

# AZ10ELT22

# AZ100ELT22

## CMOS/TTL to Differential PECL Translator

### FEATURES

- Green / RoHS Compliant / Lead (Pb) Free package available
- 0.5ns Typical Propagation Delay
- <100ps Typical Output to Output Skew
- Differential PECL Outputs
- Flow Through Pinouts
- Operating Range of 3.0V to 5.5V
- Direct Replacement for ON Semiconductor MC10ELT22, MC100ELT22, MC100LVELT22 & Micrel SY89322V
- IBIS Model Files Available on Arizona Microtek Website

### PACKAGE AVAILABILITY

PACKAGE	PART NUMBER	MARKING	NOTES
SOIC 8	AZ10ELT22D	AZM10 ELT22	1,2
SOIC 8	AZ100ELT22D	AZM100 ELT22	1,2
SOIC 8 Green / RoHS Compliant / Lead (Pb) Free	AZ100ELT22DG	AZM100G ELT22	1,2
TSSOP 8	AZ100ELT22T	AZH LT22	1,2
TSSOP 8 Green / RoHS Compliant / Lead (Pb) Free	AZ100ELT22TG	AZHG LT22	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 "YWW" or "YYWW" on underside of part.

### DESCRIPTION

The AZ10/100ELT22 is a dual CMOS/TTL to differential PECL translator. Because PECL (Positive ECL) levels are used, only  $V_{CC}$  and ground are required. The small outline packaging and the low skew, dual gate design of the ELT22 makes it ideal for applications that require the translation of a clock and a data signal.

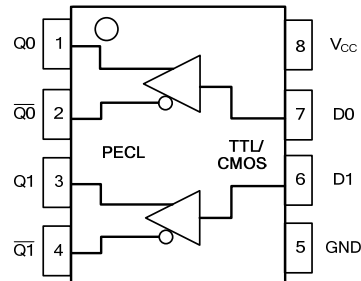
The ELT22 is available in both PECL standards: the 10ELT is compatible with PECL 10K logic levels while the 100ELT is compatible with PECL 100K logic levels.

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

### PIN DESCRIPTION

PIN	FUNCTION
Q0, Q0̄, Q1, Q1̄	Differential PECL Outputs
D0, D1	CMOS/TTL Input
$V_{CC}$	Positive Supply
GND	Ground

### LOGIC DIAGRAM AND PINOUT



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

Symbol	Characteristic	Value	Unit
V <sub>CC</sub>	DC Supply Voltage (Referenced to GND)	8.0	V
V <sub>IN</sub>	Input Voltage	0 to 6.0	V
I <sub>OUT</sub>	Current Applied to Output in Low Output State ---Continuous ---Surge	50 100	mA
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

**TTL/CMOS INPUT DC CHARACTERISTICS (GND = 0.0V, V<sub>CC</sub> = +3.0V to +5.5V)**

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
I <sub>IH</sub>	Input HIGH Current			15	μA	V <sub>IN</sub> = 2.7V
I <sub>IH</sub>	Input HIGH Current			20	μA	V <sub>IN</sub> = V <sub>CC</sub>
I <sub>IL</sub>	Input LOW Current			-0.1	mA	V <sub>IN</sub> = 0.5V
V <sub>IK</sub>	Input Clamp Diode Voltage			-1.2	V	I <sub>IN</sub> = -18mA
V <sub>IH</sub>	Input HIGH Voltage	2.0			V	
V <sub>IL</sub>	Input LOW Voltage			0.8	V	

**10K LVPECL DC Characteristics GND = 0.0V, 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>OH</sub>	Output HIGH Voltage <sup>1,2</sup>	2170		2410	2245		2460	2295	2400	2490	2390		2580	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1,2</sup>	1350		1685	1350		1670	1350	1550	1670	1350		1705	mV
I <sub>CC</sub>	Power Supply Current <sup>3</sup>			24			24			24			25	mA

- Output parameters vary 1:1 with V<sub>CC</sub>.
- Each output is terminated through a 50Ω resistor to V<sub>CC</sub> - 2V.
- I<sub>CC</sub> is measured with outputs open.

**10K PECL DC Characteristics (GND = 0.0V, 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>OH</sub>	Output HIGH Voltage <sup>1,2</sup>	3870		4110	3945		4160	3995	4100	4190	4090		4280	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1,2</sup>	3050		3385	3050		3370	3050	3250	3370	3050		3405	mV
I <sub>CC</sub>	Power Supply Current <sup>3</sup>			24			24			24			25	mA

- Output parameters vary 1:1 with V<sub>CC</sub>.
- Each output is terminated through a 50Ω resistor to V<sub>CC</sub> - 2V.
- I<sub>CC</sub> is measured with outputs open.

**100K LVPECL DC Characteristics (GND = 0.0V, 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>OH</sub>	Output HIGH Voltage <sup>1,2</sup>	2160		2420	2205		2420	2235	2345	2420	2255		2420	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1,2</sup>	1470		1745	1490		1680	1490	1595	1680	1490		1680	mV
I <sub>CC</sub>	Power Supply Current <sup>3</sup>			24			24			24			25	mA

- Output parameters vary 1:1 with V<sub>CC</sub>.
- Each output is terminated through a 50Ω resistor to V<sub>CC</sub> - 2V.
- I<sub>CC</sub> is measured with outputs open.

**100K PECL DC Characteristics (GND = 0.0V, 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>OH</sub>	Output HIGH Voltage <sup>1,2</sup>	3860		4120	3905		4120	3935	4045	4120	3955		4120	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1,2</sup>	3170		3445	3190		3380	3190	3295	3380	3190		3380	mV
I <sub>CC</sub>	Power Supply Current <sup>3</sup>			24			24			24			25	mA

- Output parameters vary 1:1 with V<sub>CC</sub>.
- Each output is terminated through a 50Ω resistor to V<sub>CC</sub> - 2V.
- I<sub>CC</sub> is measured with outputs open.

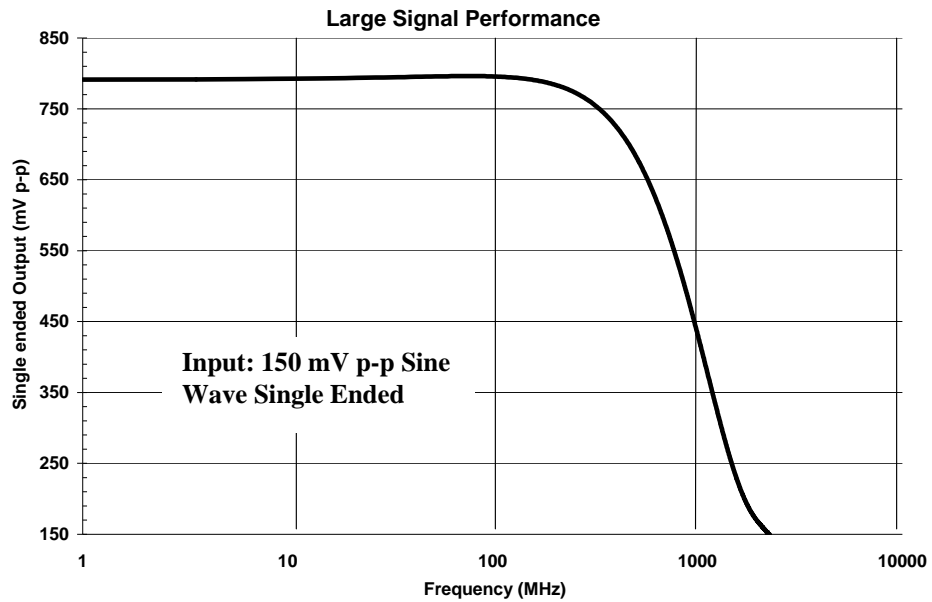
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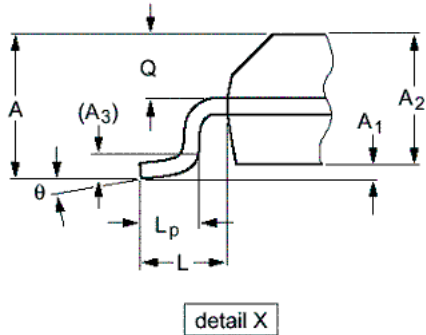
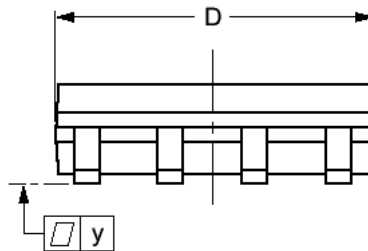
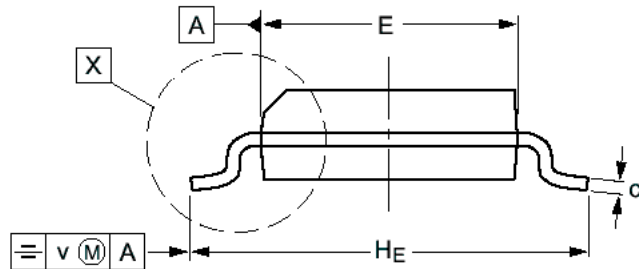
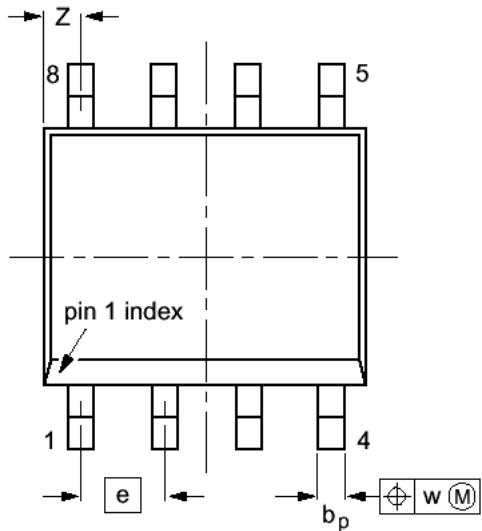
### AC Characteristics (GND = 0.0V, V<sub>CC</sub> = +3.0V to +5.5V)

Symbol	Characteristic	-40°C		0°C		25°C			85°C		Unit	Condition
		Min	Max	Min	Max	Min	Typ	Max	Min	Max		
t <sub>PLH</sub> /t <sub>PHL</sub>	Propagation Delay <sup>1</sup>	100	550	100	550	100		550	100	550	ps	
t <sub>r</sub> /t <sub>f</sub>	Output Rise/Fall Time	80	250	80	250	0.25		0.7	80	250	ps	20-80%
f <sub>MAX</sub>	Maximum Frequency <sup>2</sup>	800		800		800			800		MHz	

1. Propagation delay is measured from +1.5V on the input to 50% of the PECL output swing. Input rise/fall times are < 1ns/V.
2. Output at -3 dB.



**PACKAGE DIAGRAM  
SOIC 8**



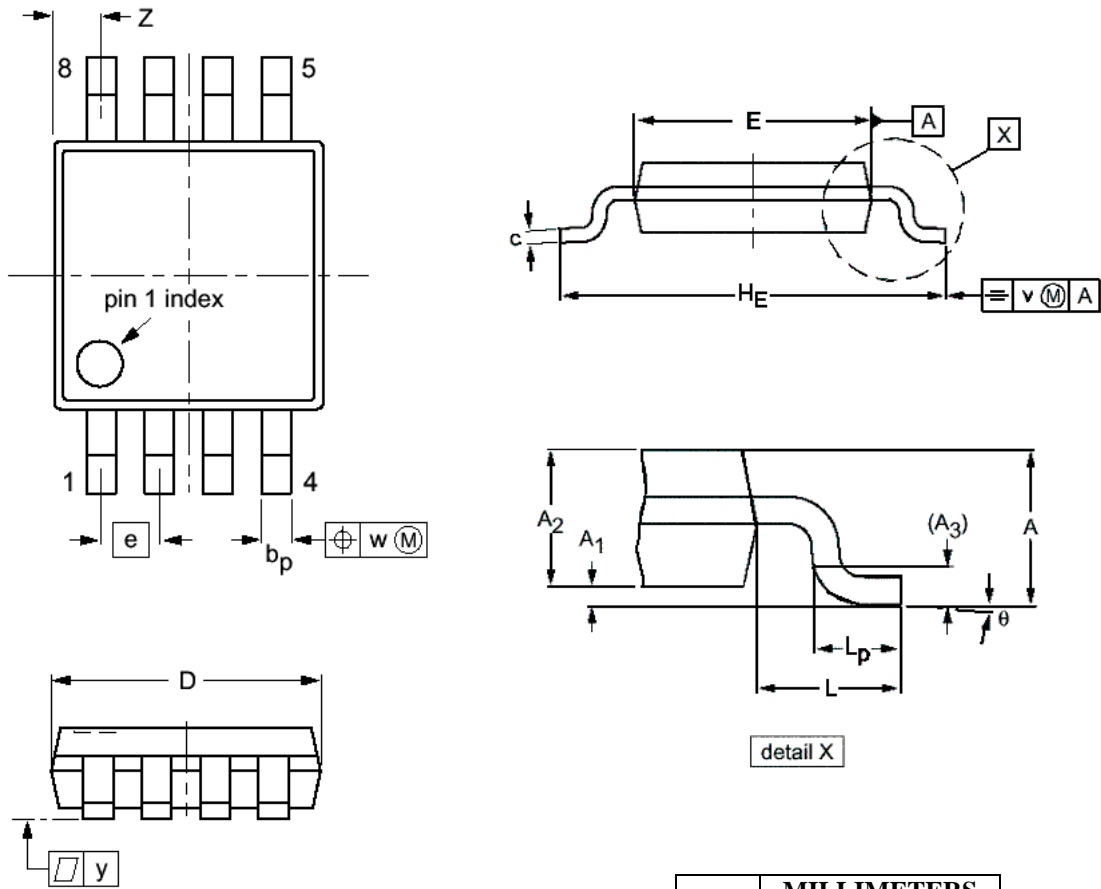
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.35	1.75	.053	0.069
A <sub>1</sub>	0.10	0.25	0.004	0.010
A <sub>2</sub>	1.28	1.57	0.050	0.062
A <sub>3</sub>	0.25		0.01	
b <sub>p</sub>	0.36	0.49	0.014	0.019
c	0.19	0.25	0.0075	0.0100
D	4.80	5.00	0.19	0.20
E	3.80	4.00	0.15	0.16
e	1.27		0.050	
H <sub>E</sub>	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°	8°	0°	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.

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

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