ARIZONA MICROTEK, INC.

AZ100ELT21

Differential PECL to CMOS/TTL Translator

FEATURES

- 3.5ns Typical Propagation Delay
- Differential PECL Inputs
- CMOS/TTL Outputs
- Flow Through Pinouts
- Operating Range of 3.0V to 5.5V
- Direct Replacement for ON Semiconductor MC100ELT21
- Use AZ100ELT21 for 10K Applications

PACKAGE AVAILABILITY

PACKAGE	PART NO.	MARKING
SOIC 8	AZ100ELT21D	AZM100ELT21
SOIC 8 T&R	AZ100ELT21DR1	AZM100ELT21
SOIC 8 T&R	AZ100ELT21DR2	AZM100ELT21
TSSOP 8	AZ100ELT21T	AZHLT21
TSSOP 8 T&R	AZ100ELT21TR1	AZHLT21
TSSOP 8 T&R	AZ100ELT21TR2	AZHLT21

DESCRIPTION

The AZ100ELT21 is a 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 single gate of the ELT21 makes it ideal for those applications where space, performance and low power are at a premium.

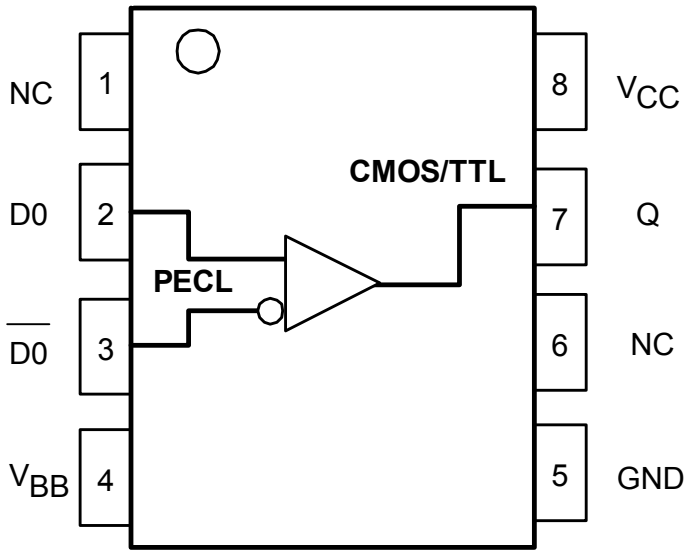
The ELT21 provides a V_{BB} output for single-ended use or a DC bias reference for AC coupling to the device. For single-ended input applications, the V_{BB} reference should be connected to one side of the D0/$\overline{D0}$ differential input pair. The input signal is then fed to the other D0/$\overline{D0}$ input. The V_{BB} pin should be used only as a bias for the ELT21 as its sink/source capability is limited. When used, the V_{BB} pin should be bypassed to ground via a 0.01µF capacitor.

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

PIN DESCRIPTION

PIN	FUNCTION
Q	CMOS/TTL Output
D0, $\overline{D0}$	Differential Inputs
V_{CC}	Positive Supply
V_{BB}	Reference Voltage Output
GND	Ground
NC	No Connect

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



1630 S. STAPLEY DR., SUITE 125 • MESA, ARIZONA 85204 • USA • (480) 962-5881 • FAX (480) 890-2541
www.azmicrotek.com

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

Symbol	Character	Value	Unit
V_{CC}	DC Supply Voltage (Referenced to GND)	7.0	V
T_A	Operating Temperature Range (In Free-Air)	-40 to +85	°C
T_{STG}	Storage Temperature Range	-65 to +150	°C

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

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

100K LVPECL DC Characteristics (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_{BB}	Reference Voltage	1920		2090	1920		2090	1920		2090	1920		2090	mV
V_{PP}	Minimum Input Swing[1]	200			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.

100K PECL DC Characteristics (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_{BB}	Reference Voltage	3620		3790	3620		3790	3620		3790	3620		3790	mV
V_{PP}	Minimum Input Swing[1]	200			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

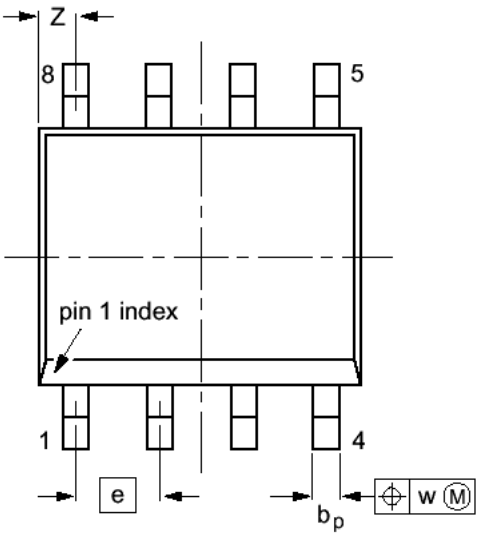
1. 200mV input guarantees full logic swing at the output.

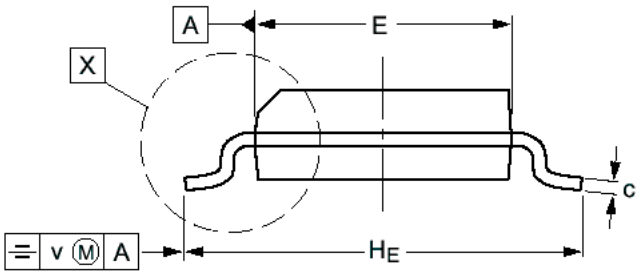
AC Characteristics (V_{CC} = +3.0V to +5.5V)

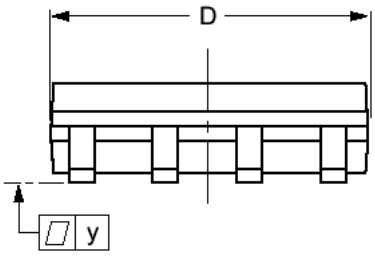
Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
	Propagation Delay to Output[1]													
t_{PLH} / t_{PHL}	V_{CC} = 4.5V to 5.5V	2.0		5.5	2.0		5.5	2.0		5.5	2.0		5.5	ns
	V_{CC} = 3.0V to 3.6V	3.5		7.0	3.5		7.0	3.5		7.0	3.5		7.0	

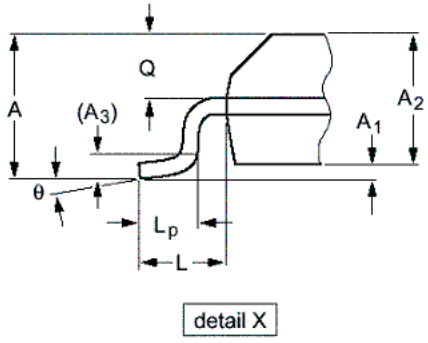
1. C_L=20pF

PACKAGE DIAGRAM
SOIC 8





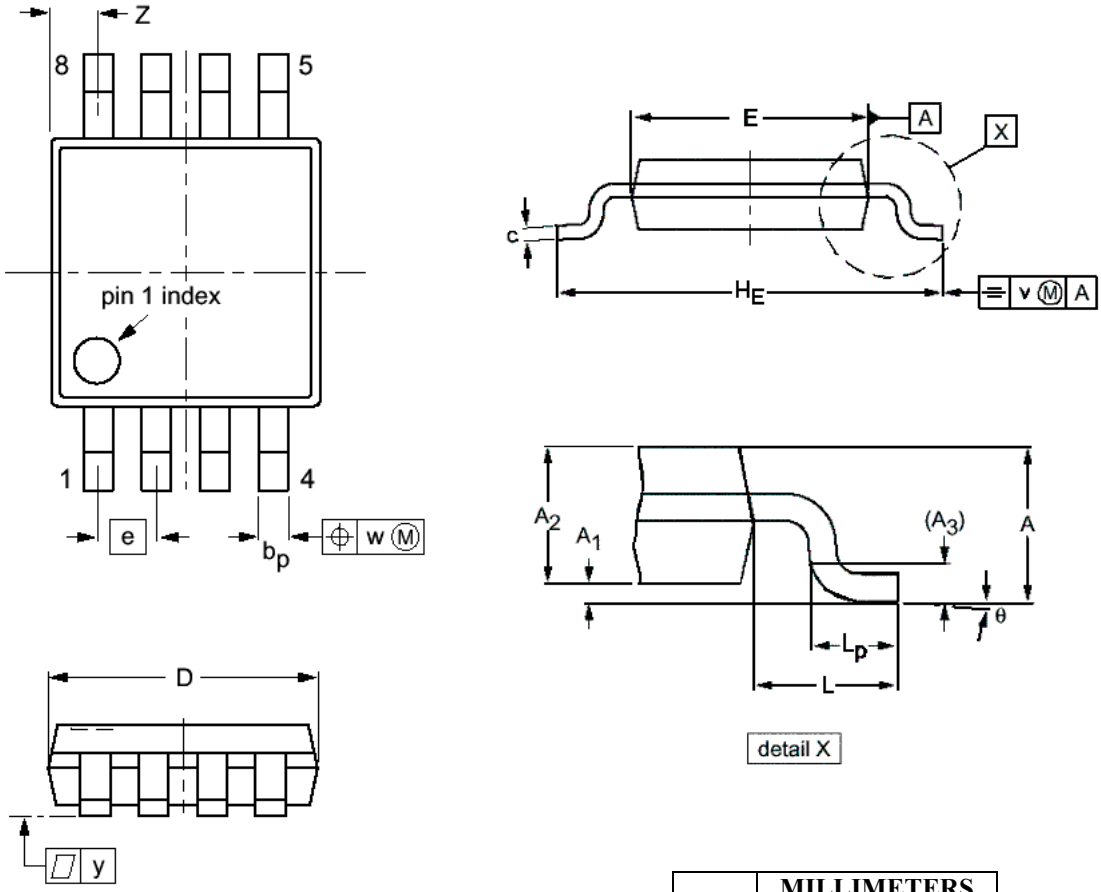




NOTES:
1. DIMENSIONS D AND E DO NOT INCLUDE MOLD PROTRUSION.
2. MAXIMUM MOLD PROTRUSION FOR D IS 0.15mm.
3. MAXIMUM MOLD PROTRUSION FOR E IS 0.25mm.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.35	1.75	0.053	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

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_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

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.