

Product Preview

1:4 ÷1/÷2 ECL/PECL Clock Fanout Buffer

The MC100LVEL37 is a fully differential 1:4 fanout buffer. The device offers two outputs at +1 of the input frequency, and two outputs at +2 of the input frequency. The Low Output–Output Skew of the device makes it ideal for distributing 1x and 1/2x frequency synchronous signals.

The differential inputs have special circuitry which ensures device stability under open input conditions. When both differential inputs are left open the D input will pull down to V_{EE}, The D input will bias around V_{CC}/2 and the Q output will go LOW.

- Differential Inputs and Outputs
- 20–Lead SOIC Packaging
- 700ps Typical Propagation Delays
- 50ps Output–Output Skews
- Low Voltage 100K ECL
- >2000V ESD Protection

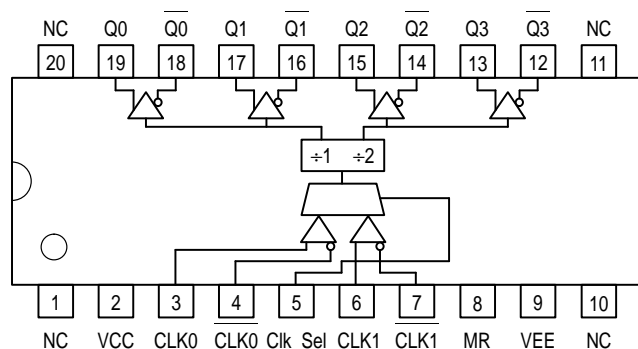


Figure 1. 20–Lead Pinout (Top View)

MC100LVEL37



PIN NAMES

Pins	Function
Q _n a, Q _n a _̄	Differential Clock Outputs
CLK _n , CLK _n _̄	Differential Clock Inputs
Clk_Sel	Input Clock Selection '0' Selects CLK0; '1' Selects CLK1
MR	Asynchronous Master Reset '1' Resets Dividers

MC100LVEL37 DC CHARACTERISTICS (V_{EE} = –3.0V to –3.8V; 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	
I _{EE}	Power Supply Current		38			38			38			38		mA
I _{IH}	Input HIGH Current			150			150			150			150	μA
I _{INL}	Input LOW Current	CLK _n CLK _n _̄	0.5 –300		0.5 –300			0.5 –300			0.5 –300			μA

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



MC100LVEL37

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AC CHARACTERISTICS ($V_{EE} = -3.0V$ to $-3.8V$; $V_{CC} = GND$)

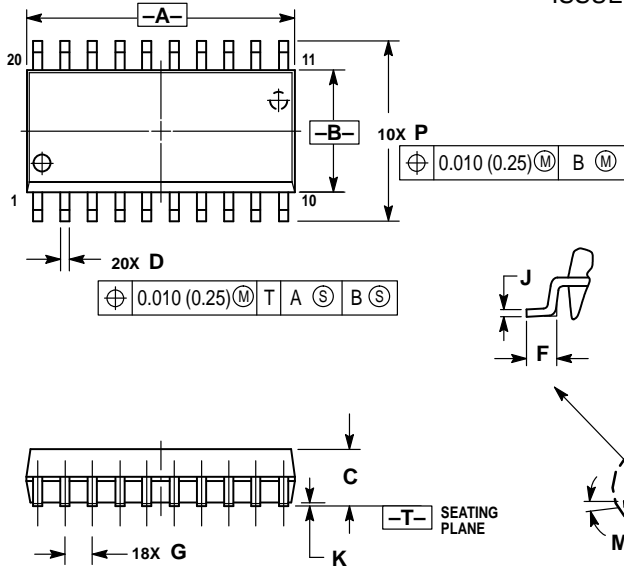
Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
t _{PLH} t _{PHL}	Propagation Delay — CLK→Q/Q Clk_Sel→Q MR→Q		700 800 800			700 800 800			700 800 800			700 800 800		ps
t _{sk(O)}	Output–Output Skew			50			50			50			50	ps
t _{sk(DC)}	Duty Cycle Skew t _{PLH} –t _{PHL}			50			50			50			50	ps
V _{PP}	Minimum Input Swing (Note 1.)	150		1000	150		1000	150		1000	150		1000	mV
V _{CMR}	Common Mode Range (Note 2.) V _{PP} < 500mV V _{PP} ≥ 500mV	-2.0 -1.8		-0.4 -0.4	-2.1 -1.9		-0.4 -0.4	-2.1 -1.9		-0.4 -0.4	-2.1 -1.9		-0.4 -0.4	V
t _r t _f	Output Rise/Fall Times Q (20% – 80%)	230		500	230		500	230		500	230		500	ps

1. Minimum input swing for which AC parameters guaranteed. The device has a DC gain of ≈40.

2. The CMR range is referenced to the most positive side of the differential input signal. Normal operation is obtained if the HIGH level falls within the specified range and the peak-to-peak voltage lies between V_{ppmin} and 1V. The lower end of the CMR range varies 1:1 with V_{EE}. The numbers in the spec table assume a nominal V_{EE} = -3.3V. Note for PECL operation, the V_{CMR(min)} will be fixed at 3.3V – |V_{CMR(min)}|.

OUTLINE DIMENSIONS

DW SUFFIX
PLASTIC SOIC WIDE PACKAGE
CASE 751D-04
ISSUE E



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: MILLIMETER.
 3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION.
 4. MAXIMUM MOLD PROTRUSION 0.150 (0.006) PER SIDE.
 5. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.13 (0.005) TOTAL IN EXCESS OF D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	12.65	12.95	0.499	0.510
B	7.40	7.60	0.292	0.299
C	2.35	2.65	0.093	0.104
D	0.35	0.49	0.014	0.019
F	0.50	0.90	0.020	0.035
G	1.27 BSC		0.050 BSC	
J	0.25	0.32	0.010	0.012
K	0.10	0.25	0.004	0.009
M	0° - 7°		0° - 7°	
P	10.05	10.55	0.395	0.415
R	0.25	0.75	0.010	0.029

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