3.3V DUAL TTL-to-DIFFERENTIAL PECL TRANSLATOR

FEATURES

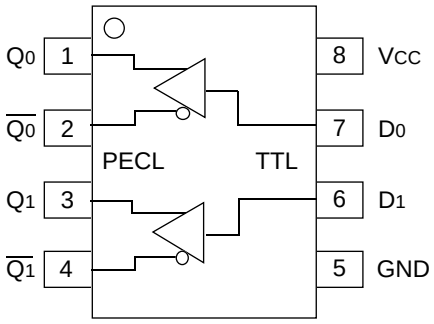
- **3.3V power supply**
- **300ps typical propagation delay**
- **<100ps output-to-output skew**
- **Differential PECL outputs**
- **PNP TTL inputs for minimal loading**
- **Flow-through pinouts**
- **Available in 8-pin SOIC package**

DESCRIPTION

The SY10/100ELT22L are dual TTL-to-differential PECL 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 ELT22L makes it ideal for applications which require the tranlation of a clock and a data signal.

The ELT22L 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}	+3.3V Supply
GND	Ground

ABSOLUTE MAXIMUM RATINGS[1]

Symbol	Paramter	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_{amb}	Operating Temperature	–40 to +85	°C

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.

TRUTH TABLE

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

DC ELECTRICAL CHARACTERISTICS[1]

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

		T_A = -40°C		T_A = 0°C		T_A = +25°C		T_A = +85°C			
Symbol	**Parameter**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Unit**	**Condition**
I_{CC}	Power Supply Current	—	25	—	25	—	25	—	25	mA	—

NOTE:

1. Parametric values specified at: 3 volt Power Supply Range 10/100ELT22L Series: +3.0V to +3.8V.

AC ELECTRICAL CHARACTERISTICS[1]

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

		T_A = -40°C		T_A = 0°C		T_A = +25°C		T_A = +85°C			
Symbol	**Parameter**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Unit**	**Condition**
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

NOTES:

1. Parametric values specified at: 3 volt Power Supply Range 10/100ELT22L Series: +3.0V to +3.8V.
2. Guaranteed, but not tested.
3. Same transition @common V_{CC} levels.

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_{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: 3 volt Power Supply Range 10/100ELT22L Series: +3.0V to +3.8V.

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	2220	—	2410	2280	—	2460	2320	—	2490	2390	—	2580	
	100ELT	2220	—	2420	2275	—	2420	2275	—	2420	2275	—	2420	
V_{OL}	Output LOW Voltage[2]													mV
	10ELT	1350	—	1650	1350	—	1670	1350	—	1670	1350	—	1705	
	100ELT	1470	—	1750	1490	—	1680	1490	—	1680	1490	—	1680	

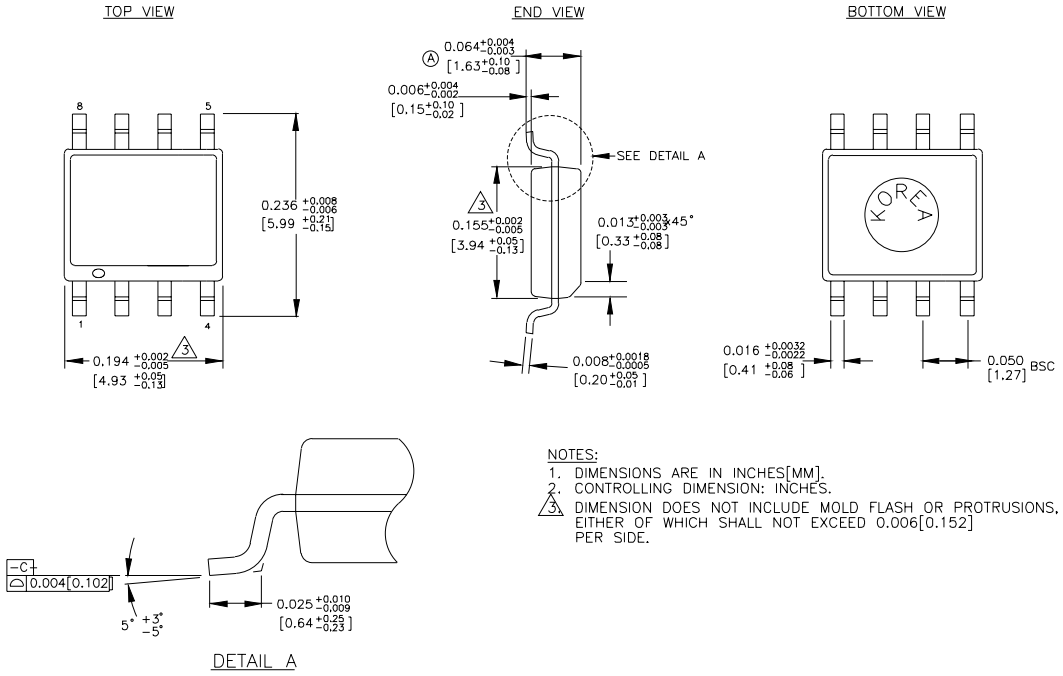
NOTES:

1. Parametric values specified at: 3 volt Power Supply Range 10/100ELT22L Series: +3.0V to +3.8V.
2. 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)
SY10ELT22LZC	Z8-1	Commercial	+3.0 to +3.8
SY10ELT22LZCTR	Z8-1	Commercial	+3.0 to +3.8
SY100ELT22LZC	Z8-1	Commercial	+3.0 to +3.8
SY100ELT22LZCTR	Z8-1	Commercial	+3.0 to +3.8

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



NOTES:
1. DIMENSIONS ARE IN INCHES[MM].
2. CONTROLLING DIMENSION: INCHES.
3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.006[0.152] PER SIDE.

Rev. 03

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