SY100ELT22L

3.3V Dual LVTTL-to-Differential LVPECL Translator

Features

- 3.3V Power Supply
- 300 ps Typical Propagation Delay
- <100 ps Output-to-Output Skew
- Differential LVPECL Outputs
- PNP LVTTL Inputs for Minimal Loading
- Flow-Through Pinouts
- Available in 8-Lead SOIC Package

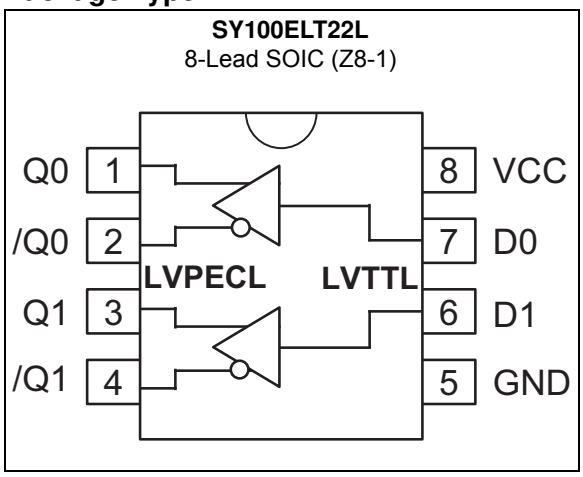
General Description

The SY100ELT22L is a dual LVTTL-to-differential LVPECL translator with +3.3V power supply. Because LVPECL 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 make it ideal for applications that require the translation of a clock and a data signal.

The SY100ELT22L is compatible with positive ECL 100K logic levels.

Package Type

SY100ELT22L
8-Lead SOIC (Z8-1)



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1.0 ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings †

Supply Voltage (V_{CC}) ..... –0.5V to +7.0V
LVTTL Input Voltage (V_{IN}) ..... –0.5V to V_{CC}
LVTTL Input Current (I_{IN})..... –30 mA to +5.0 mA
LVPECL Output Current (Continuous)..... 50 mA
LVPECL Output Current (Surge) ..... 100 mA

† Notice: Stresses above those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at those or any other conditions above those indicated in the operational sections of this specification is not intended. Exposure to maximum rating conditions for extended periods may affect device reliability.

TABLE 1-1: DC ELECTRICAL CHARACTERISTICS

Electrical Characteristics: V_{CC} = +3.0V to +3.8V, T_A = –40°C to +85°C, unless noted.

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Power Supply Current	I_{CC}	—	—	25	mA	—

TABLE 1-2: LVTTL DC ELECTRICAL CHARACTERISTICS

Electrical Characteristics: V_{CC} = +3.0V to +3.8V, T_A = –40°C to +85°C unless noted.

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Input High Voltage	V_{IH}	2.0	—	—	V	—
Input Low Voltage	V_{IL}	—	—	0.8	V	—
Input High Current	I_{IH}	—	—	20	µA	V_{IN} = 2.7V
		—	—	100		V_{IN} = V_{CC}
Input Low Current	I_{IL}	—	—	–0.2	mA	V_{IN} = 0.5V
Input Clamp Voltage	V_{IK}	—	—	–1.2	V	I_{IN} = –18 mA

TABLE 1-3: LVPECL DC ELECTRICAL CHARACTERISTICS

Electrical Characteristics: V_{CC} = +3.0V to +3.8V.

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Output High Voltage	V_{OH}	2220	—	2420	mV	T_A = –40°C, Note 1.
		2275	—	2420		T_A = 0°C to +85°C, Note 1.
Output Low Voltage	V_{OL}	1470	—	1750	mV	T_A = –40°C, Note 1.
		1490	—	1680		T_A = 0°C to +85°C, Note 1.

Note 1: Values are for V_{CC} = 3.3V. Level specifications will vary 1:1 with V_{CC}.

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TABLE 1-4: AC ELECTRICAL CHARACTERISTICS

Electrical Characteristics: V_{CC} = +3.0V to +3.8V; T_A = –40°C to +85°C, unless otherwise stated.

Parameter	Symbol	Min.	Typ.	Max.	Units	Conditions
Propagation Delay to Output	t_{PD}	100	—	600	ps	50Ω to V_{CC} – 2.0V
Output Rise/Fall Time, 20% to 80%	t_r/t_f	200	—	500	ps	50Ω to V_{CC} – 2.0V
Part-to-Part Skew, Note 1	t_{SKPP}	—	—	500	ps	50Ω to V_{CC} – 2.0V
Within-Device Skew, Note 1, Note 2	t_{SKEW}	—	—	100	ps	50Ω to V_{CC} – 2.0V

Note 1: Guaranteed, but not tested.

2: Same transition at common V_{CC} levels.

TEMPERATURE SPECIFICATIONS (Note 1)

Parameters	Sym.	Min.	Typ.	Max.	Units	Conditions
Temperature Ranges						
Operating Temperature Range	T_A	–40	—	+85	°C	—
Storage Temperature Range	T_S	–65	—	+150	°C	—
Lead Temperature	—	—	—	+260	°C	Soldering, 20s

Note 1: The maximum allowable power dissipation is a function of ambient temperature, the maximum allowable junction temperature and the thermal resistance from junction to air (i.e., T_A, T_J, θ_{JA}). Exceeding the maximum allowable power dissipation will cause the device operating junction temperature to exceed the maximum +85°C rating. Sustained junction temperatures above +125°C can impact the device reliability.

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2.0 PIN DESCRIPTIONS

The descriptions of the pins are listed in Table 2-1.

TABLE 2-1: PIN FUNCTION TABLE

Pin Number	Pin Name	Description
1, 2, 3, 4	Q0, /Q0 Q1, /Q1	Differential LVPECL Outputs.
5	GND	Ground.
6, 7	D1, D0	LVTTL Inputs
8	VCC	+3.3V Supply

2.1 Truth Table

TABLE 2-2: TRUTH TABLE

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

3.0 PACKAGING INFORMATION

3.1 Package Marking Information

8-Lead SOIC*



Example



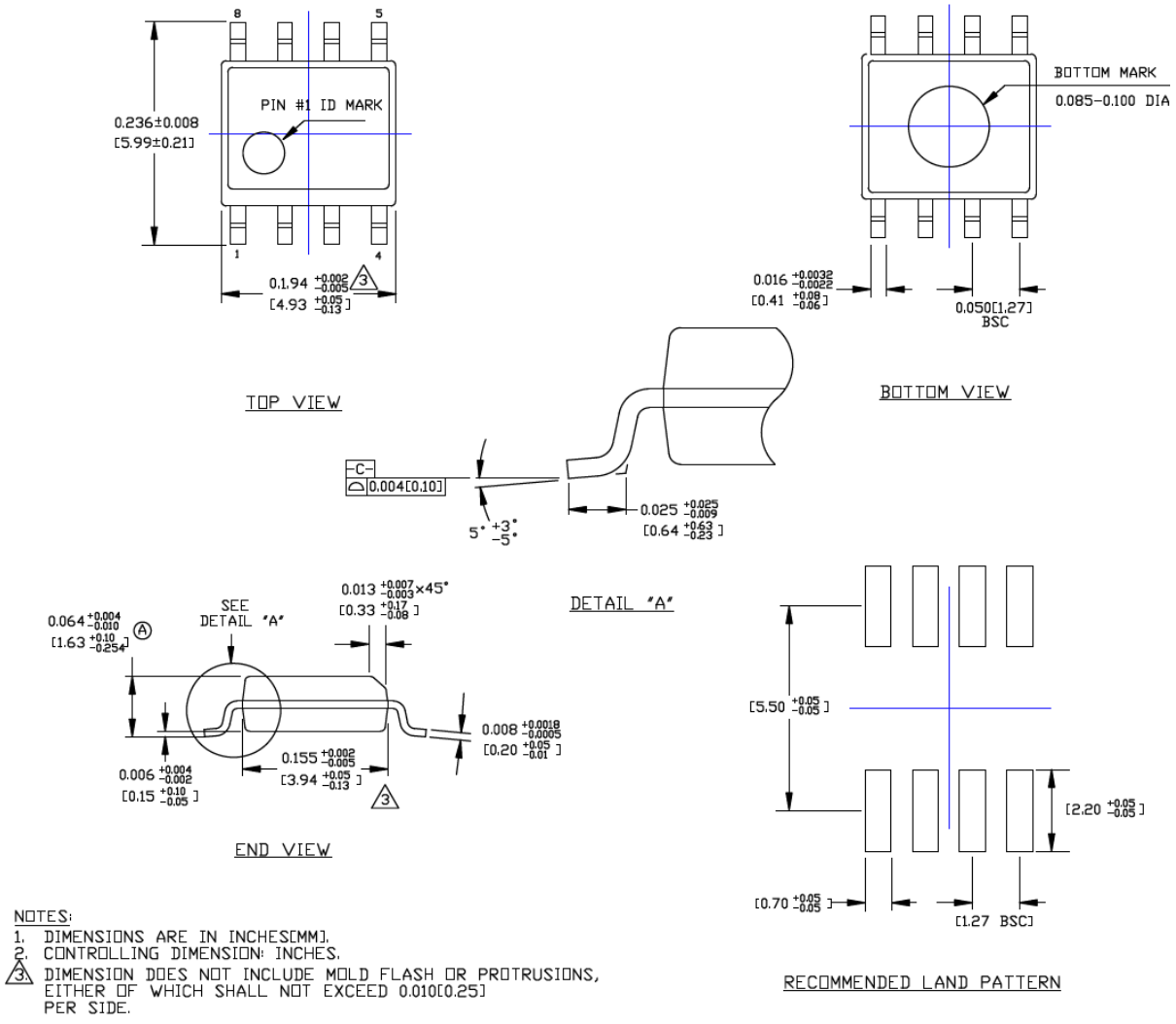
Legend:	XX...X	Product code or customer-specific information
	Y	Year code (last digit of calendar year)
	YY	Year code (last 2 digits of calendar year)
	WW	Week code (week of January 1 is week ‘01’)
	NNN	Alphanumeric traceability code
	(e3)	Pb-free JEDEC® designator for Matte Tin (Sn)
	*	This package is Pb-free. The Pb-free JEDEC designator ((e3)) can be found on the outer packaging for this package.
	●, ▲, ▼	Pin one index is identified by a dot, delta up, or delta down (triangle mark).
Note:	In the event the full Microchip part number cannot be marked on one line, it will be carried over to the next line, thus limiting the number of available characters for customer-specific information. Package may or may not include the corporate logo.	
	Underbar (_) and/or Overbar (¯) symbol may not be to scale.	

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8-Lead SOIC Package Outline and Recommended Land Pattern

TITLE
8 LEAD SOICN PACKAGE OUTLINE & RECOMMENDED LAND PATTERN

DRAWING #	SOICN-8LD-PL-1	UNIT	INCH [MM]



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 0.010[0.25] PER SIDE.

Note: For the most current package drawings, please see the Microchip Packaging Specification located at http://www.microchip.com/packaging.

NOTES:

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APPENDIX A: REVISION HISTORY

Revision A (January 2018)

- Converted Micrel document SY100ELT22L to Microchip data sheet DS20005931A.
- Minor text changes throughout.

NOTES:

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PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, contact your local Microchip representative or sales office.

PART NO.	X	X	X	-XX
Device	Supply Voltage	Package	Temperature Range	Special Processing

Device:	SY100ELT22: 3.3V Dual LVTTL-to-Differential LVPECL Translator		
Supply Voltage:	L	=	3.3V
Package:	Z	=	8-Lead SOIC
Temperature Range:	G	=	–40°C to +85°C (Pb-Free NiPdAu)
Special Processing:	<blank>	=	95/Tube
	TR	=	1,000/Reel

Examples:

a) SY100ELT22LZG: SY100ELT22, 3.3V, 8-Lead SOIC, –40°C to +85°C (Pb-Free NiPdAu), 95/Tube

b) SY100ELT22LZG-TR: SY100ELT22, 3.3V, 8-Lead SOIC, –40°C to +85°C (Pb-Free NiPdAu), 1,000/Reel

Note 1: Tape and Reel identifier only appears in the catalog part number description. This identifier is used for ordering purposes and is not printed on the device package. Check with your Microchip Sales Office for package availability with the Tape and Reel option.

NOTES:

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