DUAL TTL-to-DIFFERENTIAL PECL TRANSLATOR

SY10ELT22
SY100ELT22

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

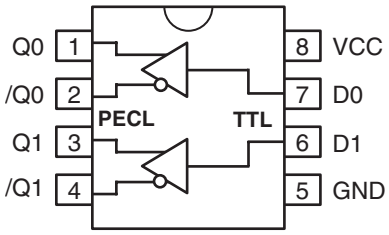
The SY10/100ELT22 are dual TTL-to-differential PECL translators. Because PECL (Positive ECL) levels are used, only +5V and ground are required. The small outline 8-lead SOIC package and the low skew, dual gate design of the ELT22 makes it ideal for applications which require the tranlation of a clock 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 NAMES

Pin	Function
Q_n	Differential PECL Outputs
D_n	TTL Inputs
V_{CC}	+5.0V Supply
GND	Ground

PACKAGE/ORDERING INFORMATION



8-Pin SOIC (Z8-1)

Ordering Information[1]

Part Number	Package Type	Operating Range	Package Marking	Lead Finish
SY10ELT22ZC	Z8-1	Commercial	HEL22	Sn-Pb
SY10ELT22ZCTR[2]	Z8-1	Commercial	HEL22	Sn-Pb
SY100ELT22ZC	Z8-1	Commercial	XEL22	Sn-Pb
SY100ELT22ZCTR[2]	Z8-1	Commercial	XEL22	Sn-Pb
SY10ELT22ZG[3]	Z8-1	Industrial	HEL22 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY10ELT22ZGTR[2, 3]	Z8-1	Industrial	HEL22 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100ELT22ZG[3]	Z8-1	Industrial	XEL22 with Pb-Free bar-line indicator	Pb-Free NiPdAu
SY100ELT22ZGTR[2, 3]	Z8-1	Industrial	XEL22 with Pb-Free bar-line indicator	Pb-Free NiPdAu

Notes:

1. Contact factory for die availability. Dice are guaranteed at $T_A = 25°C$, DC Electricals only.
2. Tape and Reel.
3. Pb-Free package is recommended for new designs.

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_{LEAD}	Lead Temperature (soldering, 20sec.)	+260	°C
T_{store}	Storage Temperature	–65 to +150	°C
T_A	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 ratlng 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} = V_{CC} (Min.) to V_{CC} (Max.)

		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	—	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.

TTL DC ELECTRICAL CHARACTERISTICS(1)

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

		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
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	

NOTES:

1. Parametric values specified at: 5 volt Power Supply Range 100ELT22 Series: +4.2V to +5.5V.
   10ELT22 Series +4.75V to +5.5V.
2. These values are for V_{CC} = 5.0V. Level Specifications will vary 1:1 with V_{CC}.

AC ELECTRICAL CHARACTERISTICS[1]

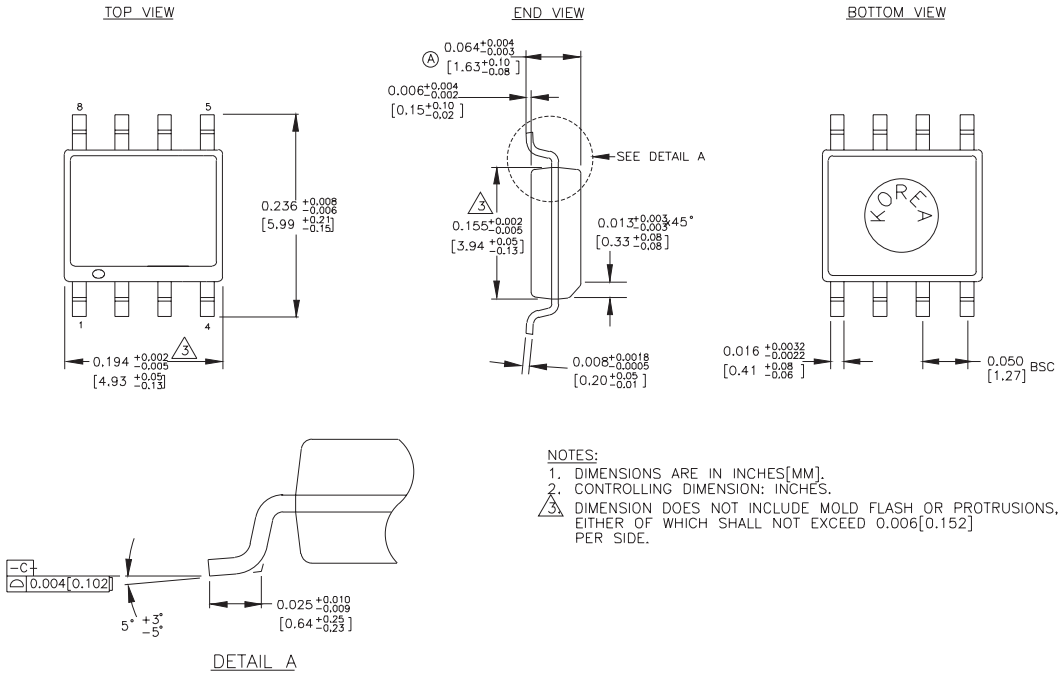
V_{CC} = V_{CC} (Min.) to V_{CC} (Max.)

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_{PD}	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.
2. Guaranteed, but not tested.
3. Same transition @common V_{CC} levels.

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



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