

CTS100ELT22

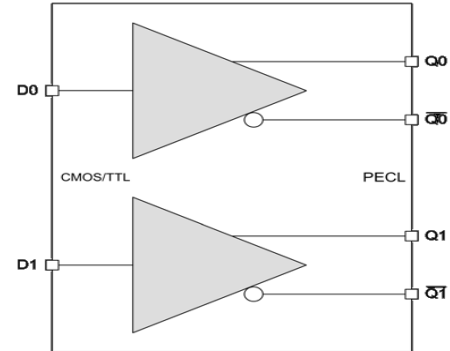
Dual CMOS/TTL to Differential PECL Translator

MSOP8, SOIC8

FEATURES

- 0.5ns Typical Propagation Delay
- <100ps Typical Output to Output Skew
- Flow Through Pinouts
- Differential PECL Output
- RoHS Compliant Pb Free Packages

BLOCK DIAGRAM



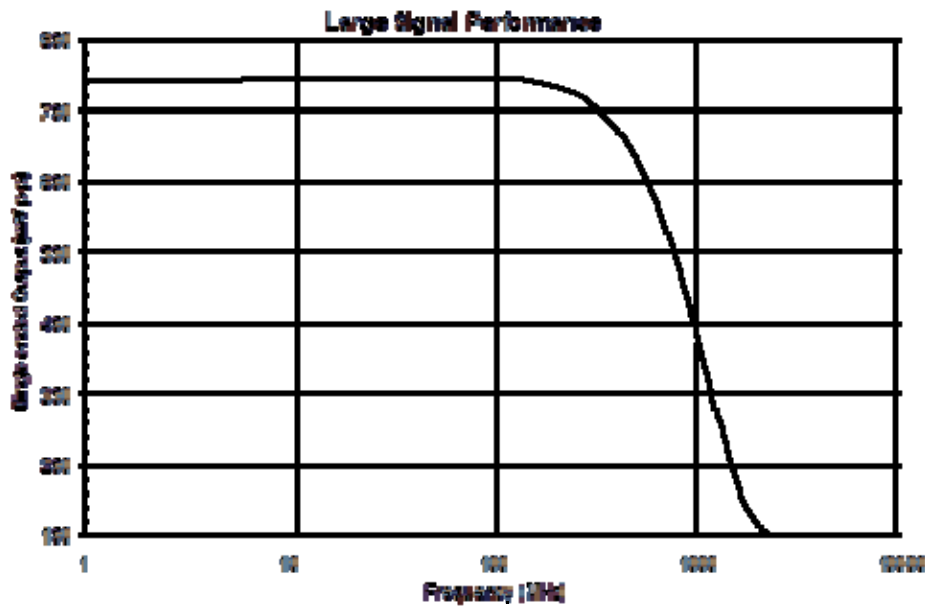
DESCRIPTION

The CTS100ELT22 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 CTS100ELT22 makes it ideal for applications that require the translation of a clock and a data signal.

The CTS100ELT22 is a direct replacement for the ON Semi MC100ELT22, MC100LVELT22 and Micrel SY89322V.

ENGINEERING NOTES

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



CTS100ELT22 Large Signal Bandwidth

ELECTRICAL SPECIFICATIONS

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

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

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}	2160		2420	2205		2420	2235	2345	2420	2255		2420	mV
V_{OL}	Output LOW Voltage ^{1,2}	1470		1745	1490		1680	1490	1595	1680	1490		1680	mV
I_{CC}	Power Supply Current ³			24			24			24			25	Ma

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

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

³ 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}	3860		4120	3905		4120	3935	4045	4120	3955		4120	mV
V _{OL}	Output LOW Voltage ^{1, 2}	3170		3445	3190		3380	3190	3295	3380	3190		3380	mV
I _{EE}	Power Supply Current ³			24			24			24			25	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.

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		550	100		550	100		550	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

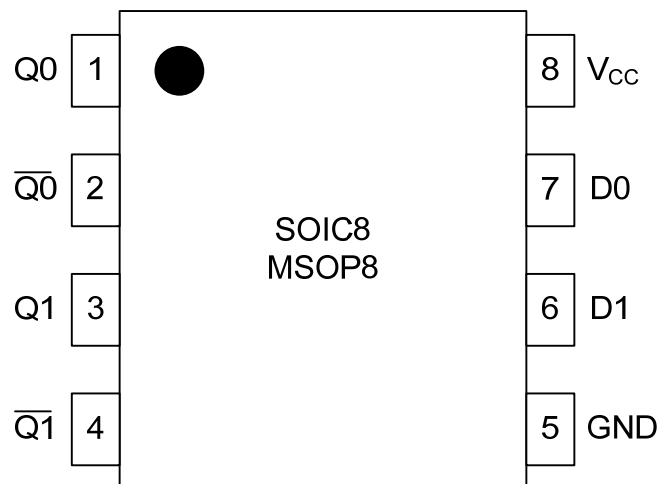
¹ Propagation delay is measured from +1.5V on the input to 50% of the PECL output swing.

² Output as -3dB.

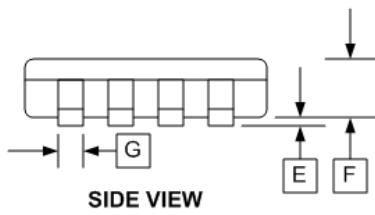
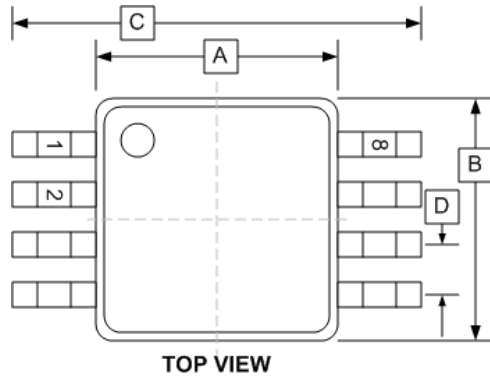
Pin Description and Configuration

Pin Assignments

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

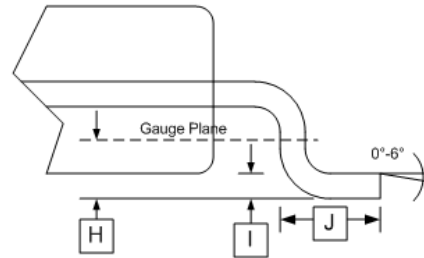


PACKAGE DIMENSIONS

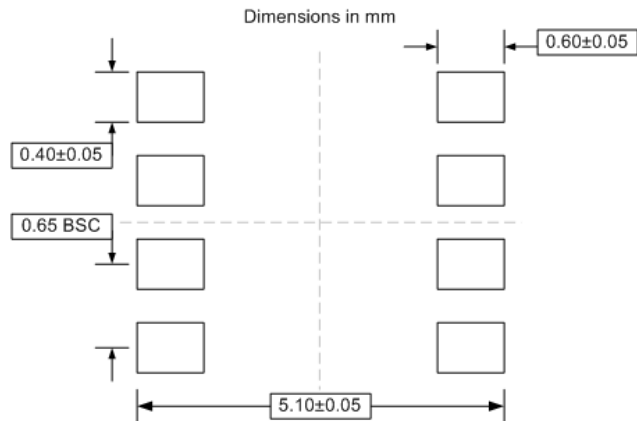


DIM	INCHES	
	MIN	MAX
A	0.118±0.004	
B	0.118±0.004	
C	0.192±0.008	
D	0.0256 TYP	
E	0.004±0.002	
F	0.034±0.002	
G	0.009±0.014	
H	0.010	
I	0.006±0.002	
J	0.021±0.004	

MSOP8 (T)



PCB LAND PATTERN/FOOTPRINT

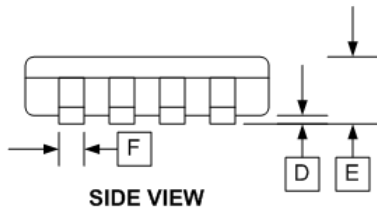
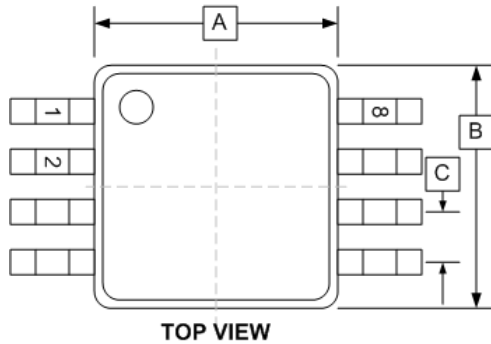


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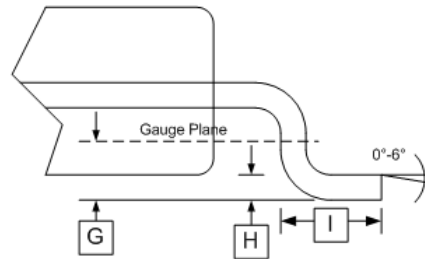
MSOP8, SOIC8

PACKAGE DIMENSIONS

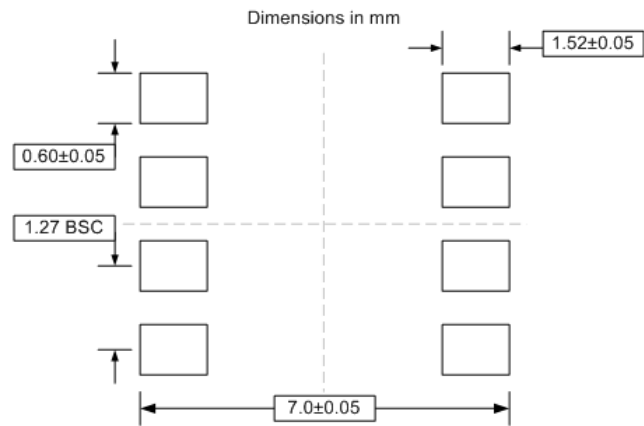


DIM	mm	
	MIN	MAX
A	3.81	3.99
B	4.80	4.98
C	1.27 BSC	
D	0.10	0.25
E	1.37	1.68
F	0.36	0.48
G	0.25	
H	0.19	0.25
I	0.41	0.86

SOIC8 (D)



PCB LAND PATTERN/FOOTPRINT



PART ORDERING INFORMATION

Part Number	Package	Marking
CTS100ELT22DG	SOIC8	CTS100G / ELT22 / YYWW
CTS100ELT22TG	MSOP8	HT22G / YYWW