

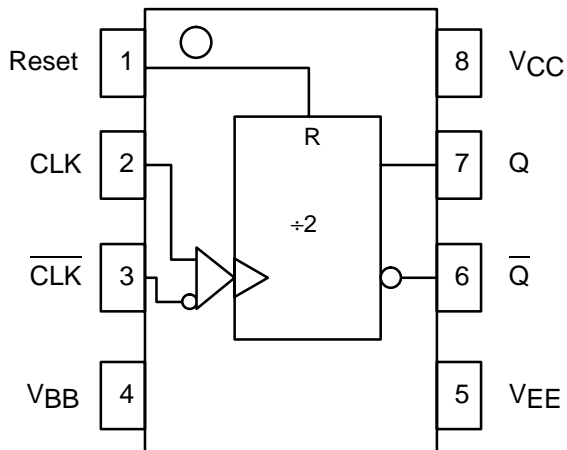
÷2 Divider

The MC10EL/100EL32 is an integrated ÷2 divider. The differential clock inputs and the V_{BB} allow a differential, single-ended or AC coupled interface to the device. If used, the V_{BB} output should be bypassed to ground with a 0.01 μ F capacitor. Also note that the V_{BB} is designed to be used as an input bias on the EL32 only, the V_{BB} output has limited current sink and source capability.

The reset pin is asynchronous and is asserted on the rising edge. Upon power-up, the internal flip-flop will attain a random state; the reset allows for the synchronization of multiple EL32's in a system.

- 510ps Propagation Delay
- 3.0GHz Toggle Frequency
- High Bandwidth Output Transitions
- 75k Ω Internal Input Pulldown Resistors
- >1000V ESD Protection

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



MC10EL32 MC100EL32



D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05

PIN DESCRIPTION

PIN	FUNCTION
CLK	Clock Inputs
Reset	Asynch Reset
V_{BB}	Ref Voltage Output
Q	Data Outputs



DC CHARACTERISTICS ($V_{EE} = V_{EE}(\text{min})$ to $V_{EE}(\text{max})$; $V_{CC} = \text{GND}$)

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 10EL 100EL		25 25	30 30		25 25	30 30		25 25	30 30		25 29	30 35	mA
V_{EE}	Power Supply Voltage 10EL 100EL		-5.2 -4.5		-4.75 -4.20	-5.2 -4.5	-5.5 -5.5	-4.75 -4.20	-5.2 -4.5	-5.5 -5.5	-4.75 -4.20	-5.2 -4.5	-5.5 -5.5	V
V_{BB}	Output Reference Voltage 10EL 100EL	-1.43 -1.38		-1.30 -1.26	-1.38 -1.38		-1.27 -1.26	-1.35 -1.38		-1.25 -1.26	-1.31 -1.38		-1.19 -1.26	V
I_{IH}	Input HIGH Current			150			150			150			150	μA

AC CHARACTERISTICS ($V_{EE} = V_{EE}(\text{min})$ to $V_{EE}(\text{max})$; $V_{CC} = \text{GND}$)

Symbol	Characteristic	-40°C			0°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
f_{MAX}	Maximum Toggle Frequency	2.2	3.0		2.6	3.0		2.6	3.0		2.6	3.0		GHz
t_{PLH} t_{PHL}	Propagation Delay CLK to Q Reset to Q	360 390	500 540	640 690	410 440	500 540	590 640	420 440	510 540	600 640	450 450	540 550	630 650	ps
V_{PP}	Minimum Input Swing ¹	150			150			150			150			mV
t_r t_f	Output Rise/Fall Times Q (20% – 80%)	100	225	350	100	225	350	100	225	350	100	225	350	ps

1. Minimum input swing for which AC parameters are guaranteed.

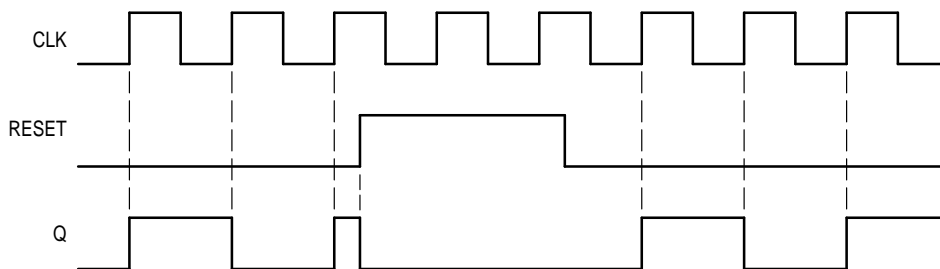


Figure 1. Timing Diagram

OUTLINE DIMENSIONS

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05
ISSUE P



NOTES:

1. DIMENSIONS A AND B ARE DATUMS AND T IS A DATUM SURFACE.
2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
3. DIMENSIONS ARE IN MILLIMETER.
4. DIMENSION A AND B DO NOT INCLUDE MOLD PROTRUSION.
5. MAXIMUM MOLD PROTRUSION 0.15 PER SIDE.
6. DIMENSION D DOES NOT INCLUDE MOLD PROTRUSION. ALLOWABLE DAMBAR PROTRUSION SHALL BE 0.127 TOTAL IN EXCESS OF THE D DIMENSION AT MAXIMUM MATERIAL CONDITION.

DIM	MILLIMETERS	
	MIN	MAX
A	4.80	5.00
B	3.80	4.00
C	1.35	1.75
D	0.35	0.49
F	0.40	1.25
G	1.27 BSC	
J	0.18	0.25
K	0.10	0.25
M	0°	7°
P	5.80	6.20
R	0.25	0.50

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