

# 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.

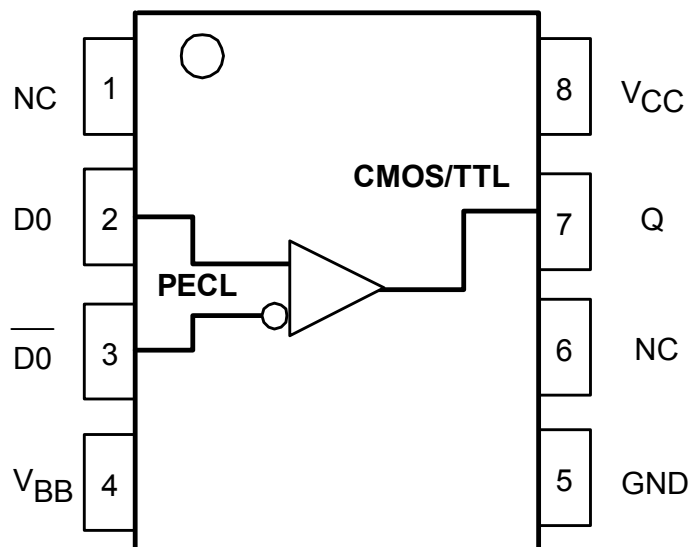
The ELT21 provides a  $V_{BB}$  output for single-ended use or a DC bias reference for AC coupling to the device. For single-ended input applications, the  $V_{BB}$  reference should be connected to one side of the  $D0/\overline{D0}$  differential input pair. The input signal is then fed to the other  $D0/\overline{D0}$  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  $0.01\mu F$  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



## AZ100ELT21

**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>BB</sub>	Reference Voltage	1920		2090	1920		2090	1920		2090	1920		2090	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>BB</sub>	Reference Voltage	3620		3790	3620		3790	3620		3790	3620		3790	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

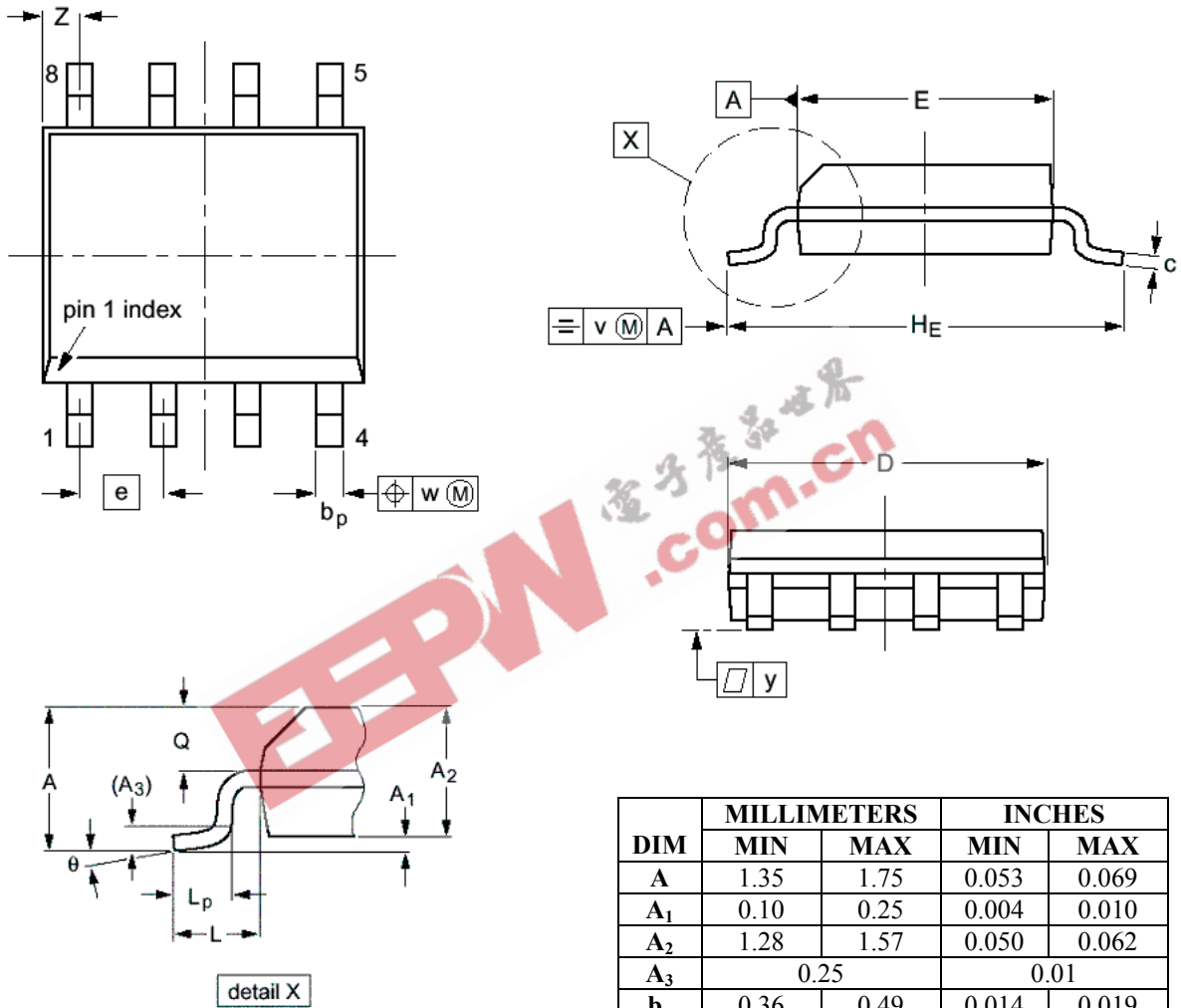
1. 200mV input guarantees full logic swing at the output.

### 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> V <sub>CC</sub> = 4.5V to 5.5V V <sub>CC</sub> = 3.0V to 3.6V	2.0		5.5	2.0		5.5	2.0		5.5	2.0		5.5	ns
		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**



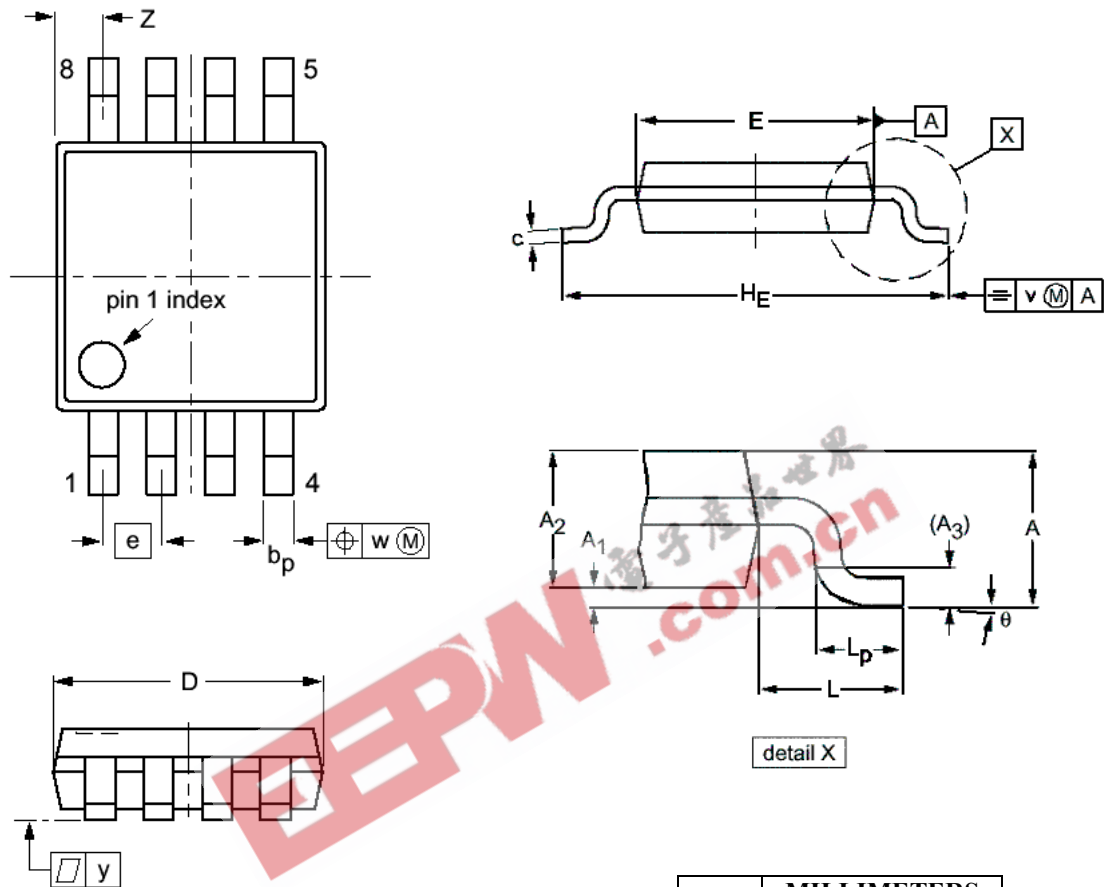
NOTES:

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 <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°

AZ100ELT21

**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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