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CTS100ELT23

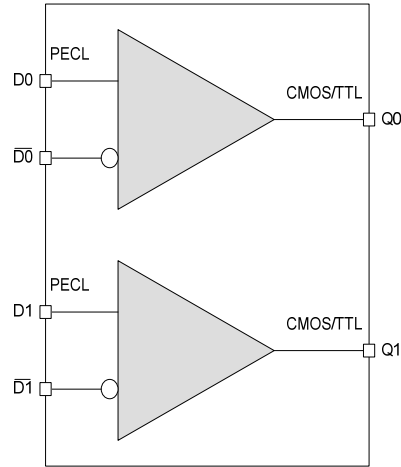
Dual Differential PECL to CMOS/TTL Translator

MSOP8, SOIC8

FEATURES

- 3.5ns Typical Propagation Delay
- <500ps Typical Output to Output Skew
- Differential PECL Inputs
- Flow Through Pinouts
- CMOS/TTL Outputs
- RoHS Compliant Pb Free Packages

BLOCK DIAGRAM



DESCRIPTION

The CTS100ELT23 is a dual differential PECL to CMOS/TTL translator. Because PECL (Positive ECL) levels are used, only V_{CC} and ground are required. The small outline 8-lead packaging and the low skew, dual gate design of the CTS100ELT23 makes it ideal for applications that require the translation of a clock and a data signal.

The CTS100ELT23 is a direct replacement for the ON Semi MC100ELT23.

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	Referenced to GND	0 to +7.0	V
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 DC Characteristics (GND = 0.0V, V_{CC} = +3.3V to +5.5V)

Symbol	Characteristic	Condition	Min	Typ	Max	Unit
V_{OH}	Output HIGH Voltage	$I_{OH} = -24mA$	$V_{CC} - 0.5V$			V
V_{OL}	Output LOW Voltage	$I_{OL} = 24mA$			0.5	V
I_{CC}	Power Supply Current	0°C to 85°C		9	15	mA
I_{CC}	Power Supply Current	-40°C to 85°C		9	17.6	mA
I_{CC}	Output Short Circuit Current			100		mA

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100K 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 _{IH}	Input HIGH Voltage	2135		2420	2135		2420	2135		2420	2135		2420	mV
V _{IL}	Input LOW Voltage	1490		1825	1490		1825	1490		1825	1490		1825	mV
V _{PP}	Minimum Input Swing	200 ¹			200			200			200			mV
V _{CMR}	Common Mode Range	1.2		V _{CC}	1.2		V _{CC}	1.2		V _{CC}	1.2		V _{CC}	V
I _{IL}	Input LOW Current	0.5			0.5			0.5			0.5			μA
I _{IH}	Input HIGH Current			150			150			150			150	μA

¹ 200mV input guarantees full logic swing at the output.

100K 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 _{IH}	Input HIGH Voltage	3835		4120	3835		4120	3835		4120	3835		4120	mV
V _{IL}	Input LOW Voltage	3190		3525	3190		3525	3190		3525	3190		3525	mV
V _{PP}	Minimum Input Swing	200 ¹			200 ¹			200 ¹			200 ¹			mV
V _{CMR}	Common Mode Range	1.2		V _{CC}	1.2		V _{CC}	1.2		V _{CC}	1.2		V _{CC}	V
I _{IL}	Input LOW Current	0.5			0.5			0.5			0.5			μA
I _{IH}	Input HIGH Current			150			150			150			150	μA

¹ 200mV input guarantees full logic swing at the output.

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

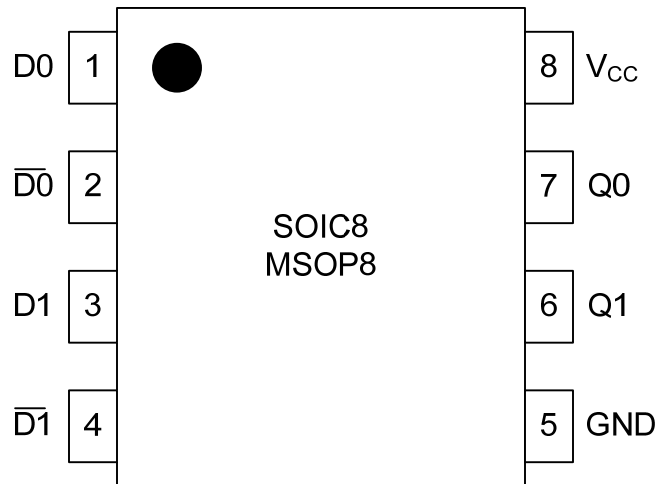
Symbol	Characteristic	-40 °C			0 °C			25 °C			85 °C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t _{PLH} /t _{PHL}	Propagation Delay to Output ₁ V _{CC} = 4.5 to 5.5V	2		5.5	2		5.5	2		5.5	2		5.5	ns
	Propagation Delay to Output ₁ V _{CC} = 3.0 to 3.6V	3.5		7	3.5		7	3.5		7	3.5		7	ns

¹ C_L = 20pF.

Pin Description and Configuration

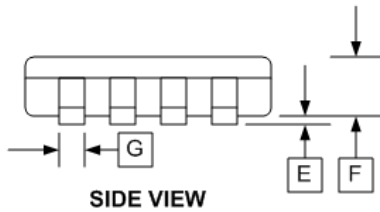
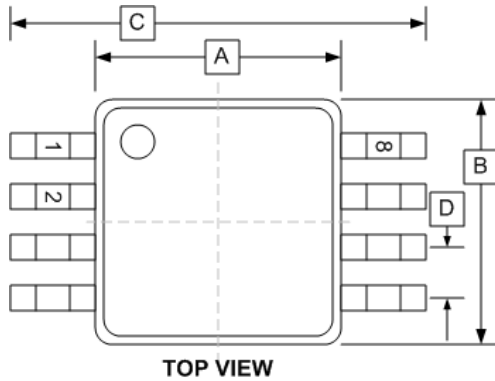
Pin Assignments

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



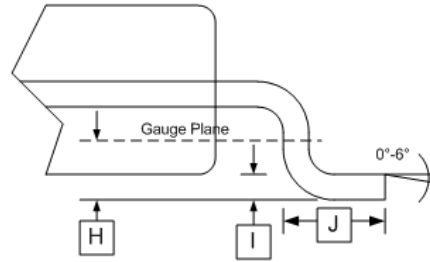
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PACKAGE DIMENSIONS

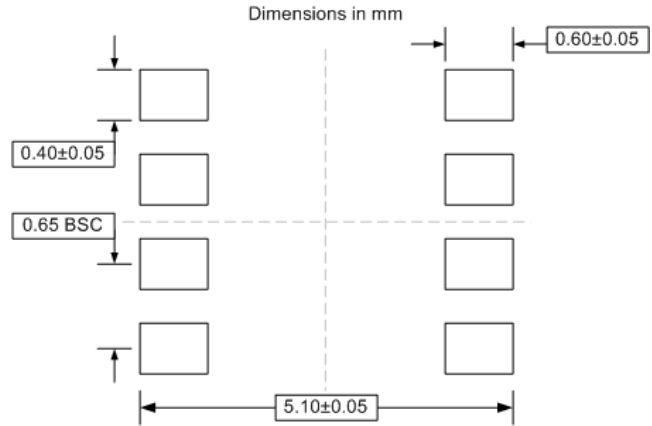


DIM	INCHES	
	MIN	MAX
A	0.118±0.004	
B	0.118±0.004	
C	0.192±0.008	
D	0.0256 TYP	
E	0.004±0.002	
F	0.034±0.002	
G	0.009±0.014	
H	0.010	
I	0.006±0.002	
J	0.021±0.004	

MSOP8 (T)

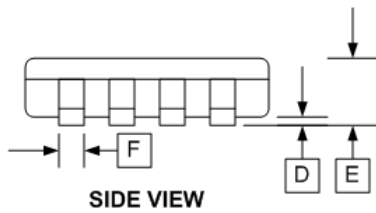
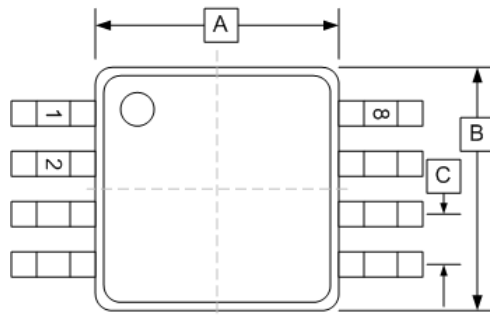


PCB LAND PATTERN/FOOTPRINT



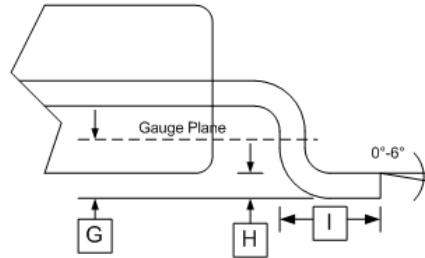
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PACKAGE DIMENSIONS

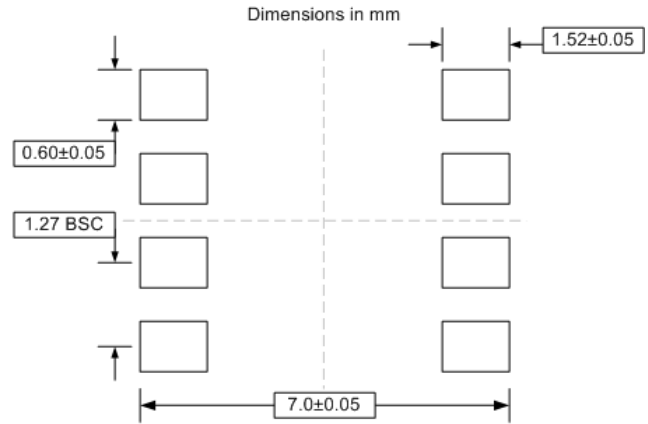


DIM	mm	
	MIN	MAX
A	3.81	3.99
B	4.80	4.98
C	1.27 BSC	
D	0.10	0.25
E	1.37	1.68
F	0.36	0.48
G	0.25	
H	0.19	0.25
I	0.41	0.86

SOIC8 (D)



PCB LAND PATTERN/FOOTPRINT



PART ORDERING INFORMATION

Part Number	Package	Marking
CTS100ELT23DG	SOIC8	CTS100G / ELT23 / YYWW
CTS100ELT23TG	MSOP8	HT23G / YYWW