

# AZ100ELT23

## Dual Differential PECL to CMOS/TTL Translator

### FEATURES

- Green / RoHS Compliant / Lead (Pb) Free package available
- 3.5ns Typical Propagation Delay
- <500ps Typical Output to Output Skew
- Differential PECL Inputs
- CMOS/TTL Outputs
- Flow Through Pinouts
- Direct Replacement for ON Semiconductor MC100ELT23
- Operating Range of 3.0V to 5.5V (For operation down to 2.5V consult AZM)
- Use AZ100ELT23 for 10K Applications

### PACKAGE AVAILABILITY

PACKAGE	PART NUMBER	MARKING	NOTES
SOIC 8	AZ100ELT23D	AZM100 ELT23	1,2
SOIC 8 RoHS Compliant / Lead (Pb) Free	AZ100ELT23D+	AZM100+ ELT23	1,2
SOIC 8 Green / RoHS Compliant / Lead (Pb) Free	AZ100ELT23DG	AZM100G ELT23	1,2,3
TSSOP 8	AZ100ELT23T	AZH T23	1,2

- 1 Add R1 at end of part number for 7 inch (1K parts), R2 for 13 inch (2.5K parts) Tape & Reel.
- 2 Date code format: "Y" or "YY" for year followed by "WW" for week on underside of part.
- 3 The Green package mold compound is halogen free. The leads are plated with 100% matte tin (Sn), eliminating lead (Pb). The Green package is also RoHS compliant / Lead (Pb) Free.

### 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 ELT23 makes it ideal for applications that require the translation of a clock and a data signal.

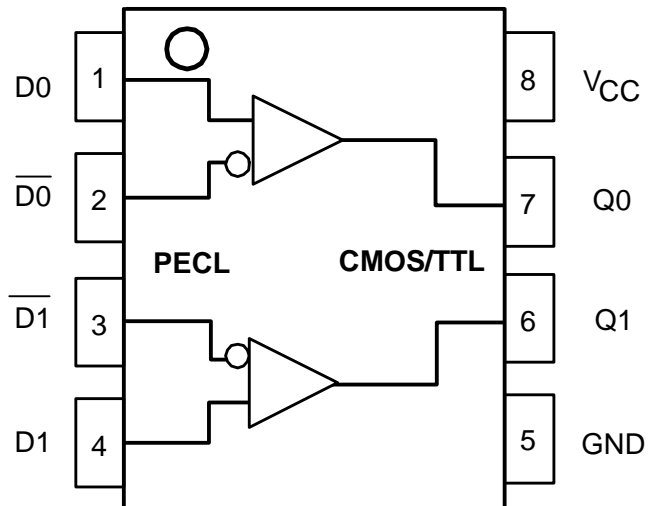
The ELT23 is available in only the ECL 100K standard. Since there are no PECL outputs or an external  $V_{BB}$  reference, the ELT23 does not require both ECL standard versions. The PECL inputs are differential; there is no specified difference between the differential input 10K and 100K standards. Therefore the AZ100ELT23 can accept any standard differential PECL input referenced from a  $V_{CC}$  of 3.0V to 5.5V.

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

### PIN DESCRIPTION

PIN	FUNCTION
Q0, Q1	CMOS/TTL Outputs
DO, D0 – D1, D1	Differential PECL inputs
$V_{CC}$	Positive Supply
GND	Ground

### LOGIC DIAGRAM AND PINOUT ASSIGNMENT



# AZ100ELT23

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

Symbol	Character	Value	Unit
V <sub>CC</sub>	DC Supply Voltage (Referenced to GND)	7.0	V
T <sub>A</sub>	Operating Temperature Range (In Free-Air)	-40 to+ 85	°C
T <sub>STG</sub>	Storage Temperature Range	-65 to +150	°C

## CMOS/TTL DC CHARACTERISTICS (V<sub>CC</sub> = +3.0V to +5.5V)

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
V <sub>OH</sub>	Output HIGH Voltage	V <sub>CC</sub> - 0.5			V	I <sub>OH</sub> = -24 mA
V <sub>OL</sub>	Output LOW Voltage			0.5	V	I <sub>OL</sub> = 24 mA
I <sub>CC</sub>	Power Supply Current		9.0	15	mA	0°C to 85°C
I <sub>CC</sub>	Power Supply Current		9.0	17.6	mA	-40°C to 85°C
I <sub>OS</sub>	Output Short Circuit Current		100		mA	

## 100K LVPECL DC Characteristics (V<sub>CC</sub> = +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 <sub>IH</sub>	Input HIGH Voltage	2135		2420	2135		2420	2135		2420	2135		2420	mV
V <sub>IL</sub>	Input LOW Voltage	1490		1825	1490		1825	1490		1825	1490		1825	mV
V <sub>PP</sub>	Minimum Input Swing <sup>1</sup>	200			200			200			200			mV
V <sub>CMR</sub>	Common Mode Range	1.2		V <sub>CC</sub>	1.2		V <sub>CC</sub>	1.2		V <sub>CC</sub>	1.2		V <sub>CC</sub>	V
I <sub>IL</sub>	Input LOW Current	0.5			0.5			0.5			0.5			µA
I <sub>IH</sub>	Input HIGH Current			150			150			150			150	µA

1. 200mV input guarantees full logic swing at the output.

## 100K PECL DC Characteristics (V<sub>CC</sub> = +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 <sub>IH</sub>	Input HIGH Voltage	3835		4120	3835		4120	3835		4120	3835		4120	mV
V <sub>IL</sub>	Input LOW Voltage	3190		3525	3190		3525	3190		3525	3190		3525	mV
V <sub>PP</sub>	Minimum Input Swing <sup>1</sup>	200			200			200			200			mV
V <sub>CMR</sub>	Common Mode Range	1.2		V <sub>CC</sub>	1.2		V <sub>CC</sub>	1.2		V <sub>CC</sub>	1.2		V <sub>CC</sub>	V
I <sub>IL</sub>	Input LOW Current	0.5			0.5			0.5			0.5			µA
I <sub>IH</sub>	Input HIGH Current			150			150			150			150	µA

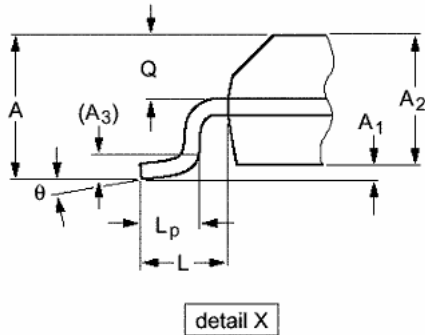
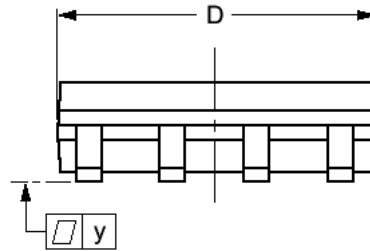
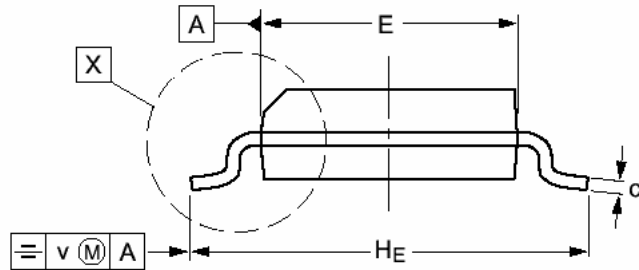
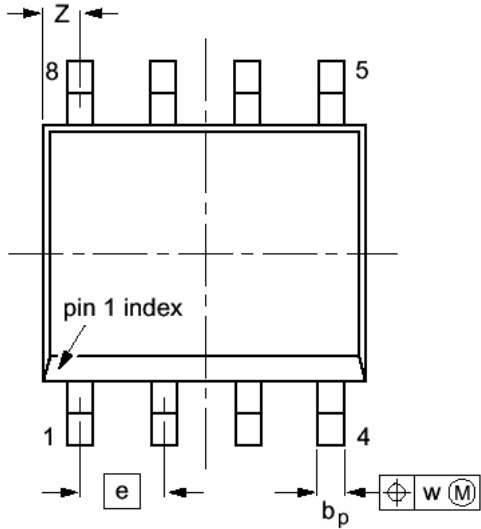
1. 200mV input guarantees full logic swing at the output.

## AC Characteristics (V<sub>CC</sub> = +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 <sub>PLH</sub> / t <sub>PHL</sub>	Propagation Delay to Output <sup>1</sup>													ns
	V <sub>CC</sub> = 4.5V to 5.5V	2.0		5.5	2.0		5.5	2.0		5.5	2.0		5.5	
	V <sub>CC</sub> = 3.0V to 3.6V	3.5		7.0	3.5		7.0	3.5		7.0	3.5		7.0	

1. C<sub>L</sub>=20pF

**PACKAGE DIAGRAM  
SOIC 8**

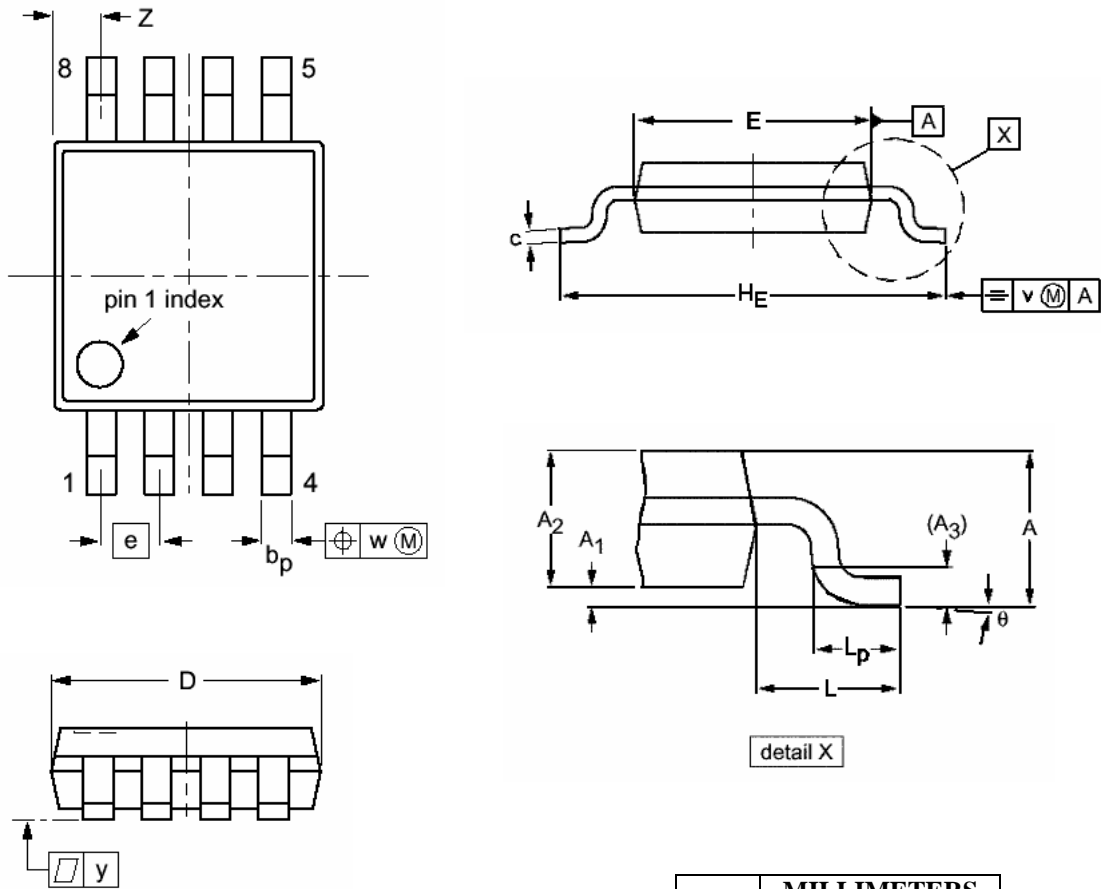


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.35	1.75	0.053	0.069
A <sub>1</sub>	0.10	0.25	0.004	0.010
A <sub>2</sub>	1.28	1.57	0.050	0.062
A <sub>3</sub>	0.25		0.01	
b <sub>p</sub>	0.36	0.49	0.014	0.019
c	0.19	0.25	0.0075	0.0100
D	4.80	5.0	0.19	0.20
E	3.80	4.0	0.15	0.16
e	1.27		0.050	
H <sub>E</sub>	5.80	6.20	0.228	0.244
L	1.05		0.041	
L <sub>p</sub>	0.40	1.27	0.016	0.050
Q	0.60	0.70	0.024	0.028
v	0.25		0.01	
w	0.25		0.01	
y	0.10		0.004	
Z	0.30	0.70	0.012	0.028
θ	0 <sup>0</sup>	8 <sup>0</sup>	0 <sup>0</sup>	8 <sup>0</sup>

NOTES:

1. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
2. MAXIMUM MOLD PROTRUSION FOR D IS 0.15mm.
3. MAXIMUM MOLD PROTRUSION FOR E IS 0.25mm.

**PACKAGE DIAGRAM  
TSSOP 8**



NOTES:

1. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
2. MAXIMUM MOLD PROTRUSION FOR D IS 0.15mm.
3. MAXIMUM MOLD PROTRUSION FOR E IS 0.25mm.

DIM	MILLIMETERS	
	MIN	MAX
<b>A</b>		1.10
<b>A<sub>1</sub></b>	0.05	0.15
<b>A<sub>2</sub></b>	0.75	0.95
<b>A<sub>3</sub></b>	0.25	
<b>b<sub>p</sub></b>	0.22	0.40
<b>c</b>	0.13	0.23
<b>D</b>	2.90	3.10
<b>E</b>	2.90	3.10
<b>e</b>	0.65	
<b>H<sub>E</sub></b>	4.75	5.05
<b>L</b>	0.95	
<b>L<sub>p</sub></b>	0.40	0.70
<b>v</b>	0.10	
<b>w</b>	0.08	
<b>y</b>	0.10	
<b>Z</b>	0.38	0.64
<b>θ</b>	0°	6°

Arizona Microtek, Inc. reserves the right to change circuitry and specifications at any time without prior notice. Arizona Microtek, Inc. makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Arizona Microtek, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. Arizona Microtek, Inc. does not convey any license rights nor the rights of others. Arizona Microtek, Inc. products are not designed, intended or authorized for use as components in systems intended to support or sustain life, or for any other application in which the failure of the Arizona Microtek, Inc. product could create a situation where personal injury or death may occur. Should Buyer purchase or use Arizona Microtek, Inc. products for any such unintended or unauthorized application, Buyer shall indemnify and hold Arizona Microtek, Inc. and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Arizona Microtek, Inc. was negligent regarding the design or manufacture of the part.