AZ100ELT20

CMOS/TTL to Differential PECL Translator

www.azmicrotek.com

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 MLP8 2.0x2.0mm package makes it ideal for those applications where space, performance and low power are at a premium.

The AZ100ELT20 is a direct replacement for the ON Semi MC100ELT20, MC100LVELT20 and Micrel SY89329V

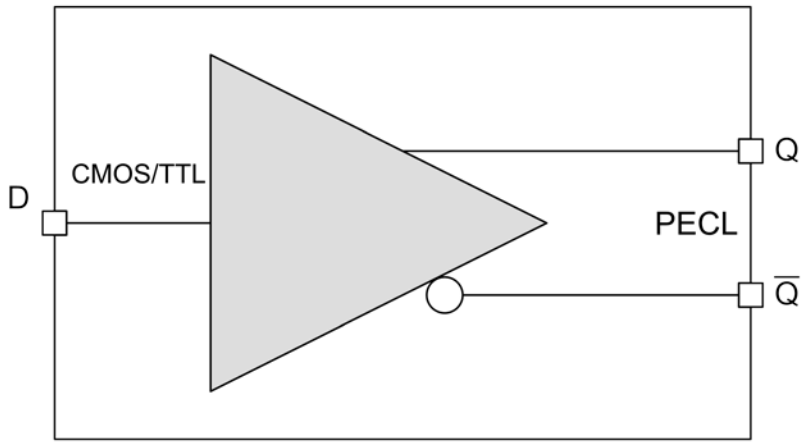
FEATURES

- 0.5ns typical propagation delay
- Differential PECL outputs
- Flow through pinouts
- Available in MLP8 (2.0x2.0mm) package

APPLICATIONS

- LVCMOS/LVTTL to LVPECL translations
- CMOS/TTL to PECL translations

BLOCK DIAGRAM



PACKAGE AVAILABILITY

- MLP8
  - Green/RoHS/Pb-Free
- MSOP8
  - Green/RoHS/Pb-Free
- SOIC8
  - Green/RoHS/Pb-Free

Order Number	Package	Marking
AZ100ELT20NG[1]	MLP8	TCG <Date Code>[2]
AZ100ELT20DG[1]	SOIC8	AZM100GELT20[2]
AZ100ELT20TG[1]	MSOP8	AZHGLT20[2]

[1] Tape & Reel - Add 'R1' at end of order number for 7in (1k parts), 'R2' (2.5k) for 13in

[2] See www.azmicrotek.com for date code format

PIN DESCRIPTION AND CONFIGURATION

Table 1 - Pin Description

Pin	Name	Type	Function
1	NC		
2	Q	Output	PECL Output
3	$\overline{Q}$	Output	PECL Output
4	NC		
5	GND	Power	Ground
6	NC		
7	D	Input	Data Input
8	V_{CC}	Power	Positive Supply

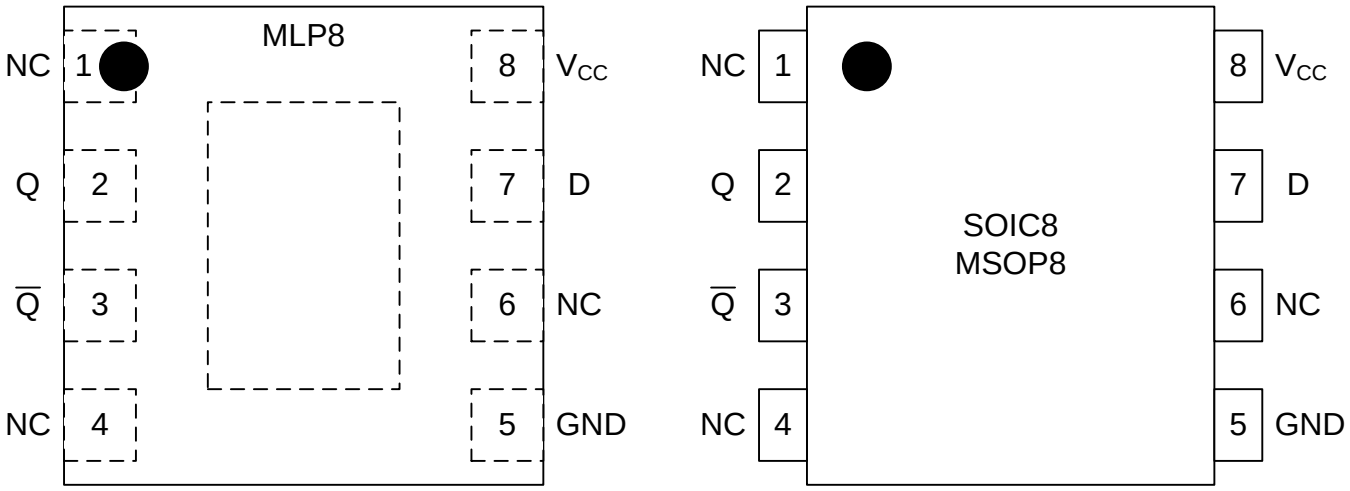


Figure 1 - Pin Configuration for MLP8 & SOIC8/MSOP8, respectively

ENGINEERING NOTES

When the D input is left floating, the Q output is forced HIGH, and the $\overline{Q}$ output is forced LOW.

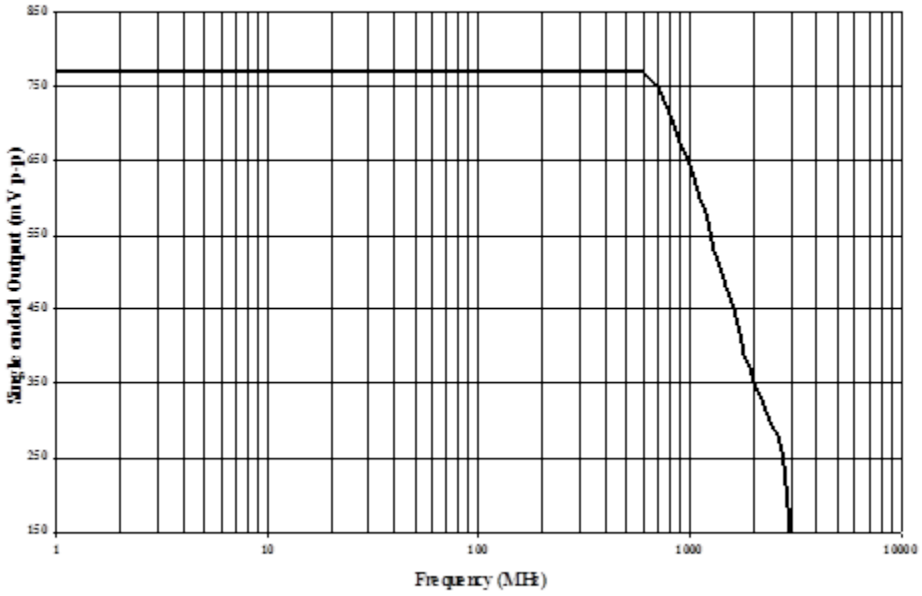


Figure 2 – AZ100ELT20 Large Signal Bandwidth

PERFORMANCE DATA

Table 2 – Absolute Maximum Ratings

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

Symbol	Characteristic	Condition	Rating	Unit
V_{CC}	DC Power Supply	(V_{EE} = 0V)	0 to +8.0	V
V_{IN}	Input Voltage	(V_{EE} = 0V)	0 to +6.0	V
I_{OUT}	Output Current	Continuous	50	mA
		Surge	100	
T_A	Operating Temperature Range		-40 to +85	°C
T_{STG}	Storage Temperature Range		-65 to +150	°C
ESD_{HBM}	Human Body Model		2500	V
ESD_{MM}	Machine Model		200	V
ESD_{CDM}	Charged Device Model		2500	V

Table 3 – TTL/CMOS Input DC Characteristics

TTL/CMOS Input DC Characteristics (GND = 0.0V, V_{CC} = +3.3V to 5.5V)

Symbol	Characteristic	Condition	Min	Typ	Max	Unit
I_{IH}	Input HIGH Current	V_{IN} = 2.7V			15	µA
I_{IHH}	Input HIGH Current	V_{IN} = V_{CC}			20	µA
I_{IL}	Input LOW Current	V_{IN} = 0.5V			-0.1	mA
V_{IK}	Input Clamp Diode Voltage	I_{IN} = -18mA			-1.2	V
V_{IH}	Input HIGH Voltage		2			V
V_{IL}	Input LOW Voltage				0.8	V

Table 4 - LVPECL DC Characteristics

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_{EE}	Power Supply Current[3]			16			16			16			16	mA

1 Each output is terminated through a 50Ω resistor to V_{CC} - 2V.

2 Output parameters vary 1:1 with V_{CC}

3 I_{CC} measurements must be done with outputs open

Table 5 - PECL DC Characteristics

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_{EE}	Power Supply Current[3]			16			16			16			16	mA

1 Each output is terminated through a 50Ω resistor to V_{CC} - 2V.

2 Output parameters vary 1:1 with V_{CC}

3 I_{CC} measurements must be done with outputs open

Table 6 - AC Characteristics

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

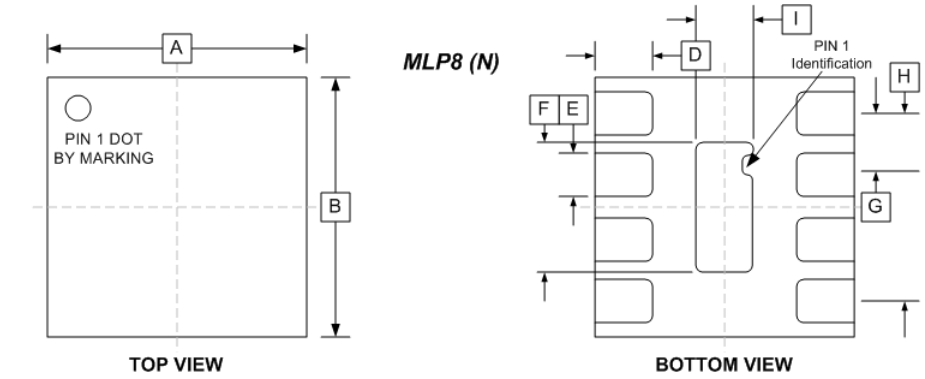
Symbol	Characteristic	-40 °C			0 °C			25 °C			85 °C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t_{PLH}/t_{PHL}	Propagation Delay to Output[1]	100		550	100		500	100		450	100		600	ps
t_r/t_f	Output Rise/Fall Times Q (20%-80%)	80		250	80		250	80		250	80		250	ps
f_{max}	Maximum Frequency[2]	800			800			800			800			MHz

1 Propagation delay is measured from +1.5V on the input to 50% of the PECL output swing

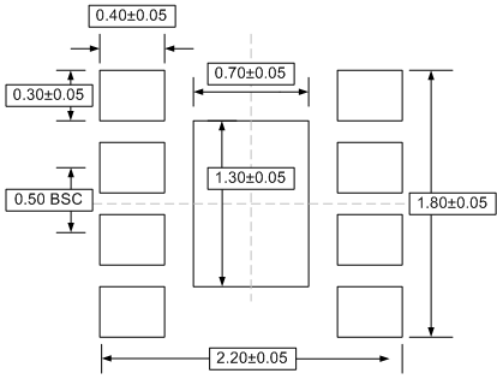
2 Output as -3dB

PACKAGE DIAGRAM

MLP8
Green/RoHS compliant/Pb-Free
MSL=1



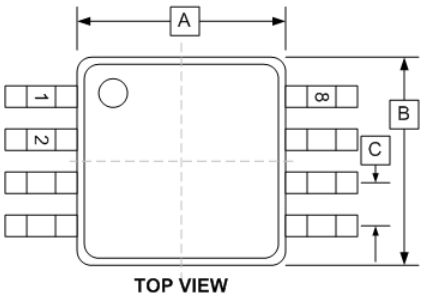
	MILLIMETERS	
DIM	MIN	MAX
A	2.00±0.050	
B	2.00±0.050	
C	0.75±0.050	
C_1	0.00	0.05
C_2	0.203 Ref.	
D	0.35±0.050	
E	0.25±0.050	
F	1.20±0.050	
G	0.500 BSC	
H	1.500 REF	
I	0.60±0.050	



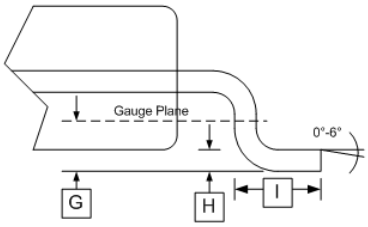
PACKAGE DIAGRAM

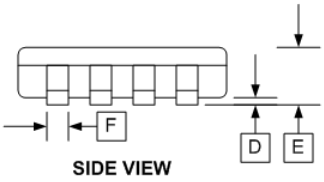
SOIC8
Green/RoHS compliant/Pb-Free
MSL=1

SOIC8 (D)



TOP VIEW

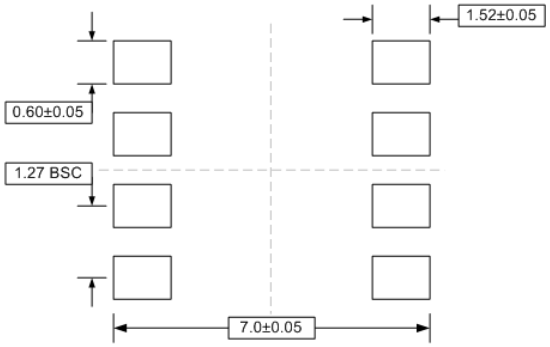




SIDE VIEW

PCB LAND PATTERN/FOOTPRINT

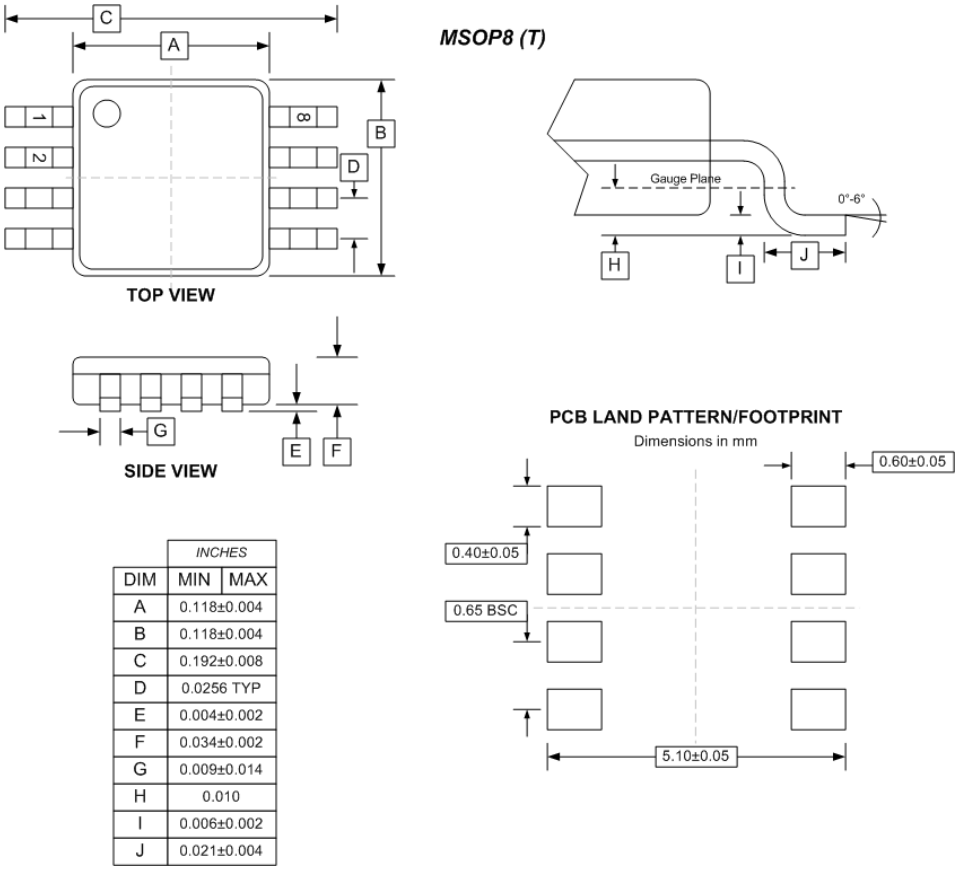
Dimensions in mm



	INCHES	
DIM	MIN	MAX
A	0.189	0.196
B	0.150	0.157
C	0.050 BSC	
D	0.004	0.01
E	0.054	0.068
F	0.014	0.019
G	0.010	
H	0.0075	0.0098
I	0.016	0.034

PACKAGE DIAGRAM

MSOP8
Green/RoHS compliant/Pb-Free
MSL=1



	INCHES	
DIM	MIN	MAX
A	0.118±0.004	
B	0.118±0.004	
C	0.192±0.008	
D	0.0256 TYP	
E	0.004±0.002	
F	0.034±0.002	
G	0.009±0.014	
H	0.010	
I	0.006±0.002	
J	0.021±0.004	