

5 V ECL 1:4 Clock Distribution Chip

MC10EL15, MC100EL15

Description

The MC10EL/100EL15 is a low skew 1:4 clock distribution chip designed explicitly for low skew clock distribution applications. The V_{BB} pin, an internally generated voltage supply, is available to this device only. For single-ended input conditions, the unused differential input is connected to V_{BB} as a switching reference voltage. V_{BB} may also rebias AC coupled inputs. When used, decouple V_{BB} and V_{CC} via a 0.01 μF capacitor and limit current sourcing or sinking to 0.5 mA. When not used, V_{BB} should be left open.

The EL15 features a multiplexed clock input to allow for the distribution of a lower speed scan or test clock along with the high speed system clock. When LOW (or left open and pulled LOW by the input pulldown resistor) the SEL pin will select the differential clock input.

The common enable ($\overline{\text{EN}}$) is synchronous so that the outputs will only be enabled/disabled when they are already in the LOW state. This avoids any chance of generating a runt clock pulse when the device is

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$\overline{0}$ $\overline{1}$ $\overline{2}$

Figure 1. Logic Diagram and Pinout Assignment

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Table 4. MAXIMUM RATINGS

Symbol	Parameter	Condition 1	Condition 2	Rating	Unit
V_{CC}	PECL Mode Power Supply	$V_{EE} = 0\text{ V}$		8	V
V_{EE}	NECL Mode Power Supply	$V_{CC} = 0\text{ V}$		-8	V
I_{out}	Output Current	Continuous Surge		50 100	mA
V_I	PECL Mode Input Voltage NECL Mode Input Voltage	$V_{EE} = 0\text{ V}$ $V_{CC} = 0\text{ V}$	$V_I \leq V_{CC}$ $V_I \geq V_{EE}$	6 -6	

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Table 8. 100EL SERIES NECL DC CHARACTERISTICS ($V_{CC} = 0\text{ V}$; $V_{EE} = -5.0\text{ V}$ (Note 1))

Symbol	Characteristic	-40°C			25°C			85°C			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
I_{EE}	Power Supply Current		25	35		25	35		25	38	mA
V_{OH}	Output HIGH Voltage (Note 2)	-1085	-1005	-880	-1025	-955	-880	-1025	-955	-880	mV
V_{OL}	Output LOW Voltage (Note 2)	-1830	-1695	-1555	-1810	-1705					

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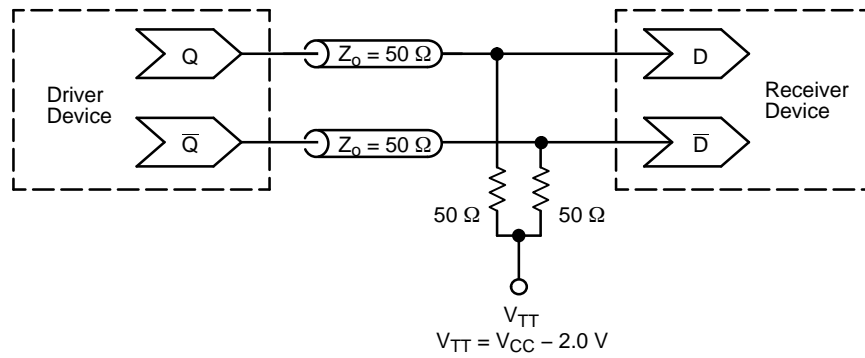


Figure 2. Typical Termination for Output Driver and Device Evaluation
(See Application Note [AND8020/D](#) – Termination of ECL Logic Devices.)

Resource Reference of Application Notes

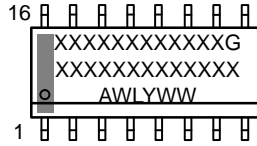
- AN1405/D** – ECL Clock Distribution Techniques
 - AN1406/D** – Designing with PECL (ECL at +5.0 V)
 - AN1503/D** – ECLinPS™ I/O SPICE Modeling Kit
 - AN1504/D** – Metastability and the ECLinPS Family
 - AN1568/D** – Interfacing Between LVDS and ECL
 - AN1672/D** – The ECL Translator Guide
- VD91347tability 7.9228 4.92 3.5Odd5T4 1 Tf7.9228 4.913452/D

SOIC-16 9.90x3.90x1.50 1.27P
CASE 751B
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DATE 29 MAY 2024

**GENERIC
MARKING DIAGRAM***



XXXXX = Specific Device Code
A = Assembly Location
WL = Wafer Lot
Y = Year
WW = Work Week
G = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

<p>S 1: 1. C C ✓ 2. BAS ✓ 3. ✓ 4. C C ✓ 5. ✓ 6. BAS ✓ 7. C C ✓ 8. C C ✓ 9. BAS ✓ 10. ✓ 11. C C ✓ 12. ✓ 13. BAS ✓ 14. C C ✓ 15. ✓ 16. C C ✓</p>	<p>S 2: 1. CA ✓ 2. A ✓ 3. C C ✓ 4. CA ✓ 5. CA ✓ 6. C C ✓ 7. A ✓ 8. CA ✓ 9. CA ✓ 10. A ✓ 11. C C ✓ 12. CA ✓ 13. CA ✓ 14. C C ✓ 15. A ✓ 16. CA ✓</p>	<p>S 3: 1. C C , #1 ✓ 2. BAS , #1 ✓ 3. , #1 ✓ 4. C C , #1 ✓ 5. C C , #2 ✓ 6. BAS , #2 ✓ 7. , #2 ✓ 8. C C , #2 ✓ 9. C C , #3 ✓ 10. BAS , #3 ✓ 11. , #3 ✓ 12. C C , #3 ✓ 13. C C , #4 ✓ 14. BAS , #4 ✓ 15. , #4 ✓ 16. C C , #4 ✓</p>	<p>S 4: 1. C C , #1 ✓ 2. C C , #1 ✓ 3. C C , #2 ✓ 4. C C , #2 ✓ 5. C C , #3 ✓ 6. C C , #3 ✓ 7. C C , #4 ✓ 8. C C , #4 ✓ 9. BAS , #4 ✓ 10. , #4 ✓ 11. BAS , #3 ✓ 12. BAS , #3 ✓ 13. BAS , #2 ✓ 14. BAS , #2 ✓ 15. BAS , #1 ✓ 16. , #1 ✓</p>
<p>S 5: 1. A , #1 ✓ 2. A , #1 ✓ 3. A , #2 ✓ 4. A , #2 ✓ 5. A , #3 ✓ 6. A , #3 ✓ 7. A , #4 ✓ 8. A , #4 ✓ 9. A , #4 ✓ 10. S C , #4 ✓ 11. A , #3 ✓ 12. S C , #3 ✓ 13. A , #2 ✓ 14. S C , #2 ✓ 15. A , #1 ✓ 16. S C , #1 ✓</p>	<p>S 6: 1. CA ✓ 2. CA ✓ 3. CA ✓ 4. CA ✓ 5. CA ✓ 6. CA ✓ 7. CA ✓ 8. CA ✓ 9. A ✓ 10. A ✓ 11. A ✓ 12. A ✓ 13. A ✓ 14. A ✓ 15. A ✓ 16. A ✓</p>	<p>S 7: 1. S C -C ✓ 2. C A () ✓ 3. C A () ✓ 4. A -C ✓ 5. C A () ✓ 6. C A () ✓ 7. C A () ✓ 8. S C -C ✓ 9. S C -C ✓ 10. C A () ✓ 11. C A () ✓ 12. C A () ✓ 13. A -C ✓ 14. C A () ✓ 15. C A () ✓ 16. S C -C ✓</p>	

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