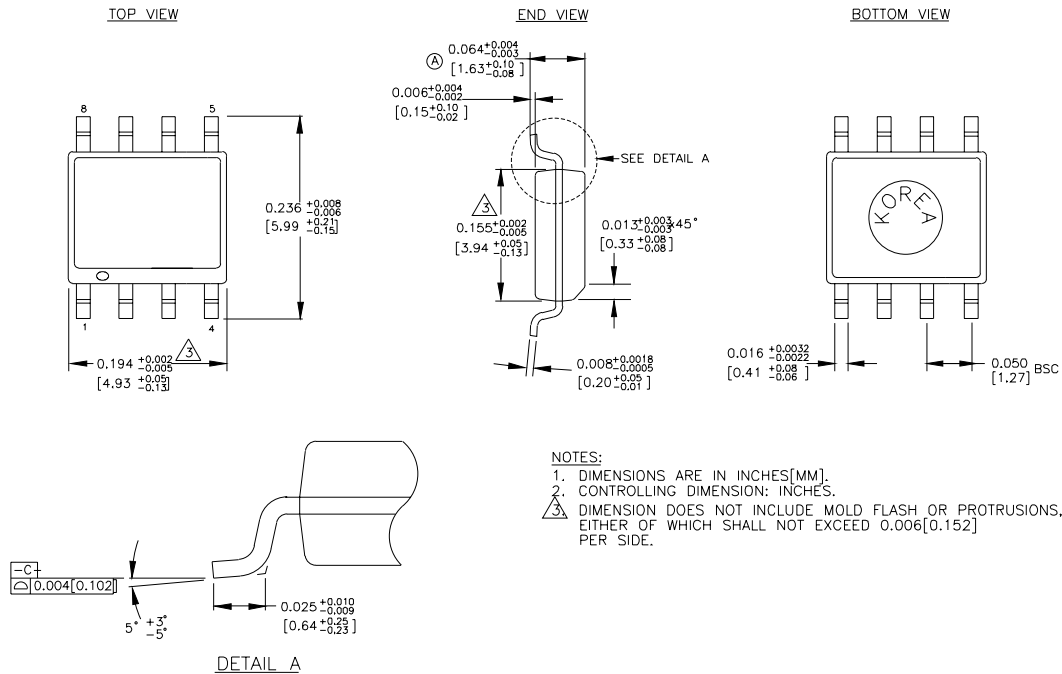
PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range	Marking Code
SY10ELT22ZC	Z8-1	Commercial	HEL22
SY10ELT22ZCTR ⁽¹⁾	Z8-1	Commercial	HEL22
SY100ELT22ZC	Z8-1	Commercial	XEL22
SY100ELT22ZCTR ⁽¹⁾	Z8-1	Commercial	XEL22

Ordering Code	Package Type	Operating Range	Marking Code
SY10ELT22ZI ⁽²⁾	Z8-1	Industrial	HEL22
SY10ELT22ZITR ^(1, 2)	Z8-1	Industrial	HEL22
SY100ELT22ZI ⁽¹⁾	Z8-1	Industrial	XEL22
SY100ELT22ZITR ^(1, 2)	Z8-1	Industrial	XEL22

Note 1. Tape and Reel.

Note 2. Recommended for new designs.

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

Rev. 03

Package Notes:**Note 1.** Package meets Level 1 moisture sensitivity.**MICREL, INC. 1849 FORTUNE DRIVE SAN JOSE, CA 95131 USA**TEL + 1 (408) 944-0800 FAX + 1 (408) 944-0970 WEB <http://www.micrel.com>

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