ARIZONA MICROTEK, INC.

AZ10ELT22
AZ100ELT22
Dual CMOS/TTL to Differential PECL Translator

FEATURES

- 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

PACKAGE AVAILABILITY

PACKAGE	PART NO.	MARKING
SOIC 8	AZ10ELT22D	AZM10ELT22
SOIC 8 T&R	AZ10ELT22DR1	AZM10ELT22
SOIC 8 T&R	AZ10ELT22DR2	AZM10ELT22
SOIC 8	AZ100ELT22D	AZM100ELT22
SOIC 8 T&R	AZ100ELT22DR1	AZM100ELT22
SOIC 8 T&R	AZ100ELT22DR2	AZM100ELT22
TSSOP 8	AZ10ELT22T	AZTLT22
TSSOP 8 T&R	AZ10ELT22TR1	AZTLT22
TSSOP 8 T&R	AZ10ELT22TR2	AZTLT22
TSSOP 8	AZ100ELT22T	AZHLT22
TSSOP 8 T&R	AZ100ELT22TR1	AZHLT22
TSSOP 8 T&R	AZ100ELT22TR2	AZHLT22

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.

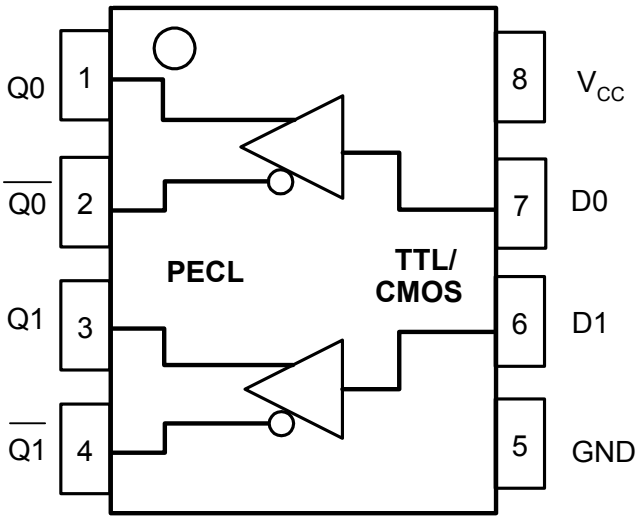
The ELT22 is available in both PECL standards: the 10ELT is compatible with PECL 10K logic levels while the 100ELT is compatible with PECL 100K logic levels.

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

PIN DESCRIPTION

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

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



1630 S. STAPLEY DR., SUITE 125 • MESA, ARIZONA 85204 • USA • (480) 962-5881 • FAX (480) 890-2541
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Absolute Maximum Ratings are those values beyond which device life may be impaired.

Symbol	Characteristic		Value	Unit
V_{CC}	DC Supply Voltage (Referenced to GND)		8.0	V
V_{IN}	Input Voltage		0 to 6.0	V
I_{OUT}	Current Applied to Output in Low Output State	---Continuous ---Surge	50 100	mA
T_A	Operating Temperature Range (In Free-Air)		-40 to +85	°C
T_{STG}	Storage Temperature Range		-65 to +150	°C

TTL/CMOS INPUT DC CHARACTERISTICS (GND = 0.0V, V_{CC} = +3.0V to +5.5V)

Symbol	Characteristic	Min	Typ	Max	Unit	Condition
I_{IH}	Input HIGH Current			15	µA	V_{IN} = 2.7V
I_{IH}	Input HIGH Current			20	µA	V_{IN} = V_{CC}
I_{IL}	Input LOW Current			-0.1	mA	V_{IN} = 0.5V
V_{IK}	Input Clamp Diode Voltage			-1.2	V	I_{IN} = -18mA
V_{IH}	Input HIGH Voltage	2.0			V	
V_{IL}	Input LOW Voltage			0.8	V	

10K 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_{OH}	Output HIGH Voltage[1,2]	2170		2410	2245		2460	2295	2400	2490	2390		2580	mV
V_{OL}	Output LOW Voltage[1,2]	1350		1685	1350		1670	1350	1550	1670	1350		1705	mV
I_{CC}	Power Supply Current[3]			24			24			24			25	mA

1. Output parameters vary 1:1 with V_{CC}.
2. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.
3. I_{CC} measurements must be done with outputs open.

10K 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_{OH}	Output HIGH Voltage[1,2]	3870		4110	3945		4160	3995	4100	4190	4090		4280	mV
V_{OL}	Output LOW Voltage[1,2]	3050		3385	3050		3370	3050	3250	3370	3050		3405	mV
I_{CC}	Power Supply Current[3]			24			24			24			25	mA

1. Output parameters vary 1:1 with V_{CC}.
2. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.
3. I_{CC} measurements must be done with outputs open.

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_{OH}	Output HIGH Voltage[1,2]	2160		2420	2205		2420	2235	2345	2420	2255		2420	mV
V_{OL}	Output LOW Voltage[1,2]	1470		1745	1490		1680	1490	1595	1680	1490		1680	mV
I_{CC}	Power Supply Current[3]			24			24			24			25	mA

1. Output parameters vary 1:1 with V_{CC}.
2. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.
3. I_{CC} measurements must be done with outputs open.

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

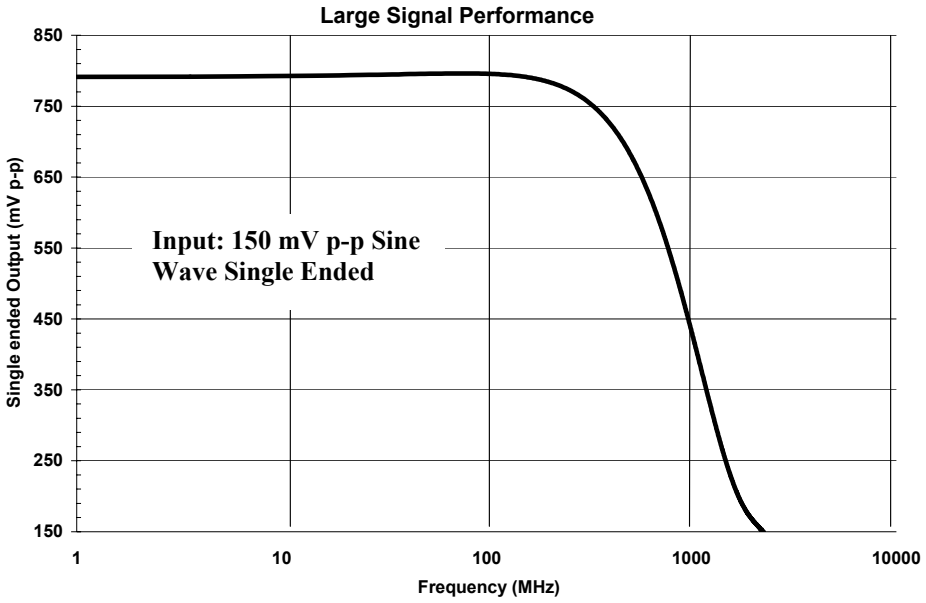
Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
V_{OH}	Output HIGH Voltage[1,2]	3860		4120	3905		4120	3935	4045	4120	3955		4120	mV
V_{OL}	Output LOW Voltage[1,2]	3170		3445	3190		3380	3190	3295	3380	3190		3380	mV
I_{CC}	Power Supply Current[3]			24			24			24			25	mA

1. Output parameters vary 1:1 with V_{CC}.
2. Each output is terminated through a 50Ω resistor to V_{CC} – 2V.
3. I_{CC} measurements must be done with outputs open.

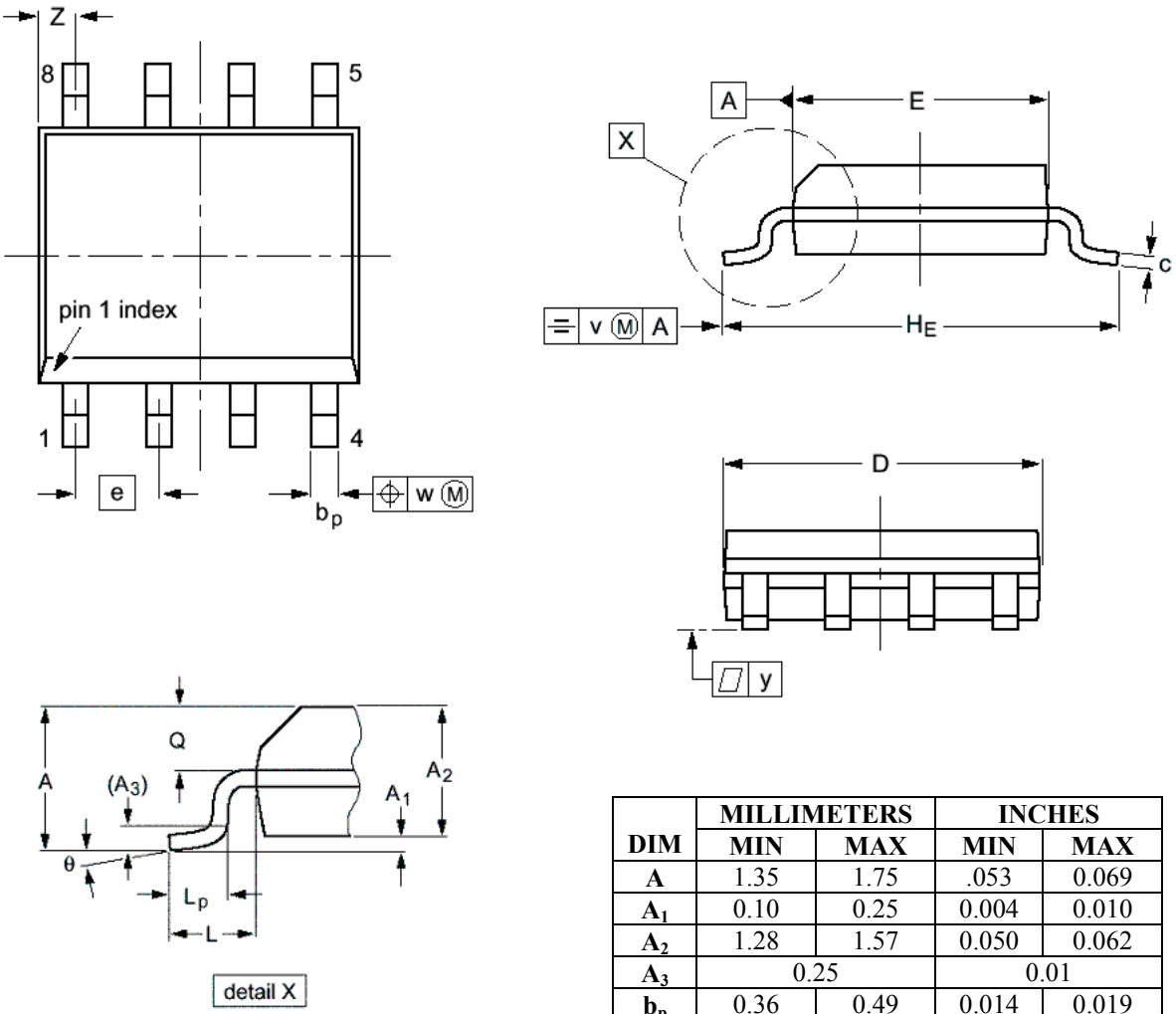
AC Characteristics (GND = 0.0V, V_{CC} = +3.0V to +5.5V)

Symbol	Characteristic	-40°C		0°C		25°C			85°C		Unit	Condition
		Min	Max	Min	Max	Min	Typ	Max	Min	Max		
t_{PLH}	Propagation Delay[1]	0.2	0.7	0.2	0.7	0.2	0.4	0.7	0.2	0.7	ns	
t_{PHL}	Propagation Delay[1]	0.2	0.7	0.2	0.7	0.2	0.4	0.7	0.2	0.7	ns	
t_r/t_f	Output Rise/Fall Time	0.25	0.7	0.25	0.7	0.25		0.7	0.25	0.7	ns	20-80%
f_{MAX}	Maximum Frequency[2]	350		350		350			350		MHz	
f_{MAX}	Maximum Frequency[3]	670		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. Full swing PECL output.
3. Output at –3 dB



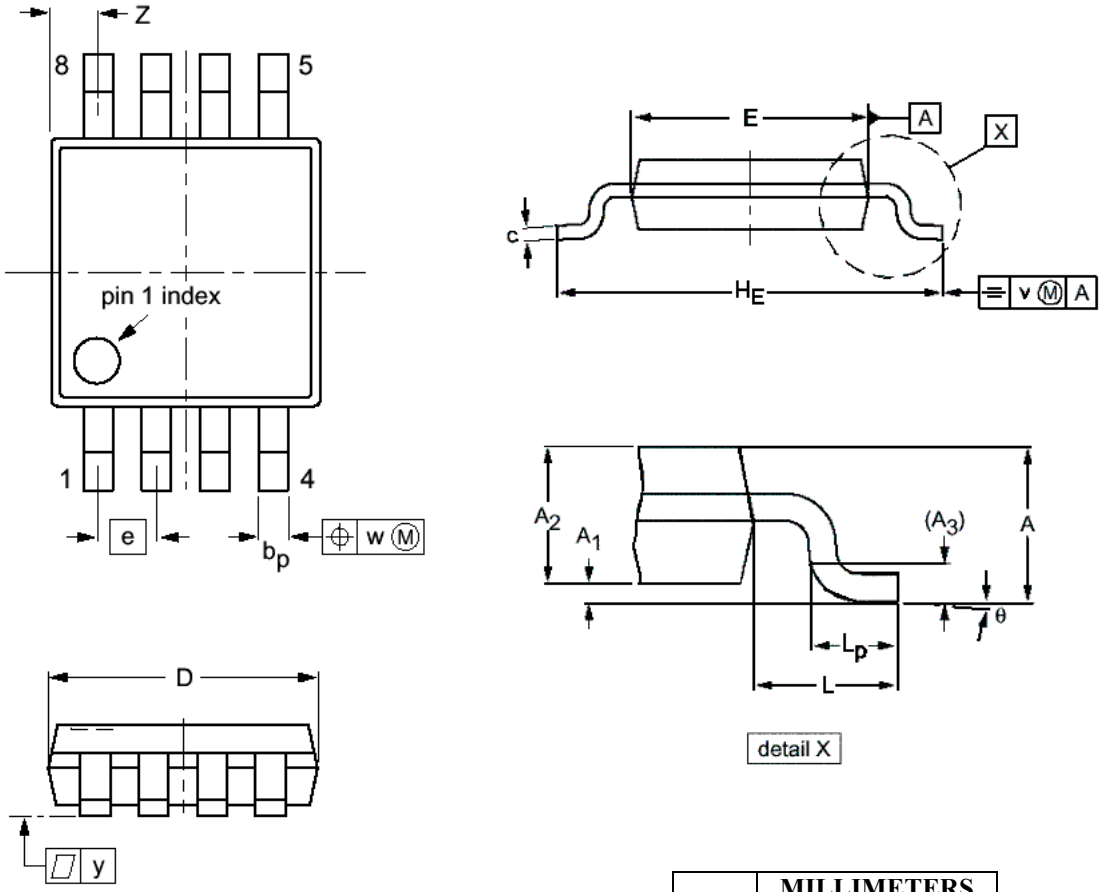
PACKAGE DIAGRAM
SOIC 8



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.35	1.75	.053	0.069
A_1	0.10	0.25	0.004	0.010
A_2	1.28	1.57	0.050	0.062
A_3	0.25		0.01	
b_p	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_E	5.80	6.20	0.228	0.244
L	1.05		0.041	
L_p	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^O	8^O	0^O	8^O

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



DIM	MILLIMETERS	
	MIN	MAX
A		1.10
A_1	0.05	0.15
A_2	0.75	0.95
A_3	0.25	
b_p	0.22	0.40
c	0.13	0.23
D	2.90	3.10
E	2.90	3.10
e	0.65	
H_E	4.75	5.05
L	0.95	
L_p	0.40	0.70
v	0.10	
w	0.08	
y	0.10	
Z	0.38	0.64
θ	0^O	6^O

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.