

ECLPS Plus™

Product Preview

LVTTL/LVCMOS to Differential LVPECL Translator

- 390ps Typical Propagation Delay
- Maximum Frequency >1.0GHz
- Differential LVPECL Outputs
- Small Outline SOIC Package
- PNP LVTTL Inputs for Minimal Loading
- V_{CC} Range of 3.0V to 3.6V
- ESD Protection: >1.5KV HBM, >200V MM
- Q Output will default HIGH with inputs open
- Moisture Sensitivity Level 1, Indefinite Time Out of Drypack
- Flammability Rating: UL-94 code V-0 @ 1/8", Oxygen Index 28 to 34
- Transistor Count = 150 devices

The MC10EPT20 is a LVTTL/LVCMOS to differential LVPECL translator. Because LVPECL (Positive ECL) levels are used only +3.3V and ground are required. The small outline 8-lead SOIC package and the single gate of the EPT20 makes it ideal for those applications where space, performance, and low power are at a premium.

This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

MC10EPT20



SO-8, D SUFFIX
8-LEAD PLASTIC SOIC PACKAGE
CASE 751

ORDERING INFORMATION
MC10EPT20D SOIC

PIN DESCRIPTION

PIN	FUNCTION
Q, \bar{Q}	Diff LVPECL Outputs
D	LVTTL Input
V _{CC}	Positive Supply
GND	Ground



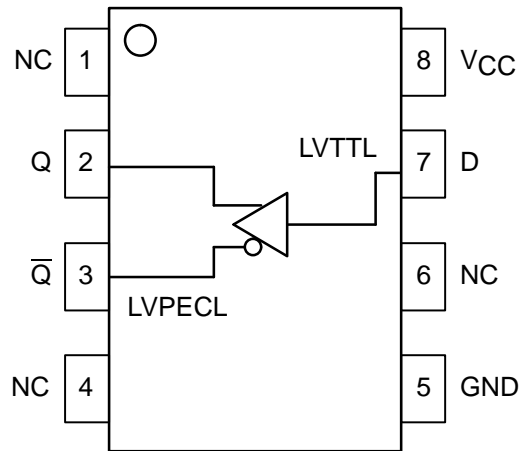


Figure 1. 8-Lead Pinout (Top View) and Logic Diagram

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
V _{CC}	Power Supply	6.0 to 0	VDC
V _I	Input Voltage (V _I not more positive than V _{CC})	6.0 to 0	VDC
I _{out}	Output Current Continuous Surge	50 100	mA
T _A	Operating Temperature Range	−40 to +85	°C
T _{stg}	Storage Temperature	−65 to +150	°C
θ _{JA}	Thermal Resistance (Junction-to-Ambient) Still Air 500lfpm	190 130	°C/W
θ _{JC}	Thermal Resistance (Junction-to-Case)	41 to 44 ± 5%	°C/W
T _{sol}	Solder Temperature (<2 to 3 Seconds: 245°C desired)	265	°C

* Maximum Ratings are those values beyond which damage to the device may occur.

LVTTTL INPUT DC CHARACTERISTICS ($V_{CC} = 3.3V \pm 0.3V$; $GND = 0V$; $T_A = -40^{\circ}C$ to $+85^{\circ}C$)

Symbol	Characteristic	Min	Typ	Max	Unit
I_{IH}	Input HIGH Current ($V_{in} = 2.7V$)			20	μA
I_{IHH}	Input HIGH Current MAX ($V_{in} = 6.0V$)			100	μA
I_{IL}	Input LOW Current ($V_{in} = 0.5V$)			-0.6	mA
V_{IK}	Input Clamp Voltage ($I_{in} = -18mA$)			-1.2	V
V_{IH}	Input HIGH Voltage	2.0			V
V_{IL}	Input LOW Voltage			0.8	V

LVPECL OUTPUT DC CHARACTERISTICS ($V_{CC} = 3.3V \pm 0.3V$; $GND = 0V$) (Note 3.)

Symbol	Characteristic	-40°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
I_{CC}	Power Supply Current HIGH (Note 1.)	TBD	TBD	TBD	TBD	38.5	TBD	TBD	TBD	TBD	mA
V_{OH}	Output HIGH Voltage (Note 2.)	2165	2240	2415	2230	2355	2480	2290	2415	2540	mV
V_{OL}	Output LOW Voltage (Note 2.)	1365	1490	1615	1430	1555	1680	1490	1615	1740	mV

NOTE: 10EP circuits are designed to meet the DC specifications shown in the above table after thermal equilibrium has been established.

The circuit is in a test socket or mounted on a printed circuit board and transverse airflow greater than 500lfpm is maintained.

1. $V_{CC} = 3.3V$, $GND = 0V$, all other pins floating.

2. All loading with 50 ohms to V_{CC} -2.0 volts.

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

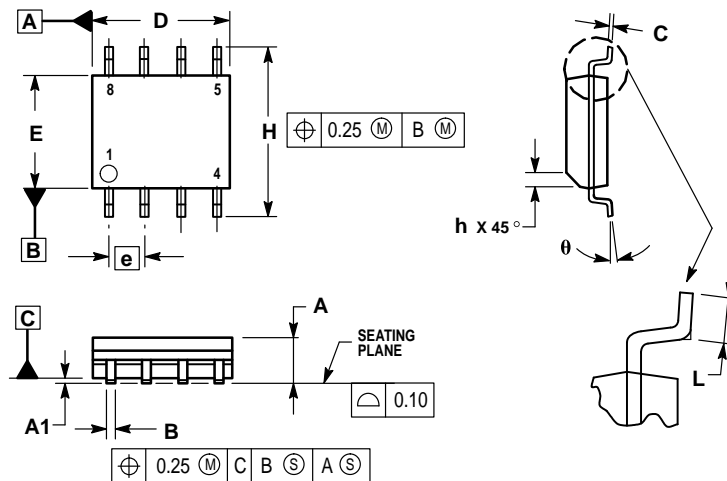
AC CHARACTERISTICS ($V_{CC} = 3.3V \pm 0.3V$; $GND = 0V$)

Symbol	Characteristic	-40°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
f_{max}	Maximum Toggle Frequency (Note 4.)	TBD			TBD	>1.0		TBD			GHz
t_{PLH} , t_{PHL}	Propagation Delay to Output Differential		TBD TBD			340 390			TBD TBD		ps
t_{JITTER}	Cycle-to-Cycle Jitter		TBD			TBD			TBD		ps
t_r , t_f	Output Rise/Fall Times (20% – 80%) Q, \bar{Q}		TBD			120			TBD		ps

4. F_{max} guaranteed for functionality only. V_{OL} and V_{OH} levels are guaranteed at DC only.

OUTLINE DIMENSIONS


SO-8, D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-06
ISSUE T



NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. DIMENSIONS ARE IN MILLIMETER.
3. DIMENSION D AND E DO NOT INCLUDE MOLD PROTRUSION.
4. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
5. DIMENSION B DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 TOTAL IN EXCESS OF THE B DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS	
	MIN	MAX
A	1.35	1.75
A1	0.10	0.25
B	0.35	0.49
C	0.19	0.25
D	4.80	5.00
E	3.80	4.00
e	1.27 BSC	
H	5.80	6.20
h	0.25	0.50
L	0.40	1.25
θ	0°	7°

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