÷4 Divider

MC10EL33
MC100EL33

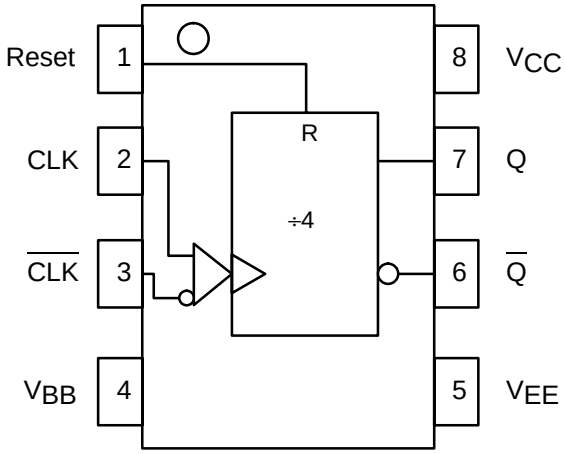
The MC10EL/100EL33 is an integrated ÷4 divider. The differential clock inputs and the V_{BB} allow a differential, single-ended or AC coupled interface to the device. If used, the V_{BB} output should be bypassed to ground with a 0.01µF capacitor. Also note that the V_{BB} is designed to be used as an input bias on the EL33 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-flops will attain a random state; the reset allows for the synchronization of multiple EL33's in a system.

- 650ps Propagation Delay
- 4.0GHz Toggle Frequency
- High Bandwidth Output Transitions
- 75kΩ Internal Input Pulldown Resistors
- >1000V ESD Protection

D SUFFIX
PLASTIC SOIC PACKAGE
CASE 751-05

LOGIC DIAGRAM AND PINOUT ASSIGNMENT



PIN DESCRIPTION

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

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

		–40°C			0°C			25°C			85°C			
Symbol	**Characteristic**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Unit**
I_{EE}	Power Supply Current 10EL		27	33		27	33		27	33		27	33	mA
	100EL		27	33		27	33		27	33		31	37	
V_{EE}	Power Supply Voltage 10EL		–5.2		–4.75	–5.2	–5.5	–4.75	–5.2	–5.5	–4.75	–5.2	–5.5	V
	100EL		–4.5		–4.20	–4.5	–5.5	–4.20	–4.5	–5.5	–4.20	–4.5	–5.5	
V_{BB}	Output Reference Voltage 10EL	–1.43		–1.30	–1.38		–1.27	–1.35		–1.25	–1.31		–1.19	V
	100EL	–1.38		–1.26	–1.38		–1.26	–1.38		–1.26	–1.38		–1.26	
I_{IH}	Input HIGH Current			150			150			150			150	µA

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

		–40°C			0°C			25°C			85°C			
Symbol	**Characteristic**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Min**	**Typ**	**Max**	**Unit**
f_{MAX}	Maximum Toggle Frequency	3.4	4.2		3.8	4.2		3.8	4.2		3.8	4.2		GHz
t_{PLH}	Propagation Delay CLK to Q	490	630	770	540	630	720	550	640	730	590	670	760	
t_{PHL}	Reset to Q	310	460	610	360	460	560	360	460	560	380	480	580	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.

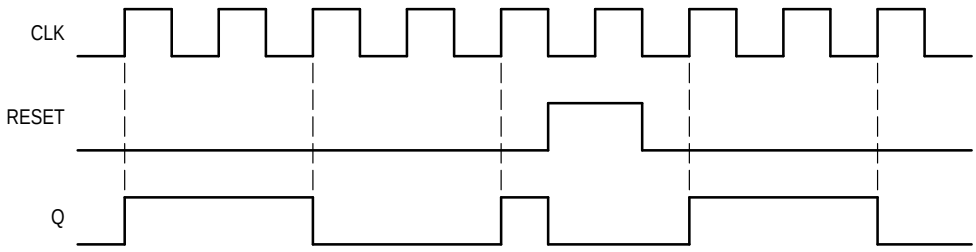
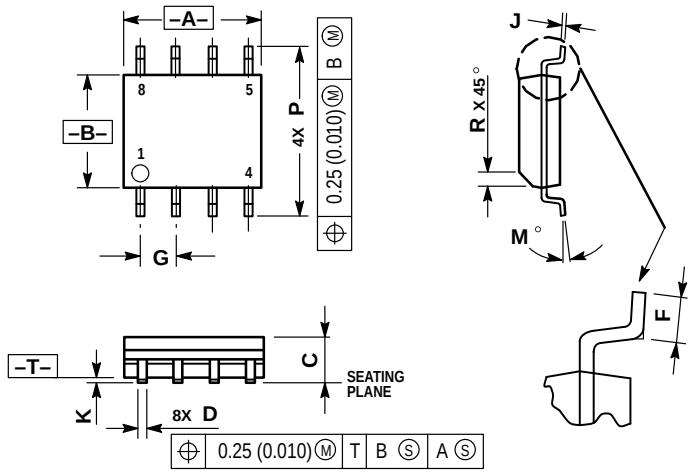


Figure 1. Timing Diagram

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.

	MILLIMETERS	
DIM	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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