

AZ100ELT22

Dual CMOS/TTL to Differential PECL Translator

www.azmicrotek.com

DESCRIPTION

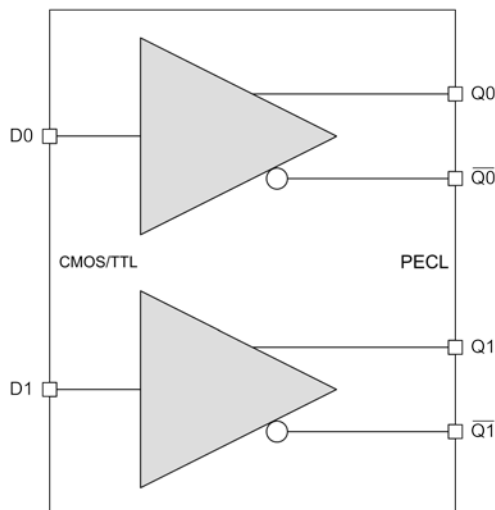
The [AZ100ELT22](#) is a dual CMOS/TTL to differential PECL translator. Because PECL (Positive ECL) levels are used, only V_{CC} and ground are required. The small outline packaging and the low skew, dual gate design of the AZ100ELT22 makes it ideal for applications that require the translation of a 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 ¹	SOIC8	HT22G ²
AZ100ELT22TG ¹	MSOP8	HT22G 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	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 _{CC}	Power	Positive Supply

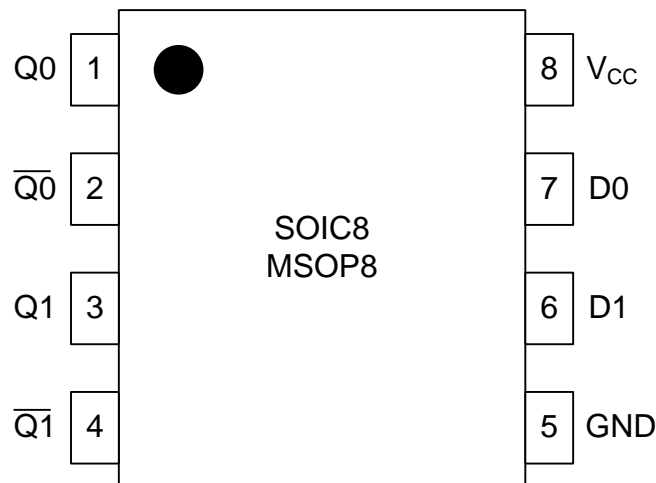


Figure 1 - Pin Configuration SOIC8/MSOP8

ENGINEERING NOTES

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

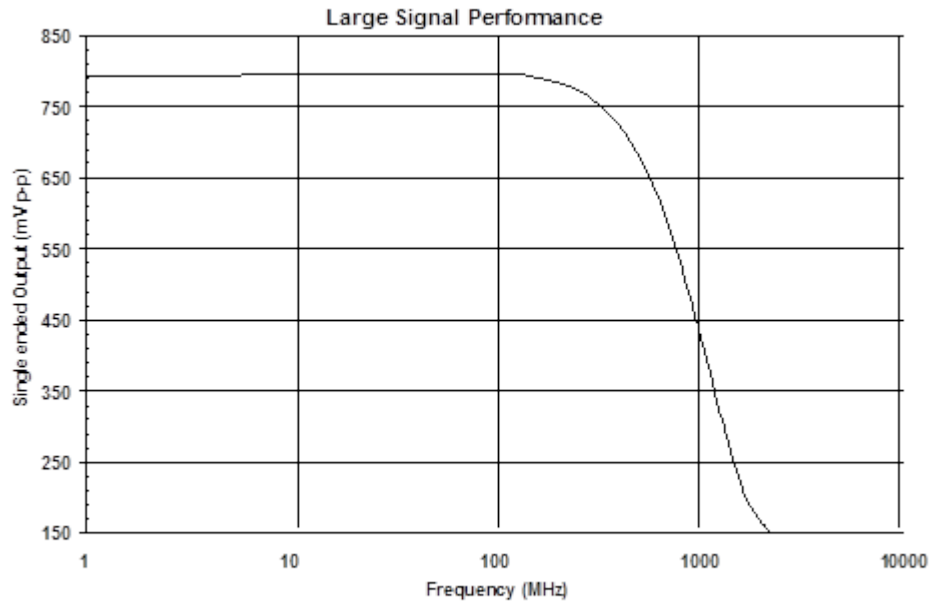


Figure 2 – AZ100ELT22 Large Signal Bandwidth

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 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

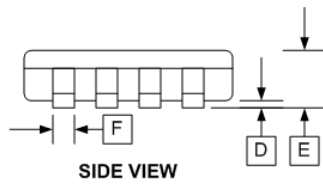
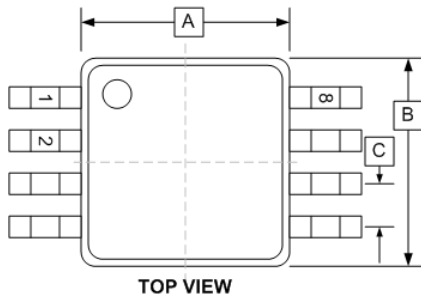
AC Characteristics (GND = 0.0V, V_{CC} = +3.0V to +5.5V)

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

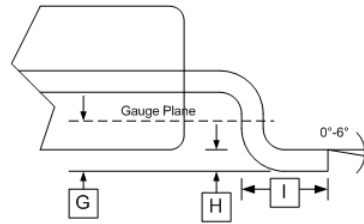
² Output as -3dB

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

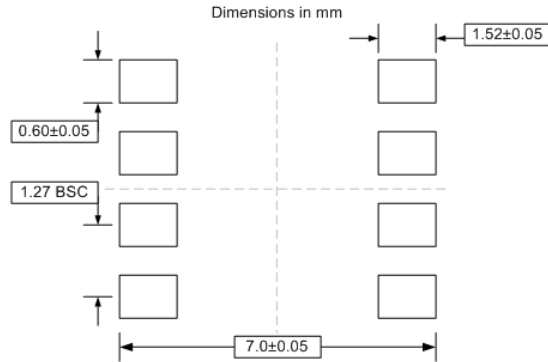


DIM	INCHES	
	MIN	MAX
A	0.189	0.196
B	0.150	0.157
C	0.050 BSC	
D	0.004	0.01
E	0.054	0.068
F	0.014	0.019
G	0.010	
H	0.0075	0.0098
I	0.016	0.034

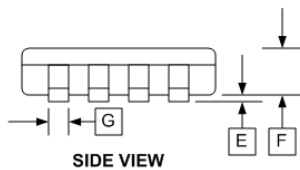
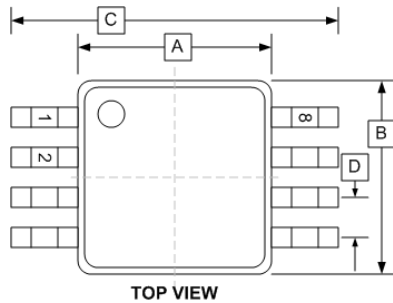
SOIC8 (D)



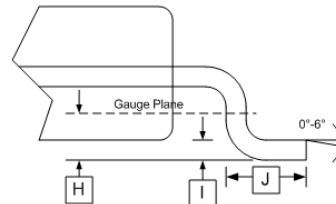
PCB LAND PATTERN/FOOTPRINT



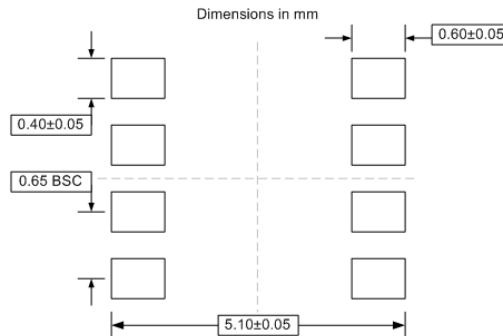
PACKAGE DIAGRAM
MSOP8
 Green/RoHS compliant/Pb-Free
 MSL=1



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	

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.