TTL-to-DIFFERENTIAL ECL TRANSLATOR

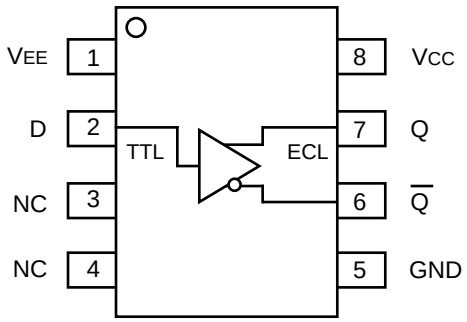
FEATURES

- **500ps typical propagation delay**
- **Differential ECL output**
- **PNP TTL input for minimal loading**
- **Flow-through pinouts**
- **Available in 8-pin SOIC package**

DESCRIPTION

The SY100ELT24 is a TTL-to-differential ECL translator. Because ECL levels are used, a +5V, –5.2V (or –4.5V) and ground are required. The small outline 8-lead SOIC package and the single gate of the ELT24 makes it ideal for those applications where performance, space and low power are at a premium.

PIN CONFIGURATION/BLOCK DIAGRAM



SOIC
TOP VIEW

PIN NAMES

Pin	Function
Q, $\overline{Q}$	Differential ECL Output
D	TTL Input
V_{CC}	Positive Supply
V_{EE}	Negative 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}	ECL Output Current — Continuous — Surge	 50 100	mA
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 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

V_{CC} = 4.5V to 5.5V; V_{EE} = –4.2V to –5.5V

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	—	10	—	10	—	10	—	10	mA	—
I_{EE}	Power Supply Current	—	20	—	20	—	20	—	20	mA	No output load

AC ELECTRICAL CHARACTERISTICS

V_{CC} = 4.5V to 5.5V; V_{EE} = –4.2V to –5.5V

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.	Typ.	Max.	Min.	Max.		
t_{PLH} t_{PHL}	Propagation Delay	300	900	300	900	300	500	900	300	900	ps	50Ω to –2.0V
t_r t_f	Output Rise/Fall Time 20% to 80%	200	700	200	700	200	300	700	200	700	ps	50Ω to –2.0V
f_{MAX}	Maximum Input Frequency	200	—	200	—	200	—	—	200	—	MHz	

TTL DC ELECTRICAL CHARACTERISTICS

V_{CC} = 4.5V to 5.5V; V_{EE} = –4.2V to –5.5V

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	—	–0.6	—	–0.6	—	–0.6	—	–0.6	mA	V_{IN} = 0.5V
V_{IK}	Input Clamp Voltage	—	–1.2	—	–1.2	—	–1.2	—	–1.2	V	I_{IN} = –18mA

ECL DC ELECTRICAL CHARACTERISTICS

V_{CC} = 4.5V to 5.5V; V_{EE} = –4.2V to –5.5V

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	–1085	–880	–1025	–880	–1025	–880	–1025	–880	mV	50Ω to –2.0V
V_{OL}	Output LOW Voltage	–1830	–1555	–1810	–1620	–1810	–1620	–1810	–1620	mV	50Ω to –2.0V

PRODUCT ORDERING CODE

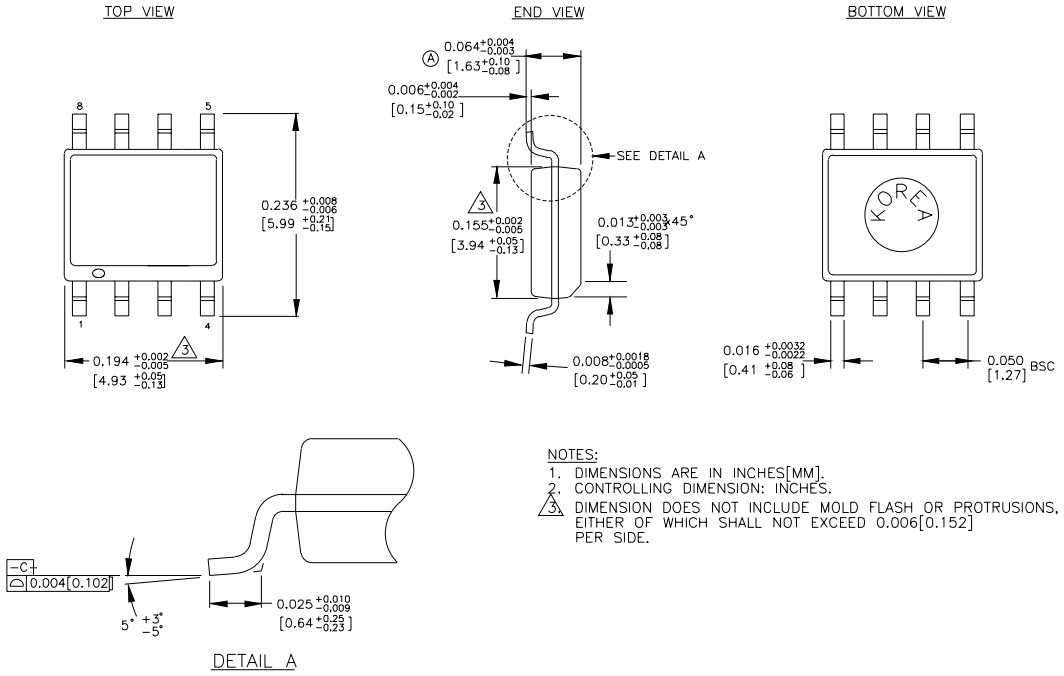
Ordering Code	Package Type	Operating Range	Marking Code
SY100ELT24ZC	Z8-1	Commercial	XEL24
SY100ELT24ZCTR*	Z8-1	Commercial	XEL24

Ordering Code	Package Type	Operating Range	Marking Code
SY100ELT24ZI(1)	Z8-1	Industrial	XEL24
SY100ELT24ZITR*(1)	Z8-1	Industrial	XEL24

*Tape and Reel

Note 1. Recommended for new designs.

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.

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