

# AZ100ELT22

## Dual CMOS/TTL to Differential PECL Translator

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### DESCRIPTION

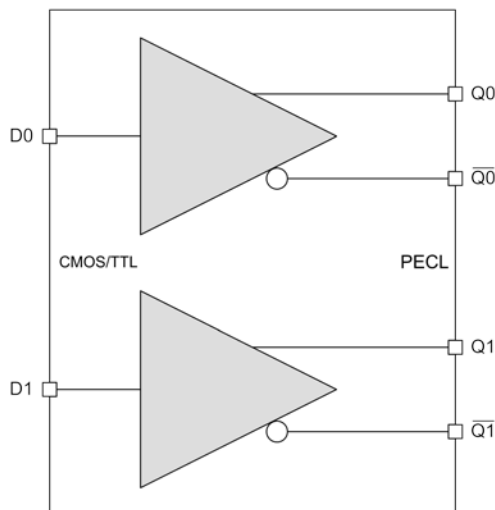
The [AZ100ELT22](#) is a dual CMOS/TTL to differential PECL translator. Because PECL (Positive ECL) levels are used, only  $V_{CC}$  and ground are required. The small outline packaging and the low skew, dual gate design of the AZ100ELT22 makes it ideal for applications that require the translation of a clock and a data signal.

The AZ100ELT22 is a direct replacement for the ON Semi MC100ELT22, MC100LVELT22 and Micrel SY89322V

### FEATURES

- 0.5ns typical propagation delay
- <100ps typical output to output skew
- Differential PECL outputs
- Flow through pinouts

### BLOCK DIAGRAM



### APPLICATIONS

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

### PACKAGE AVAILABILITY

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

Order Number	Package	Marking
AZ100ELT22DG <sup>1</sup>	SOIC8	HT22G <sup>2</sup>
AZ100ELT22TG <sup>1</sup>	MSOP8	HT22G <sup>2</sup>

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

<sup>2</sup> See [www.azmicrotek.com](http://www.azmicrotek.com) for [date code format](#)

## PIN DESCRIPTION AND CONFIGURATION

Table 1 - Pin Description

Pin	Name	Type	Function
1	Q0	Output	PECL Output
2	$\overline{Q0}$	Output	PECL Output
3	Q1	Output	PECL Output
4	$\overline{Q1}$	Output	PECL Output
5	GND	Power	Negative Supply
6	D1	Input	Data Input
7	D0	Input	Data Input
8	V <sub>CC</sub>	Power	Positive Supply

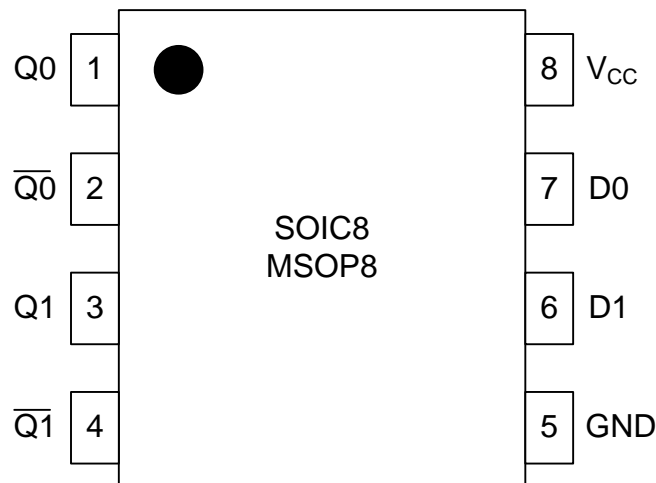


Figure 1 - Pin Configuration SOIC8/MSOP8

## ENGINEERING NOTES

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

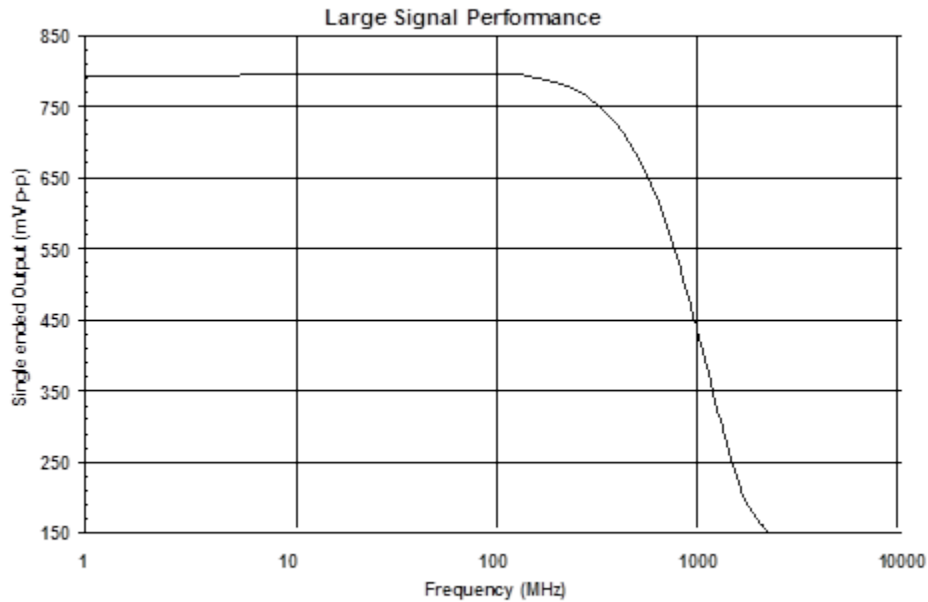


Figure 2 – AZ100ELT22 Large Signal Bandwidth

**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	$\mu A$
$I_{IHH}$	Input HIGH Current	$V_{IN} = V_{CC}$			20	$\mu A$
$I_{IL}$	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 <sup>1,2</sup>	2160		2420	2205		2420	2235	2345	2420	2255		2420	mV
$V_{OL}$	Output LOW Voltage <sup>1,2</sup>	1470		1745	1490		1680	1490	1595	1680	1490		1680	mV
$I_{CC}$	Power Supply Current <sup>3</sup>			24			24			24			25	mA

<sup>1</sup> Each output is terminated through a 50 $\Omega$  resistor to  $V_{CC} - 2V$ .

<sup>2</sup> Output parameters vary 1:1 with  $V_{CC}$

<sup>3</sup>  $I_{CC}$  measurements must be done with outputs open

Table 5 - PECL DC Characteristics

PECL DC Characteristics (GND = 0.0V, 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>OH</sub>	Output HIGH Voltage <sup>1,2</sup>	3860		4120	3905		4120	3935	4045	4120	3955		4120	mV
V <sub>OL</sub>	Output LOW Voltage <sup>1,2</sup>	3170		3445	3190		3380	3190	3295	3380	3190		3380	mV
I <sub>EE</sub>	Power Supply Current <sup>3</sup>			24			24			24			25	mA

<sup>1</sup> Each output is terminated through a 50Ω resistor to V<sub>CC</sub> - 2V.

<sup>2</sup> Output parameters vary 1:1 with V<sub>CC</sub>

<sup>3</sup> I<sub>CC</sub> measurements must be done with outputs open

Table 6 - AC Characteristics

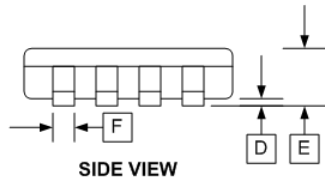
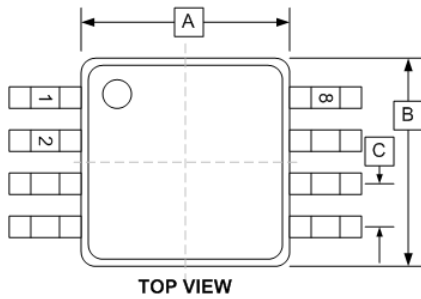
AC Characteristics (GND = 0.0V, V<sub>CC</sub> = +3.0V to +5.5V)

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>	100		550	100		550	100		550	100		550	ps
t <sub>r</sub> /t <sub>f</sub>	Output Rise/Fall Times Q (20%-80%)	80		250	80		250	80		250	80		250	ps
f <sub>max</sub>	Maximum Frequency <sup>2</sup>	800			800			800			800			MHz

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

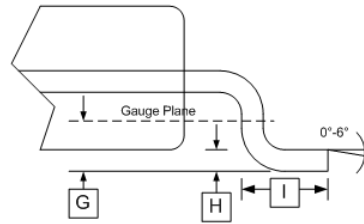
<sup>2</sup> Output as -3dB

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

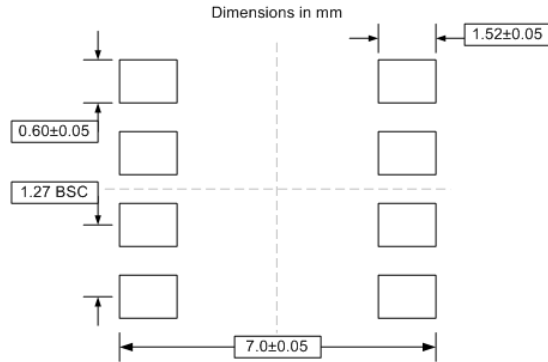


DIM	INCHES	
	MIN	MAX
A	0.189	0.196
B	0.150	0.157
C	0.050 BSC	
D	0.004	0.01
E	0.054	0.068
F	0.014	0.019
G	0.010	
H	0.0075	0.0098
I	0.016	0.034

SOIC8 (D)

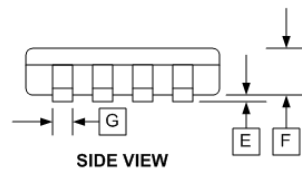
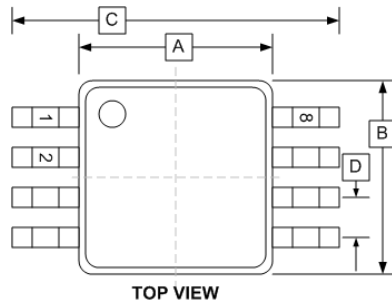


PCB LAND PATTERN/FOOTPRINT

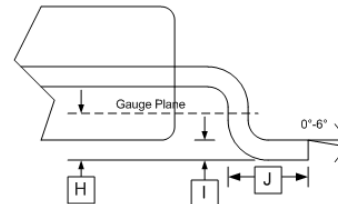


**PACKAGE DIAGRAM**

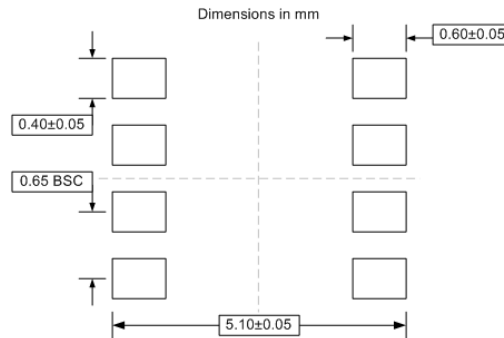
MSOP8  
Green/RoHS compliant/Pb-Free  
MSL=1



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	

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