

AZ100ELT20

CMOS/TTL to Differential PECL Translator

www.azmicrotek.com

DESCRIPTION

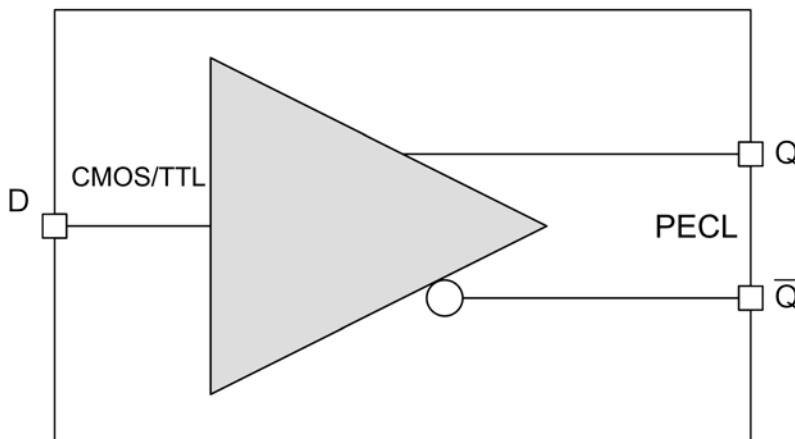
The [AZ100ELT20](#) is a CMOS/TTL to differential PECL translator. It operates with a single power supply of +3.0 to +5.5 volts, making it ideal for both LVC MOS/LVTTL and CMOS/TTL applications. The extremely small MLP8 2.0x2.0mm package makes it ideal for those applications where space, performance 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

BLOCK DIAGRAM



APPLICATIONS

- LVC MOS/LVTTL to LVPECL translations
- CMOS/TTL to PECL translations

PACKAGE AVAILABILITY

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

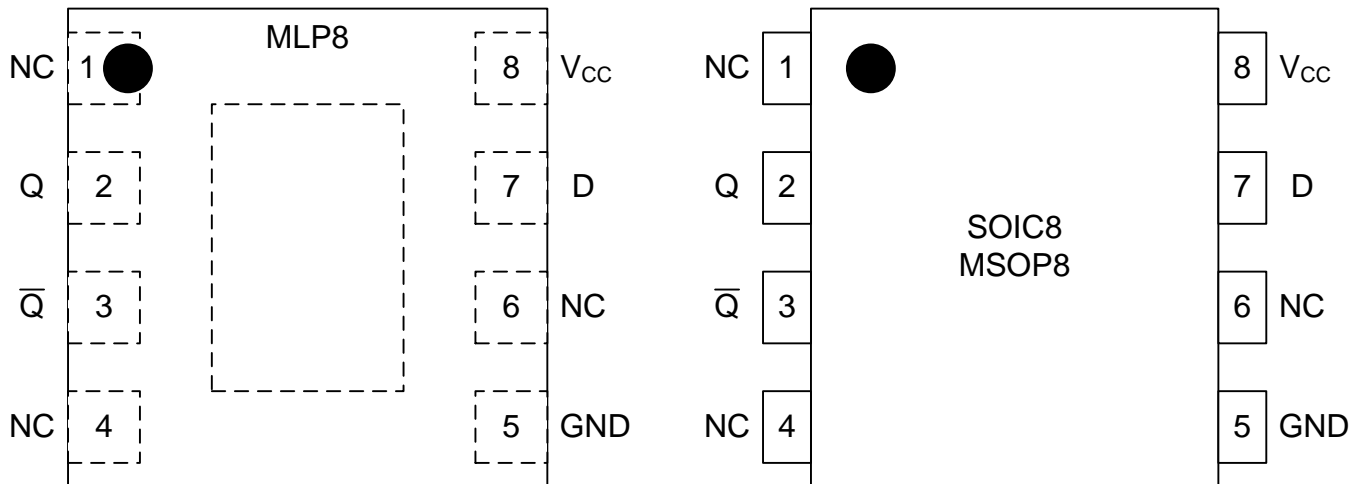
Order Number	Package	Marking
AZ100ELT20NG ¹	MLP8	TCG <Date Code> ²
AZ100ELT20DG ¹	SOIC8	AZM100GELT20 ²
AZ100ELT20TG ¹	MSOP8	AZHGLT20 ²

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	\bar{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 Q output is forced LOW.

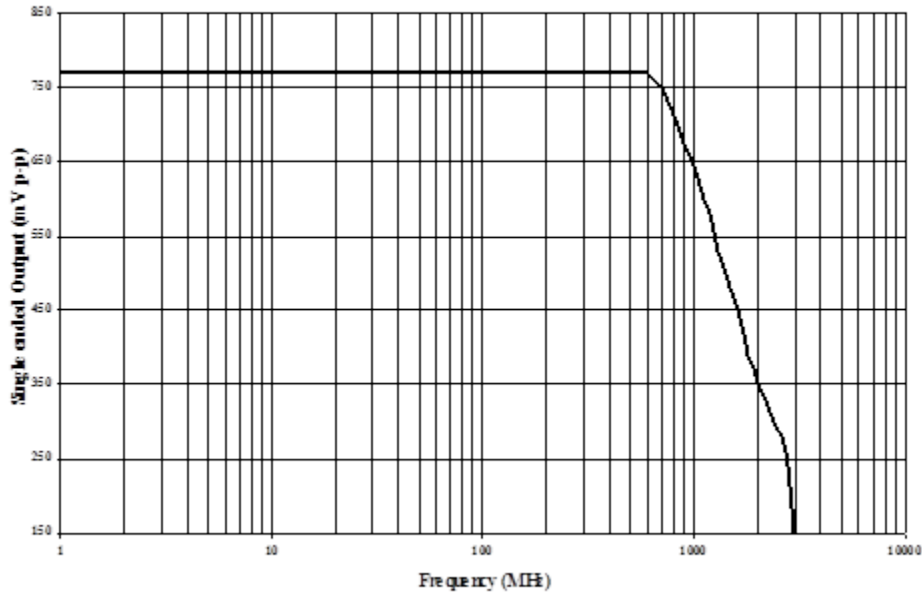


Figure 2 – AZ100ELT20 Large Signal Bandwidth

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 CharacteristicsTTL/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 CharacteristicsLVPECL 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

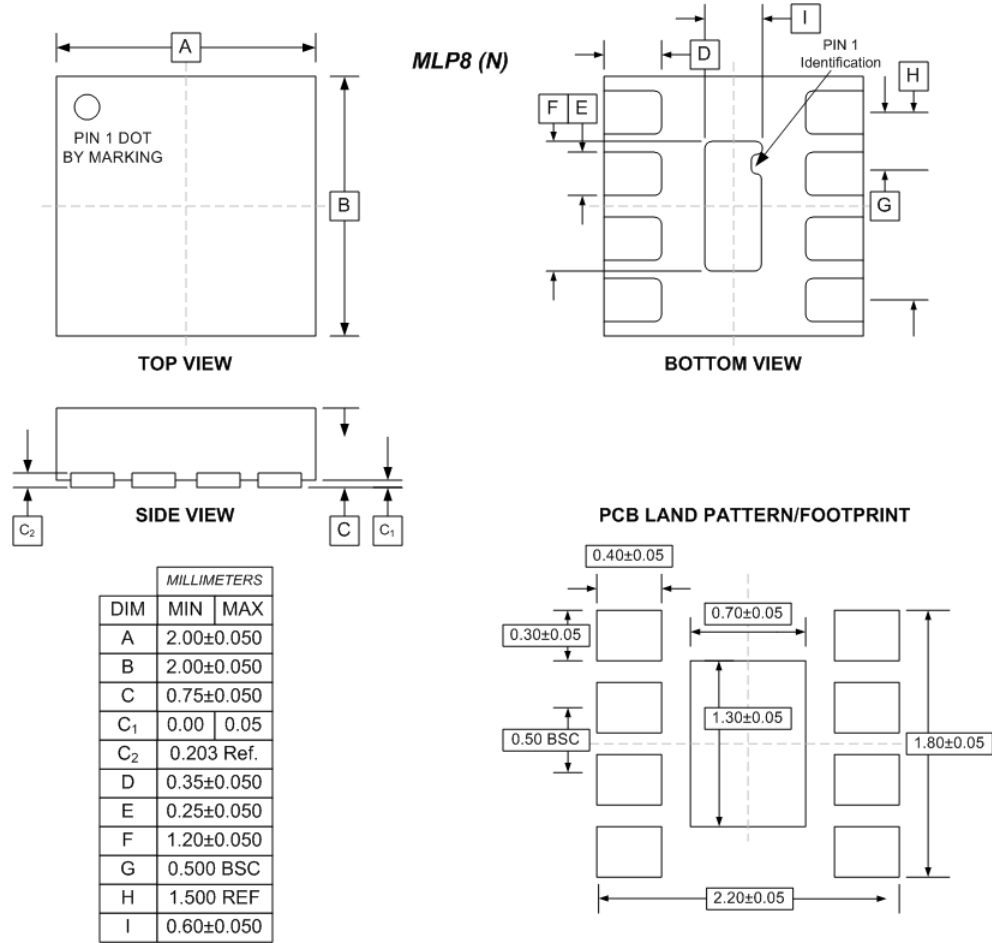
AC Characteristics (GND = 0.0V, V_{CC} = +3.0V to +5.5V)

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

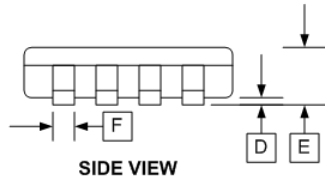
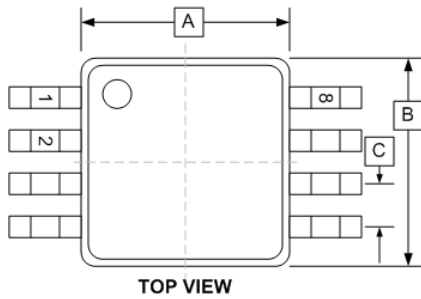
¹ Propagation delay is measured from +1.5V on the input to 50% of the PECL output swing

² Output as -3dB

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

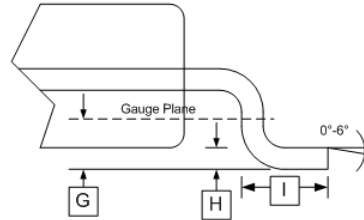


PACKAGE DIAGRAM
SOIC8
Green/RoHS compliant/Pb-Free
MSL=1

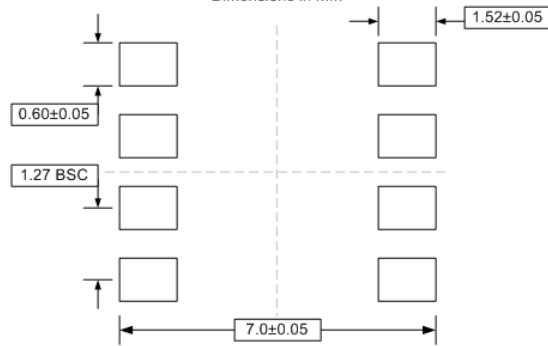


DIM	INCHES	
	MIN	MAX
A	0.189	0.196
B	0.150	0.157
C	0.050 BSC	
D	0.004	0.01
E	0.054	0.068
F	0.014	0.019
G	0.010	
H	0.0075	0.0098
I	0.016	0.034

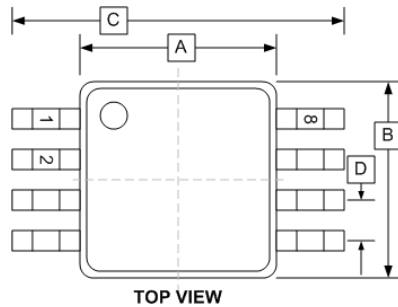
SOIC8 (D)



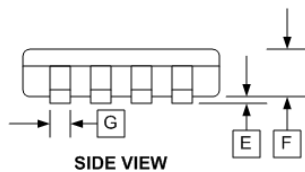
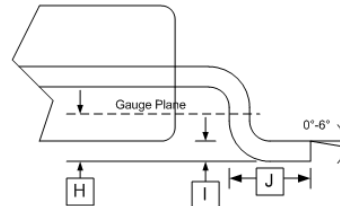
PCB LAND PATTERN/FOOTPRINT
Dimensions in mm



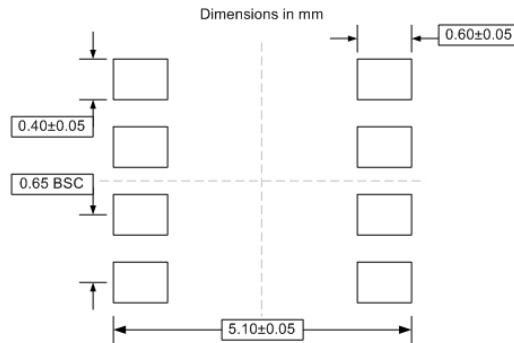
PACKAGE DIAGRAM
MSOP8
 Green/RoHS compliant/Pb-Free
 MSL=1



MSOP8 (T)



PCB LAND PATTERN/FOOTPRINT



DIM	INCHES	
	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	

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.