AZ100ELT23

Dual Differential PECL to CMOS/TTL Translator

www.azmicrotek.com

DESCRIPTION

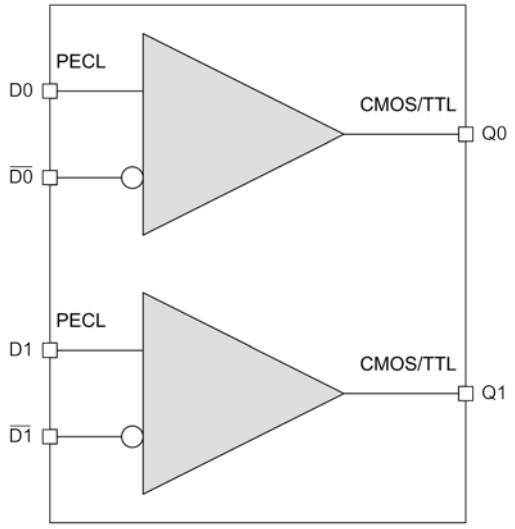
The AZ100ELT23 is a dual differential PECL to CMOS/TTL translator. Because PECL (Positive ECL) levels are used, only V_{CC} and ground are required. The small outline 8-lead packaging and the low skew, dual gate design of the AZ100ELT23 makes it ideal for applications that require the translation of a clock and a data signal.

The AZ100ELT23 is a direct replacement for the ON Semi MC100ELT23

FEATURES

- 3.5ns typical propagation delay
- <500ps typical output to output skew
- Differential PECL inputs
- Flow through pinouts
- CMOS/TTL outputs

BLOCK DIAGRAM



APPLICATIONS

- LVPECL to LVCMOS/LVTTL translations
- PECL to CMOS/TTL translations

PACKAGE AVAILABILITY

- SOIC8
  - Green/RoHS/Pb-Free
- MSOP8
  - Green/RoHS/Pb-Free

Order Number	Package	Marking
AZ100ELT23DG[1]	SOIC8	HT23G[2]
AZ100ELT23T+[1]	MSOP8	HT23+[2]

[1] Tape & Reel - Add 'R1' at end of order number for 7in (1k parts), 'R2' (2.5k) for 13in

[2] See www.azmicrotek.com for date code format

PIN DESCRIPTION AND CONFIGURATION

Table 1 - Pin Description

Pin	Name	Type	Function
1	D0	Input	PECL Input
2	$\overline{D0}$	Input	PECL Input
3	D1	Input	PECL Input
4	$\overline{D1}$	Input	PECL Input
5	GND	Power	Ground
6	Q1	Output	Data Output
7	Q0	Output	Data Output
8	V_{CC}	Power	Positive Supply

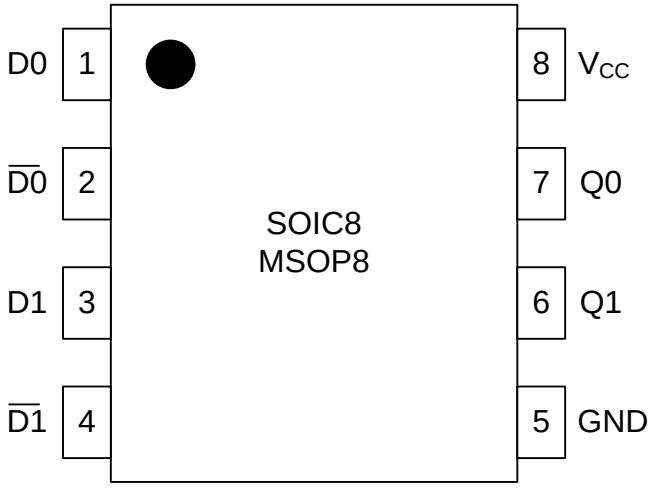


Figure 1 - Pin Configuration for SOIC8/MSOP8

ENGINEERING NOTES

The AZ100ELT23 provides a V_{BB} output for single-ended use or a DC bias reference for AC coupling to the device. For single-ended input applications, the V_{BB} reference should be connected to one side of the D / $\overline{D}$ differential input pair. The input signal is then fed to the other D / $\overline{D}$ input. The V_{BB} pin should be used only as a bias for the AZ100ELT21 as its sink/source capability is limited. When used, the V_{BB} pin should be bypassed to ground via a 0.01µF capacitor.

NOTE: Specifications in the ECL/PECL tables are valid when thermal equilibrium is established.

PERFORMANCE DATA

Table 2 – Absolute Maximum Ratings

Absolute Maximum Ratings are those values beyond which device life may be impaired.

Symbol	Characteristic	Condition	Rating	Unit
V_{CC}	DC Power Supply	Referenced to GND	0 to +7.0	V
T_A	Operating Temperature Range		-40 to +85	°C
T_{STG}	Storage Temperature Range		-65 to +150	°C
ESD_{HBM}	Human Body Model		2500	V
ESD_{MM}	Machine Model		200	V
ESD_{CDM}	Charged Device Model		2500	V

Table 3 – TTL/CMOS Input DC Characteristics

TTL/CMOS DC Characteristics (GND = 0.0V, V_{CC} = +3.3V to 5.5V)

Symbol	Characteristic	Condition	Min	Typ	Max	Unit
V_{OH}	Output HIGH Voltage	I_{OH} = -24mA	V_{CC} - 0.5V			V
V_{OL}	Output LOW Voltage	I_{OL} = 24mA			0.5	V
I_{CC}	Power Supply Current	0°C to 85°C		9	15	mA
I_{CC}	Power Supply Current	-40°C to 85°C		9	17.6	mA
I_{CC}	Output Short Circuit Current			100		mA

Table 4 - LVPECL DC Characteristics

100K LVPECL DC Characteristics (GND = 0.0V, V_{CC} = +3.3V)

Symbol	Characteristic	-40 °C			0 °C			25 °C			85 °C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
V_{IH}	Input HIGH Voltage	2135		2420	2135		2420	2135		2420	2135		2420	mV
V_{IL}	Input LOW Voltage	1490		1825	1490		1825	1490		1825	1490		1825	mV
V_{PP}	Minimum Input Swing	200[1]			200			200			200			mV
V_{CMR}	Common Mode Range	1.2		V_{CC}	1.2		V_{CC}	1.2		V_{CC}	1.2		V_{CC}	V
I_{IL}	Input LOW Current	0.5			0.5			0.5			0.5			µA
I_{IH}	Input HIGH Current			150			150			150			150	µA

[1] 200mV input guarantees full logic swing at the output

Table 5 - PECL DC Characteristics

100K PECL DC Characteristics (GND = 0.0V, V_{CC} = +5.0V)

Symbol	Characteristic	-40 °C			0 °C			25 °C			85 °C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
V_{IH}	Input HIGH Voltage	3835		4120	3835		4120	3835		4120	3835		4120	mV
V_{IL}	Input LOW Voltage	3190		3525	3190		3525	3190		3525	3190		3525	mV
V_{PP}	Minimum Input Swing	200[1]			200[1]			200[1]			200[1]			mV
V_{CMR}	Common Mode Range	1.2		V_{CC}	1.2		V_{CC}	1.2		V_{CC}	1.2		V_{CC}	V
I_{IL}	Input LOW Current	0.5			0.5			0.5			0.5			µA
I_{IH}	Input HIGH Current			150			150			150			150	µA

[1] 200mV input guarantees full logic swing at the output

Table 6 - AC Characteristics

AC Characteristics (GND = 0.0V, V_{CC} = +3.0V to +5.5V)

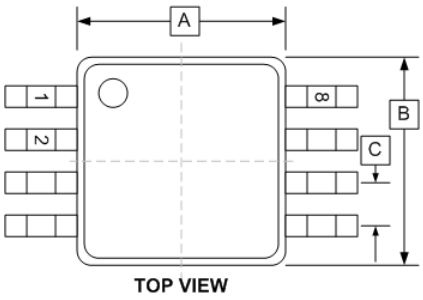
Symbol	Characteristic	-40 °C			0 °C			25 °C			85 °C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t_{PLH}/t_{PHL}	Propagation Delay to Output[1] V_{CC} = 4.5 to 5.5V	2		5.5	2		5.5	2		5.5	2		5.5	ns
	Propagation Delay to Output[1] V_{CC} = 3.0 to 3.6V	3.5		7	3.5		7	3.5		7	3.5		7	ns

[1] C_L = 20pF

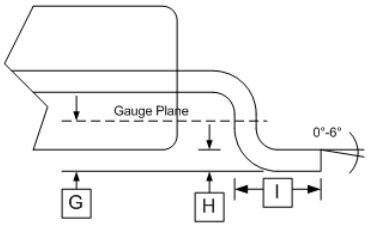
PACKAGE DIAGRAM

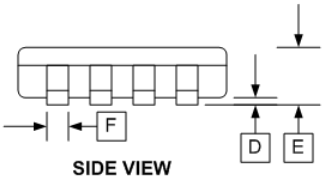
SOIC8
Green/RoHS compliant/Pb-Free
MSL=1

SOIC8 (D)



TOP VIEW



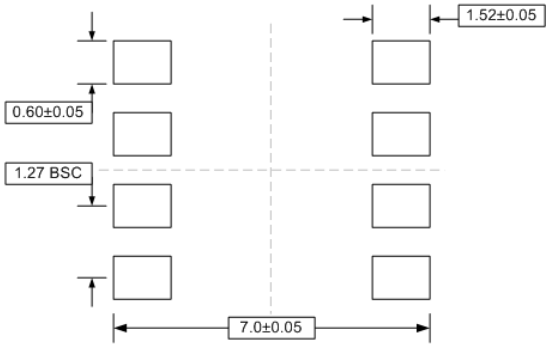


SIDE VIEW

DIM	INCHES MIN	MAX
A	0.189	0.196
B	0.150	0.157
C	0.050 BSC	
D	0.004	0.01
E	0.054	0.068
F	0.014	0.019
G	0.010	
H	0.0075	0.0098
I	0.016	0.034

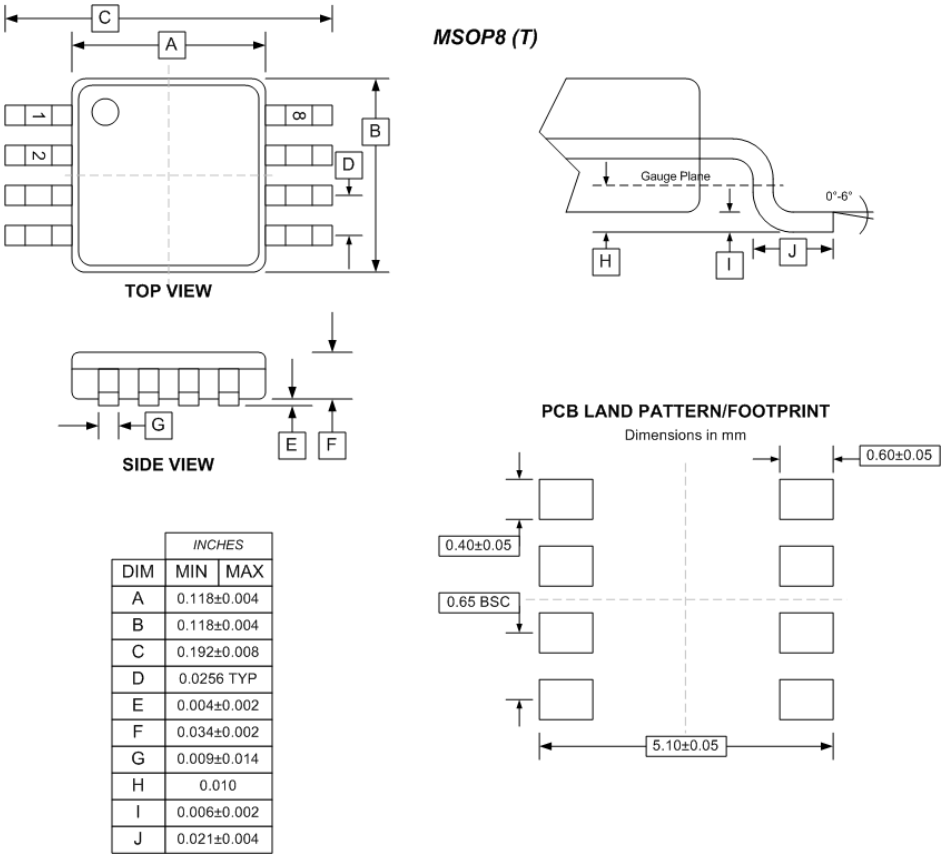
PCB LAND PATTERN/FOOTPRINT

Dimensions in mm



PACKAGE DIAGRAM

MSOP8
Green/RoHS compliant/Pb-Free
MSL=1



DIM	INCHES MIN	MAX
A	0.118±0.004	
B	0.118±0.004	
C	0.192±0.008	
D	0.0256 TYP	
E	0.004±0.002	
F	0.034±0.002	
G	0.009±0.014	
H	0.010	
I	0.006±0.002	
J	0.021±0.004	