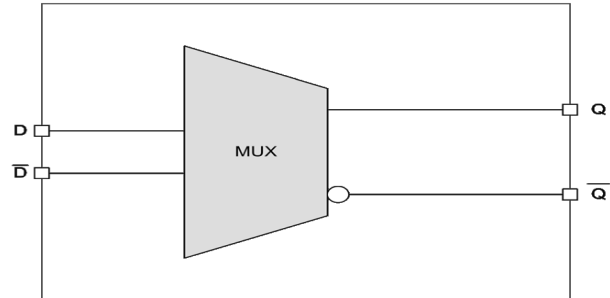


**FEATURES**

- 440ps Propagation Delay
- Operating Voltage of 3.0 to 5.5V
- Internal Input Pull-down Resistors
- Direct Replacement for ON Semi MC100LVEL58
- ROHS Compliant Pb Free Packages

**BLOCK DIAGRAM**



**DESCRIPTION**

The CTS100LVEL58 is a 2:1 multiplexer. The device is pin and functionally equivalent to the CTS100EL58. With AC performance similar to the CTS100EL58 device, the LVEL58 is ideal for the low voltage applications that require the ultimate in AC performance. If desired, the select input can be directly driven from a CMOS output.

The CTS100LVEL58 is a direct replacement for the ON Semi MC100LVEL58.

**ENGINEERING NOTES**

**Functionality Table**

SEL	Q
HIGH	D0
LOW	D1

## ELECTRICAL SPECIFICATIONS

Absolute Maximum Ratings are those values beyond which device life may be impaired.

Symbol	Characteristic	Condition	Rating	Unit
$V_{CC}$	PECL Power Supply	$V_{EE} = 0V$	0 to +8.0	V
$V_I$	PECL Input Voltage	$V_{EE} = 0V$	0 to +6.0	V
$V_{EE}$	ECL Power Supply	$V_{CC} = 0V$	-8.0 to 0	V
$V_I$	ECL Input Voltage	$V_{CC} = 0V$	-6.0 to 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

### ECL DC Characteristics ( $V_{EE} = -3.0V$ to $-5.5V$ , $V_{CC} = GND$ )

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</sup>	-1085	-1005	-880	-1025	-955	-880	-1025	-955	-880	-1025	-955	-880	mV
$V_{OL}$	Output LOW Voltage <sup>1</sup>	-1830	-1695	-1555	-1810	-1705	-1620	-1810	-1705	-1620	-1810	-1705	-1620	mV
$V_{IH}$	Input HIGH Voltage	-1165		-880	-1165		-880	-1165		-880	-1165		-880	mV
$V_{IL}$	Input LOW Voltage	-1810		-1475	-1810		-1475	-1810		-1475	-1810		-1475	mV
$I_{IH}$	Input HIGH Current			150			150			150			150	µA
$I_{IL}$	Input LOW Current	-150			-150			-150			-150			µA
$I_{EE}$	Power Supply Current		21	28		21	28		21	28		23	30	mA

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

**LVPECL DC Characteristics ( $V_{EE} = \text{GND}$ ,  $V_{CC} = +3.3\text{V}$ )**

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</sup>	2215	2295	2420	2275	2345	2420	2275	2345	2420	2275	2345	2420	mV
$V_{OL}$	Output LOW Voltage <sup>1</sup>	1470	1605	1745	1490	1595	1680	1490	1595	1680	1490	1595	1680	mV
$V_{IH}$	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
$I_{IH}$	Input HIGH Current			150			150			150			150	μA
$I_{IL}$	Input LOW Current	-150			-150			-150			-150			μA
$I_{EE}$	Power Supply Current		21	28		21	28		21	28		23	30	mA

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

**PECL DC Characteristics ( $V_{EE} = \text{GND}$ ,  $V_{CC} = +5.0\text{V}$ )**

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</sup>	3915	3995	4120	3975	4045	4120	3975	4045	4120	3975	4045	4120	mV
$V_{OL}$	Output LOW Voltage <sup>1</sup>	3170	3305	3445	3190	3295	3380	3190	3295	3380	3190	3295	3380	mV
$V_{IH}$	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
$I_{IH}$	Input HIGH Current			150			150			150			150	μA
$I_{IL}$	Input LOW Current	-150			-150			-150			-150			μA
$I_{EE}$	Power Supply Current		27	33		27	33		27	33		31	37	mA

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

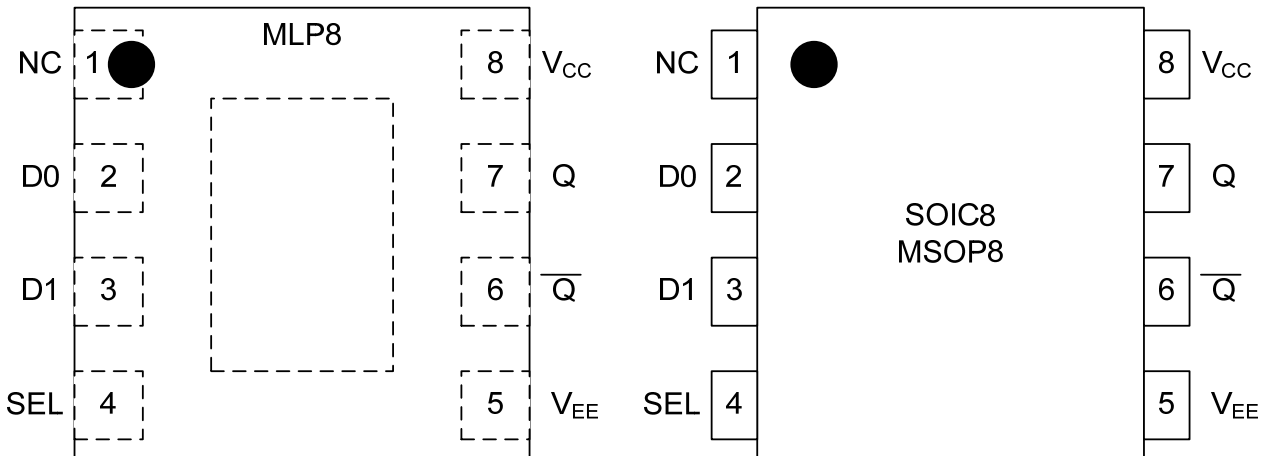
**AC Characteristics ( $V_{EE} = -3.0V$  to  $-5.5V$ ,  $V_{CC} = GND$  or  $V_{EE} = GND$ ,  $V_{CC} = +3.0V$  to  $+5.0V$ )**

Symbol	Characteristic	-40 °C			0 °C			25 °C			85 °C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
$t_{PLH}/t_{PHL}$	Propagation Delay to Output - D to Q	340	435	560				350	440	570	370	450	590	ps
	SEL to Q	540	455	570				360	460	580	380	470	600	ps
$f_{MAX}$	Max Toggle Freq							1.5						GHz
$t_R/t_F$	Output Rise/Fall Times Q (20%-80%)	100		260	100		260	100		260	100		260	ps

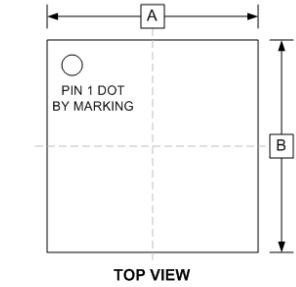
**Pin Description and Configuration**

**Pin Assignments**

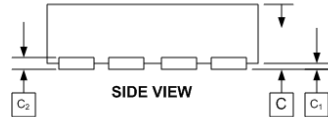
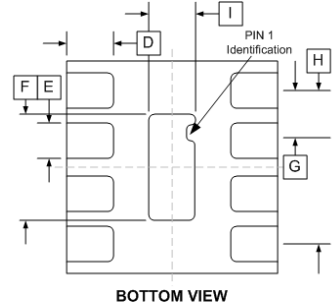
Pin	Name	Type	Function
1	NC		
2	D0	Input	Data Input
3	D1	Input	Data Input
4	SEL	Input	Select Input
5	$V_{EE}$	Power	Negative Supply
6	$\overline{Q}$	Output	Data Output
7	Q	Output	Data Output
8	$V_{CC}$	Power	Positive Supply



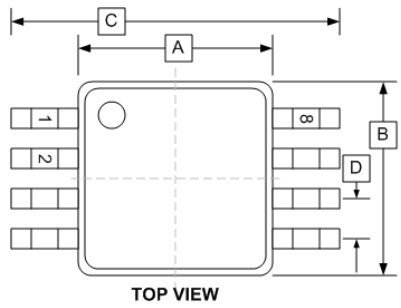
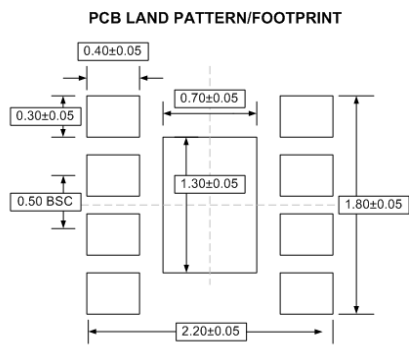
PACKAGE DIMENSIONS



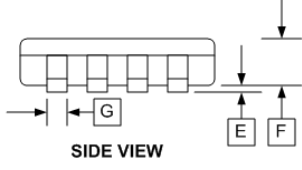
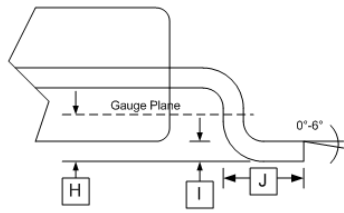
MLP8 (N)



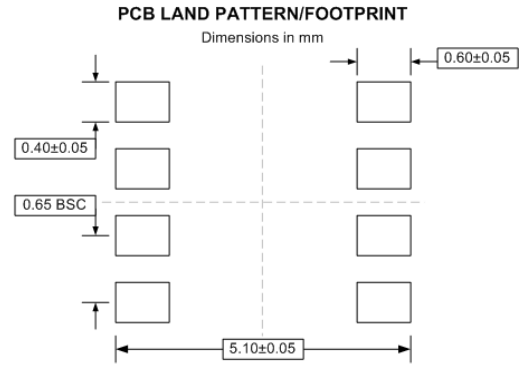
MILLIMETERS		
DIM	MIN	MAX
A	2.00±0.050	
B	2.00±0.050	
C	0.75±0.050	
C <sub>1</sub>	0.00	0.05
C <sub>2</sub>	0.203	Ref.
D	0.35±0.050	
E	0.25±0.050	
F	1.20±0.050	
G	0.500	BSC
H	1.500	REF
I	0.60±0.050	



MSOP8 (T)



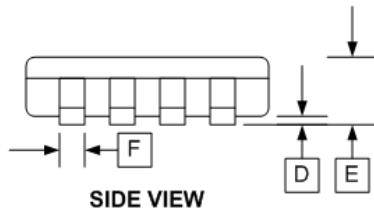
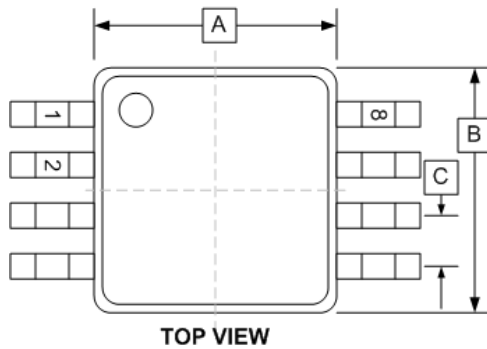
INCHES		
DIM	MIN	MAX
A	0.118±0.004	
B	0.118±0.004	
C	0.192±0.008	
D	0.0256	TYP
E	0.004±0.002	
F	0.034±0.002	
G	0.009±0.014	
H	0.010	
I	0.006±0.002	
J	0.021±0.004	



CTS100LVEL58  
 LVPECL 2:1 Multiplexer  
 MLP8, MSOP8, SOIC8

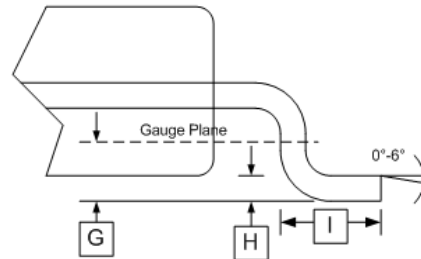
**Not recommended for new designs**

**PACKAGE DIMENSIONS**

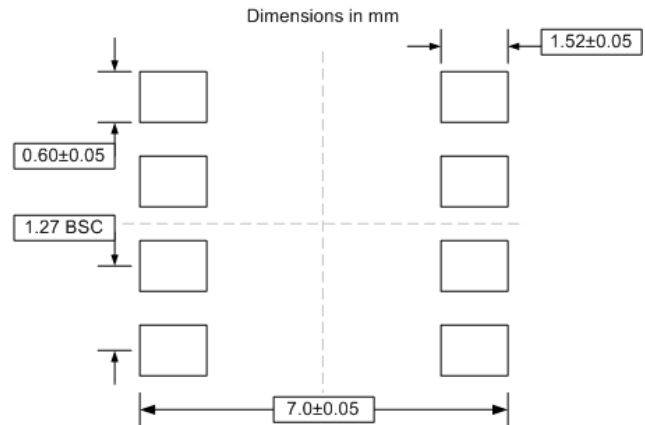


DIM	mm	
	MIN	MAX
A	3.81	3.99
B	4.80	4.98
C	1.27 BSC	
D	0.10	0.25
E	1.37	1.68
F	0.36	0.48
G	0.25	
H	0.19	0.25
I	0.41	0.86

**SOIC8 (D)**



**PCB LAND PATTERN/FOOTPRINT**



**PART ORDERING INFORMATION**

Part Number	Package	Marking
CTS100LVEL58DG	SOIC8	CTS100G / LVEL58 / YYWW
CTS100LVEL58TG	MSOP8	HL58G / YYWW
CTS100LVEL58NG	MLP8	L5G / YWW