

AZ100ELT20

CMOS/TTL to Differential PECL Translator

FEATURES

- 0.5ns Typical Propagation Delay
- Differential PECL Outputs
- Flow Through Pinouts
- Operating Range of +3.0V to +5.5V
- Direct Replacement for ON Semi MC100ELT20, MC100LVELT20 & Micrel SY89329V
- Available in 2x2 mm MLP Package
- IBIS Model Files Available on Arizona Microtek Website
- >2 kV HBM ESD Protection
- Additional ESD Data Available on Arizona Microtek Website

PACKAGE AVAILABILITY

PACKAGE	PART NUMBER	MARKING	NOTES
MLP 8 (2x2x0.75) Green / RoHS Compliant / Lead (Pb) Free	AZ100ELT20NG	TCG <Date Code>	1,2
SOIC 8 Green / RoHS Compliant / Lead (Pb) Free	AZ100ELT20DG	AZM100G ELT20	1,2,3
MSOP 8 Green / RoHS Compliant / Lead (Pb) Free	AZ100ELT20TG	AZHG LT20	1,2,3

- 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.
- 3 Date code "YWW" or "YYWW" on underside of part.

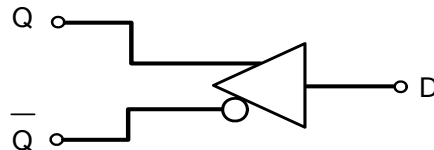
DESCRIPTION

The AZ100ELT20 is a CMOS/TTL to differential PECL translator. It operates with a single power supply of +3.0 to +5.5 volts, making it ideal for both LVCMOS/LVTTL and CMOS/TTL applications. The extremely small MLP 8 2x2 mm package makes it ideal for those applications where space, performance and low power are at a premium.

When the D input is left floating, the Q output is forced HIGH, and the Q output is forced LOW.

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

BLOCK DIAGRAM



AZ100ELT20

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)	0 to +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 _{IHH}	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	

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}	2220		2420	2275		2420	2275		2420	2275		2420	mV
V _{OL}	Output LOW Voltage ^{1,2}	1400		1750	1400		1680	1400		1680	1400		1680	mV
I _{CC}	Power Supply Current ³			16			16			16			16	mA

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

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}	3920		4120	3975		4120	3975		4120	3975		4120	mV
V _{OL}	Output LOW Voltage ^{1,2}	3100		3450	3100		3380	3100		3380	3100		3380	mV
I _{CC}	Power Supply Current ³			16			16			16			16	mA

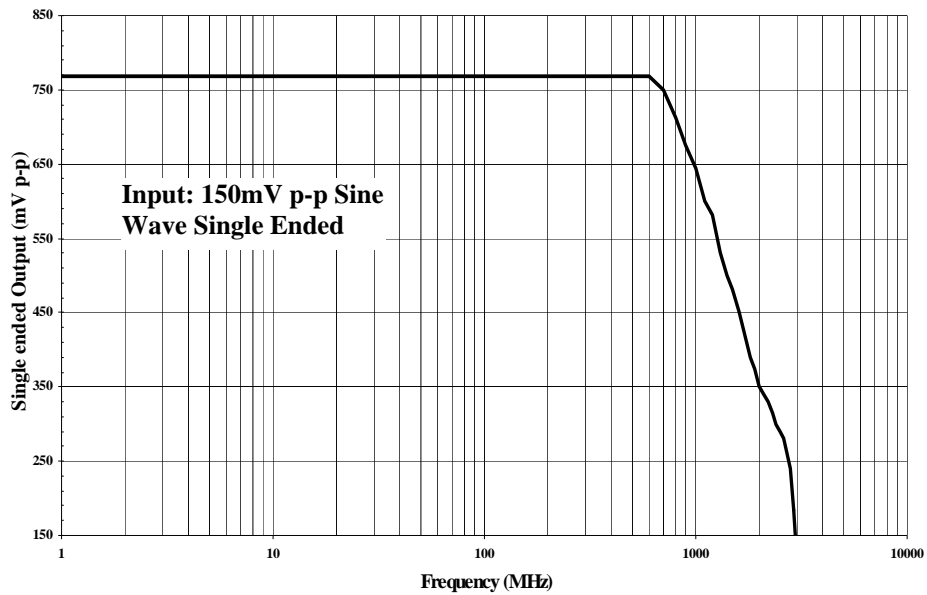
- Output parameters vary 1:1 with V_{CC}.
- Each output is terminated through a 50Ω resistor to V_{CC} - 2V.
- I_{CC} measurements must be done with outputs open.

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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} /t _{PHL}	Propagation Delay ¹	100	550	100	500	100		450	100	600	ps	
t _r /t _f	Output Rise/Fall Time	80	250	80	250	80		250	80	250	ps	20-80%
f _{MAX}	Maximum Frequency ²	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.



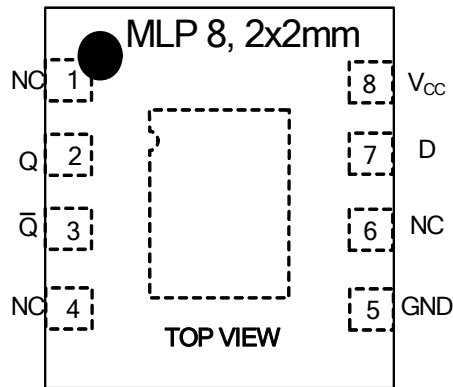
Large Signal Bandwidth

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PIN DESCRIPTION

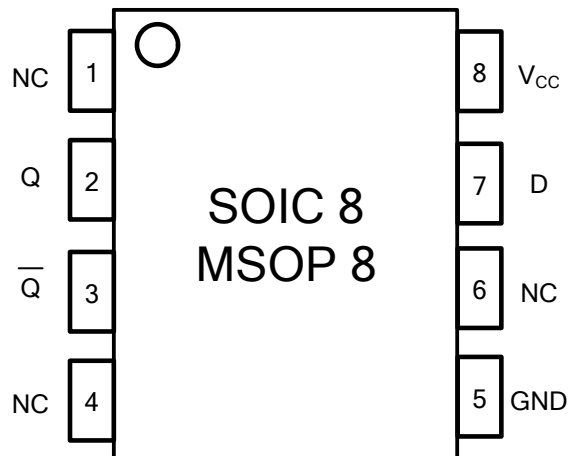
PIN	FUNCTION
Q, \bar{Q}	Differential PECL Outputs
D	TTL/CMOS Input
GND	Ground
V _{CC}	Positive Supply
NC	No Connect, Leave Open Except as Noted

AZ100ELT20N

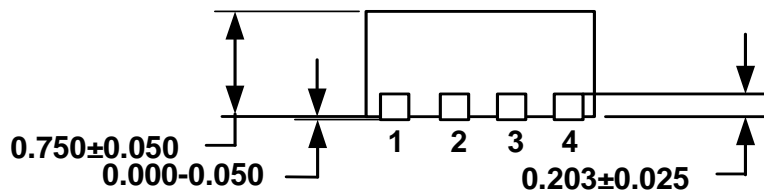
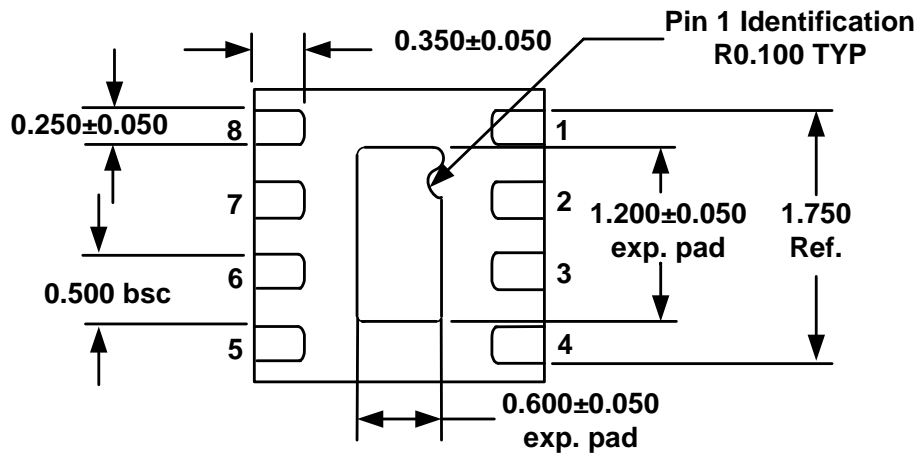
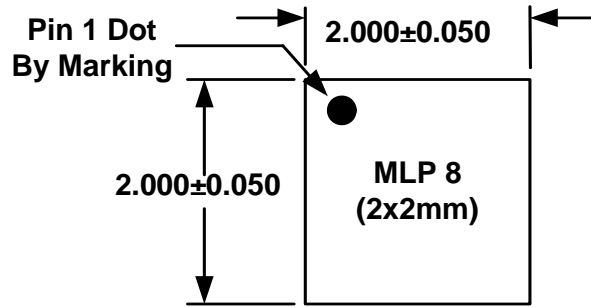


Leave Center Bottom Pad open or connect to GND.

AZ100ELT20D AZ100ELT20T

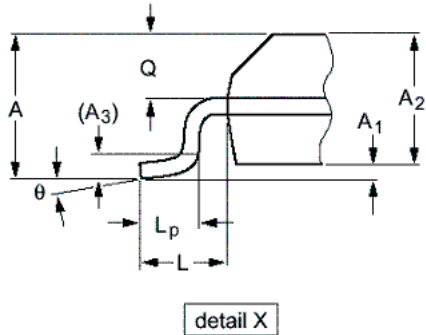
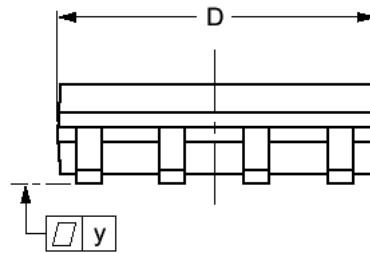
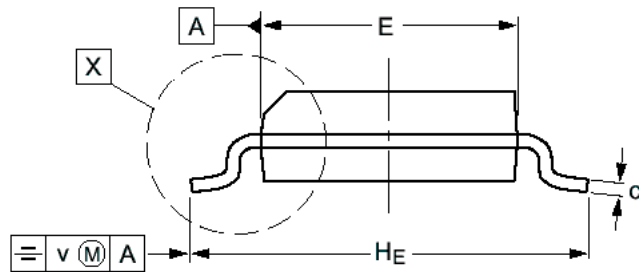
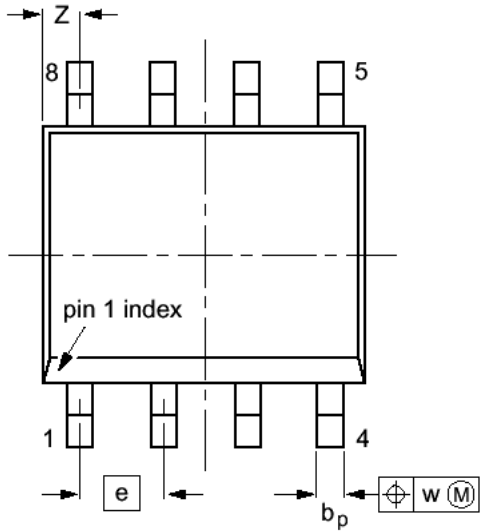


PACKAGE DIAGRAM
MLP 8 2x2mm



Note: All dimensions are in mm

**PACKAGE DIAGRAM
SOIC 8**

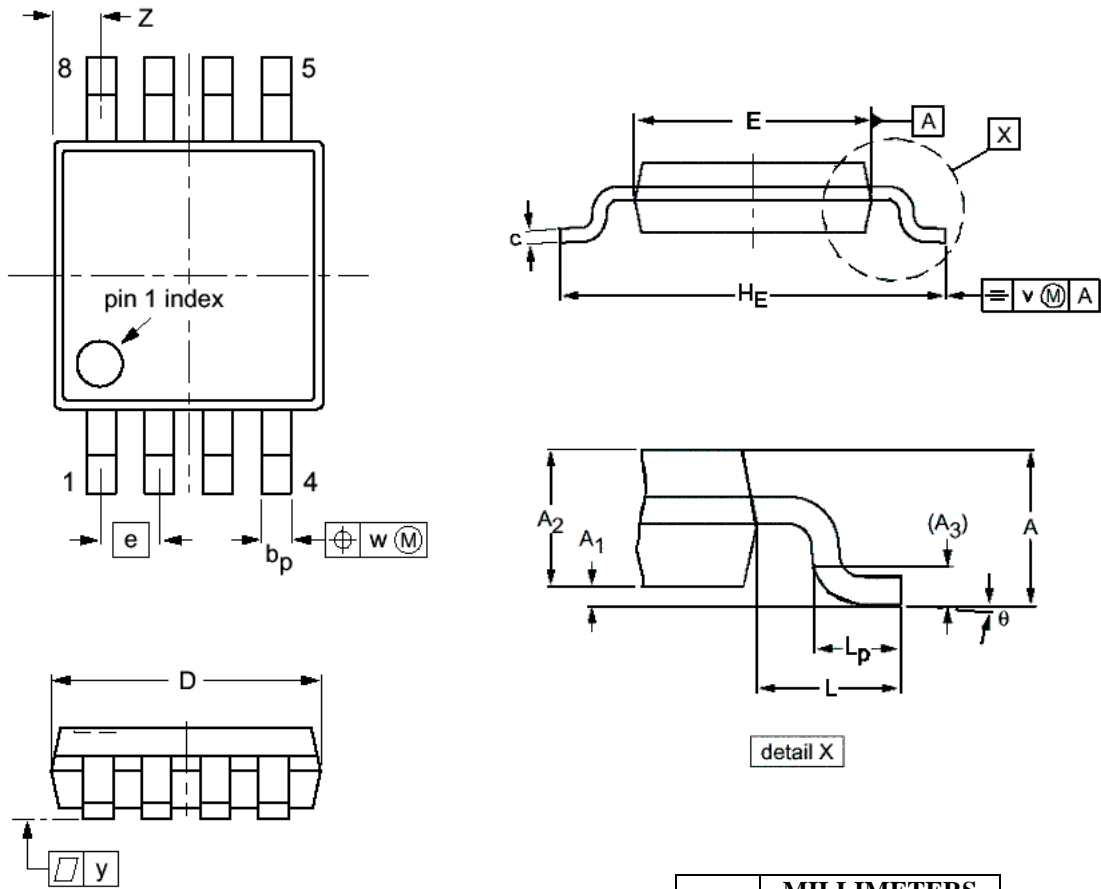


DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.35	1.75	.053	0.069
A ₁	0.10	0.25	0.004	0.010
A ₂	1.28	1.57	0.050	0.062
A ₃	0.25		0.01	
b _p	0.36	0.49	0.014	0.019
c	0.19	0.25	0.0075	0.0100
D	4.80	5.00	0.19	0.20
E	3.80	4.00	0.15	0.16
e	1.27		0.050	
H _E	5.80	6.20	0.228	0.244
L	1.05		0.041	
L _p	0.40	1.27	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°	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.

**PACKAGE DIAGRAM
MSOP 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°	6°

AZ100ELT20

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