



## TTL-to-DIFFERENTIAL ECL TRANSLATOR

SY100ELT24

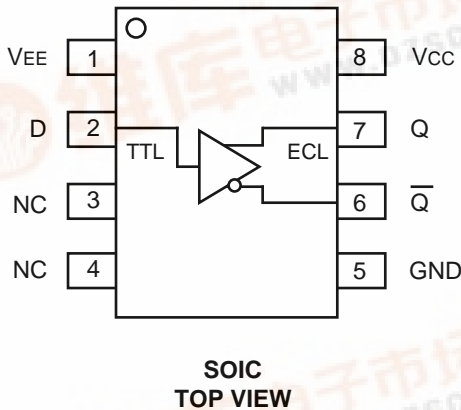
### FEATURES

- 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



### PIN NAMES

Pin	Function
Q, $\bar{Q}$	Differential ECL Output
D	TTL Input
Vcc	Positive Supply
VEE	Negative Supply
GND	Ground

**ABSOLUTE MAXIMUM RATINGS<sup>(1)</sup>**

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Power Supply Voltage	-0.5 to +7.0	V
V <sub>I</sub>	TTL Input Voltage	-0.5 to V <sub>CC</sub>	V
I <sub>I</sub>	TTL Input Current	-30 to +5.0	mA
I <sub>OUT</sub>	ECL Output Current		mA
	— Continuous	50	
	— Surge	100	
T <sub>store</sub>	Storage Temperature	-65 to +150	°C
T <sub>A</sub>	Operating Temperature	-40 to +85	°C

**TRUTH TABLE**

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

**NOTE:**

- 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**

V<sub>CC</sub> = 4.5V to 5.5V; V<sub>EE</sub> = -4.2V to -5.5V

Symbol	Parameter	T <sub>A</sub> = -40°C		T <sub>A</sub> = 0°C		T <sub>A</sub> = +25°C		T <sub>A</sub> = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
I <sub>CC</sub>	Power Supply Current	—	10	—	10	—	10	—	10	mA	—
I <sub>EE</sub>	Power Supply Current	—	20	—	20	—	20	—	20	mA	No output load

**AC ELECTRICAL CHARACTERISTICS**

V<sub>CC</sub> = 4.5V to 5.5V; V<sub>EE</sub> = -4.2V to -5.5V

Symbol	Parameter	T <sub>A</sub> = -40°C		T <sub>A</sub> = 0°C		T <sub>A</sub> = +25°C			T <sub>A</sub> = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Typ.	Max.	Min.	Max.		
t <sub>PLH</sub> t <sub>PHL</sub>	Propagation Delay	300	900	300	900	300	500	900	300	900	ps	50Ω to -2.0V
t <sub>r</sub> t <sub>f</sub>	Output Rise/Fall Time 20% to 80%	200	700	200	700	200	300	700	200	700	ps	50Ω to -2.0V
f <sub>MAX</sub>	Maximum Input Frequency	200	—	200	—	200	—	—	200	—	MHz	

**TTL DC ELECTRICAL CHARACTERISTICS**

VCC = 4.5V to 5.5V; VEE = -4.2V to -5.5V

Symbol	Parameter	TA = -40°C		TA = 0°C		TA = +25°C		TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
V <sub>IH</sub>	Input HIGH Voltage	2.0	—	2.0	—	2.0	—	2.0	—	V	—
V <sub>IL</sub>	Input LOW Voltage	—	0.8	—	0.8	—	0.8	—	0.8	V	—
I <sub>IH</sub>	Input HIGH Current	—	20 100	—	20 100	—	20 100	—	20 100	μA	V <sub>IN</sub> = 2.7V V <sub>IN</sub> = V <sub>CC</sub>
I <sub>IL</sub>	Input LOW Current	—	-0.6	—	-0.6	—	-0.6	—	-0.6	mA	V <sub>IN</sub> = 0.5V
V <sub>IK</sub>	Input Clamp Voltage	—	-1.2	—	-1.2	—	-1.2	—	-1.2	V	I <sub>IN</sub> = -18mA

**ECL DC ELECTRICAL CHARACTERISTICS**

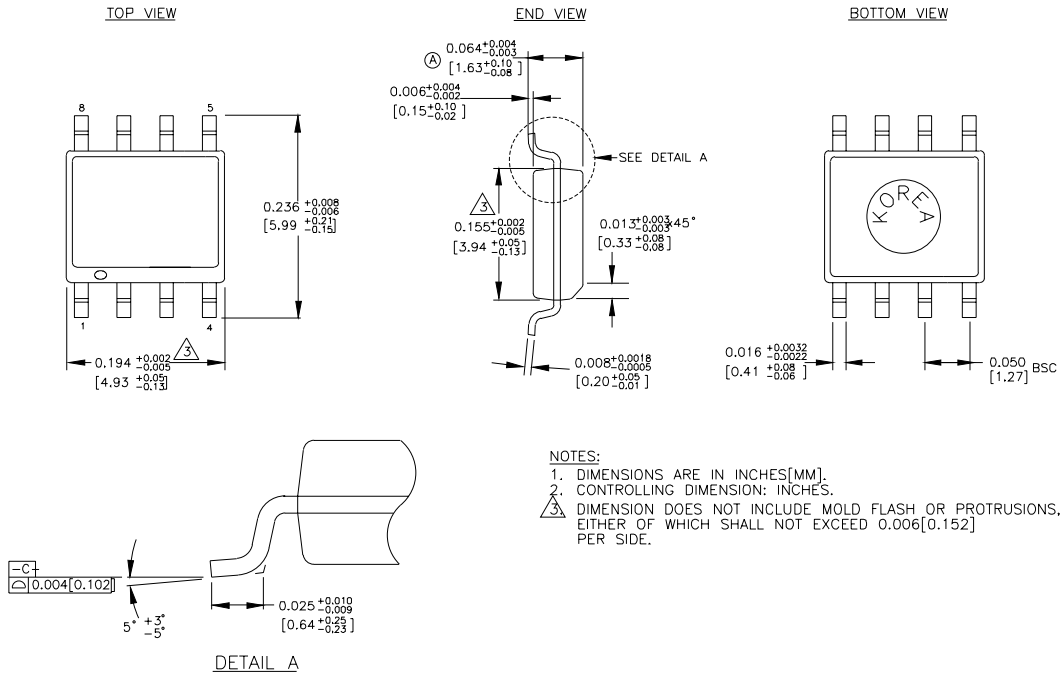
VCC = 4.5V to 5.5V; VEE = -4.2V to -5.5V

Symbol	Parameter	TA = -40°C		TA = 0°C		TA = +25°C		TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.		
V <sub>OH</sub>	Output HIGH Voltage	-1085	-880	-1025	-880	-1025	-880	-1025	-880	mV	50Ω to -2.0V
V <sub>OL</sub>	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
SY100ELT24ZC	Z8-1	Commercial
SY100ELT24ZCTR	Z8-1	Commercial

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



Rev. 03