



PL133 & PL135 Product Overview

March, 2011

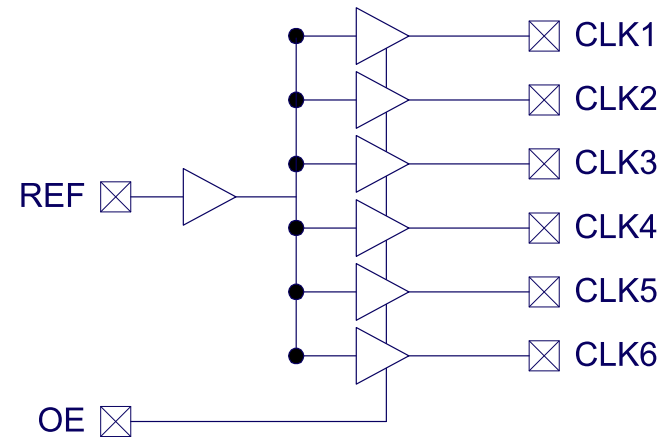


PL133 Product Overview: Fanout Buffer

March, 2011

6-Output Fan-out Buffer with FIN

- ◆ 1:6 output fanout buffer for DC to 150MHz
- ◆ 6 LVCMOS Outputs
- ◆ 8mA Output Drive Strength
- ◆ Low power consumption for portable applications
- ◆ Low input-output delay
- ◆ Output-Output skew less than 250ps
- ◆ **Low Additive Phase Jitter of 60fs RMS**
- ◆ 2.5V to 3.3V, $\pm 10\%$ operation
- ◆ Operating temperature range from -40°C to 85°C
- ◆ Available in 16-Pin SOP GREEN/RoHS package



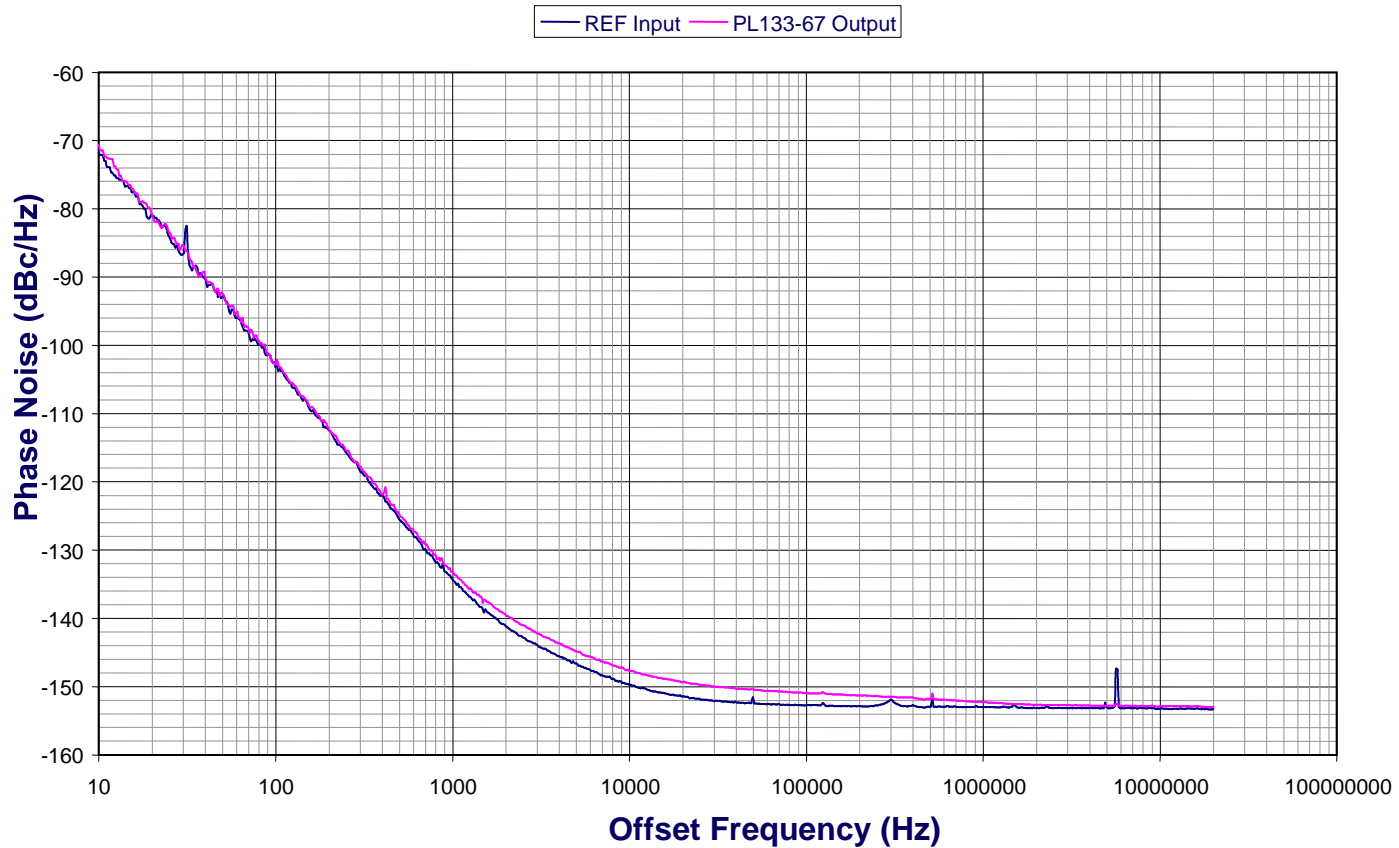
Definition of Additive Jitter

- ◆ When a buffer is used to pass a signal, then the buffer will add a little bit of its own noise to the signal.
- ◆ The phase noise on the output of the buffer will be a little bit more than the phase noise at the input signal.
- ◆ To quantify the noise addition in the buffer, we compare the Phase Jitter numbers from the input and the output.
- ◆ The difference is called "Additive Phase Jitter".
- ◆ The formula for the Additive Phase Jitter is as follows:

$$\text{Additive Phase Jitter} = \sqrt{(\text{Output Phase Jitter})^2 - (\text{Input Phase Jitter})^2}$$

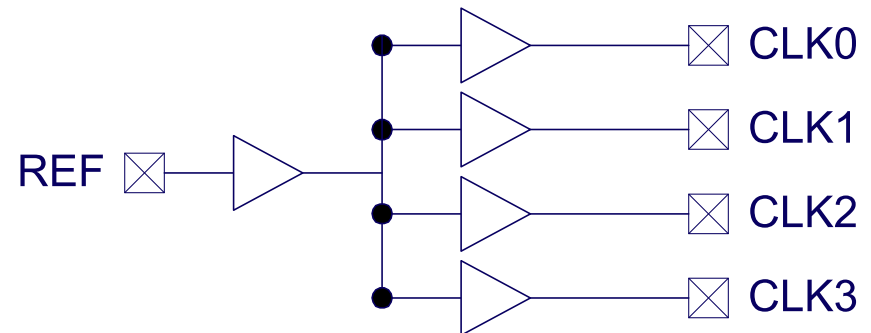
Definition of Additive Jitter (Cont.)

PL133-67 Additive Phase Jitter:
VDD=3.3V, CLK=100MHz, Integration Range 12KHz to 20MHz: 0.059ps typical.



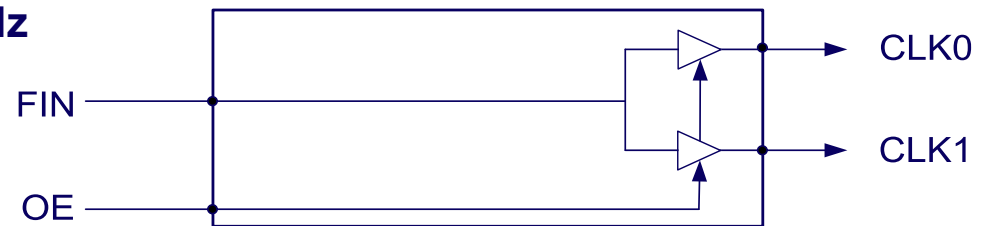
4-Output Fan-out Buffer with FIN

- ◆ 1:4 LVCMOS output fanout buffer for DC to 150MHz
- ◆ **Low Additive Phase Jitter of 60fs RMS**
- ◆ 8mA Output Drive Strength
- ◆ Low power consumption for portable applications
- ◆ Low input-output delay
- ◆ Output-Output skew less than 250ps
- ◆ 2.5V to 3.3V, $\pm 10\%$ operation
- ◆ Operating temperature range from -40°C to 85°C
- ◆ Available in 8-Pin SOP GREEN/RoHS package



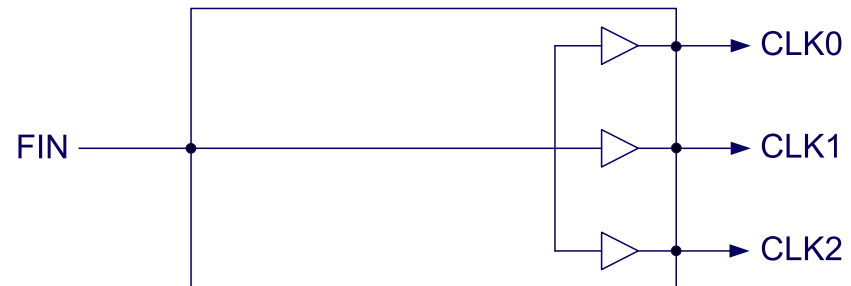
2-Output Fan-out Buffer with FIN & OE

- ◆ 2 LVCMOS Outputs
- ◆ Input/Output Frequency: 1MHz to 150MHz
- ◆ LVCMOS or Sine Wave Input Clock
- ◆ Extremely low additive Jitter
- ◆ 8 mA Output Drive Strength
- ◆ Low Current Consumption
- ◆ **Low Additive Phase Jitter of 70fs RMS**
- ◆ Single 1.8V, 2.5V, or 3.3V, $\pm 10\%$ Power Supply
- ◆ Operating Temperature Range
 - 0°C to 70°C (Commercial)
 - -40°C to 85°C (Industrial)
- ◆ Available in DFN-6L GREEN/RoHS Compliant Package



3-Output Fan-out Buffer with FIN

- ◆ Advanced Oscillator Design for Wide Frequency Coverage
- ◆ 3 LVCMOS Outputs
- ◆ 12 mA Output Drive Strength
- ◆ Input/Output Frequency:
 - Reference Clock: 1MHz to 150MHz
- ◆ Supports LVCMOS or Sine Wave Input Clock
- ◆ Very Low Jitter and Phase Noise
- ◆ Low Current Consumption
- ◆ Single 1.8V, 2.5V, or 3.3V, $\pm 10\%$ Power Supply
- ◆ Operating Temperature Range
 - 0°C to 70°C (Commercial)
 - -40°C to 85°C (Industrial)
- ◆ Available in SOT23-6L GREEN/RoHS Compliant Package



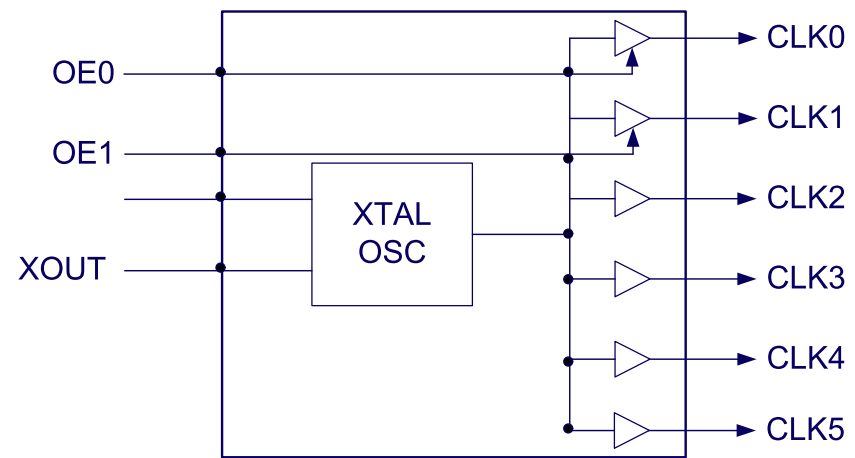


PL135 Product Overview: Multiple Outputs Oscillators

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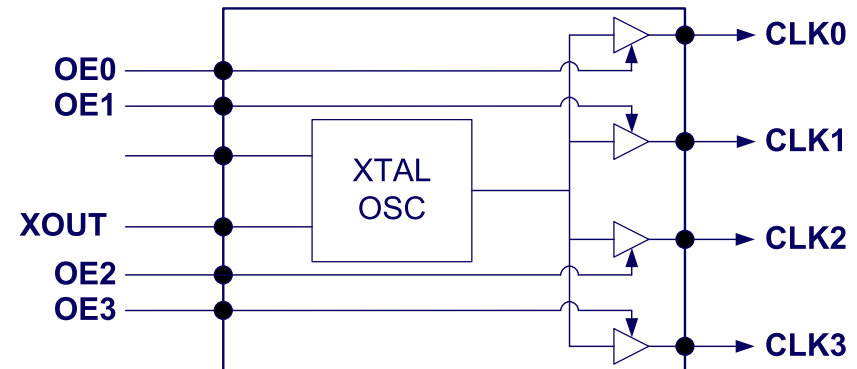
6-Output Oscillator Buffer with Xtal Input

- ◆ **Advanced Oscillator Design for Wide Frequency Coverage**
- ◆ **6 LVCMOS Outputs with 2 Output Enable Pins**
- ◆ **8mA Output Drive Strength**
- ◆ **Input/Output Frequency:**
 - **Fundamental Crystal: 10MHz to 40MHz**
- ◆ **Very Low Jitter and Phase Noise**
- ◆ **Low Current Consumption**
- ◆ **Single 1.62V to 3.63V Power Supply**
- ◆ **Available in QFN-16L and TSSOP-16L GREEN/RoHS Compliant Packages**



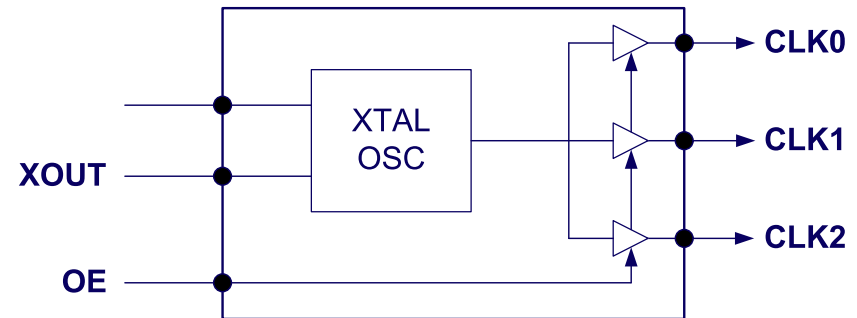
4-Output Oscillator Buffer with Xtal Input

- ◆ Advanced Oscillator Design for Wide Frequency Coverage
- ◆ 4 LVCMOS Outputs with Individual OE Control
- ◆ 8mA Output Drive Strength
- ◆ Input/Output Frequency:
 - Fundamental Crystal: 10MHz to 40MHz
- ◆ Very Low Jitter and Phase Noise
- ◆ Low Current Consumption
- ◆ Single 1.62V to 3.63V Power Supply
- ◆ Available in QFN-16L and TSSOP-16L GREEN/RoHS Compliant Packages



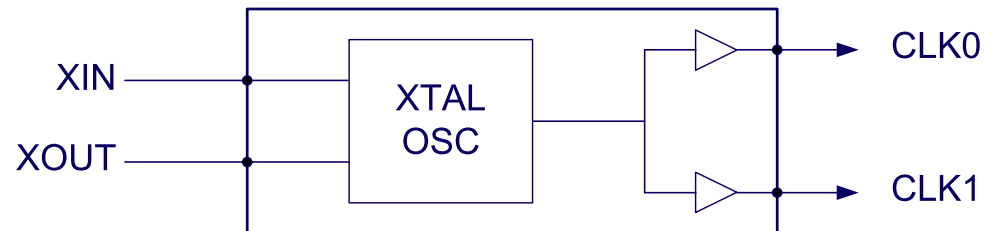
3-Output Oscillator Buffer with Xtal Input

- ◆ Advanced Oscillator Design for Wide Frequency Coverage
- ◆ 3 LVCMOS Outputs
- ◆ 12 mA Output Drive Strength
- ◆ Input/Output Frequency:
 - Fundamental Crystal: 10MHz to 40MHz
- ◆ Very Low Jitter and Phase Noise
- ◆ Low Current Consumption
- ◆ Single 1.62V to 3.63V Power Supply
- ◆ Available in SOP-8L GREEN/RoHS Compliant Package



2-Output Oscillator Buffer with Xtal Input

- ◆ **Advanced Oscillator Design for Wide Frequency Coverage**
- ◆ **2 LVCMOS Outputs**
- ◆ **8 mA Output Drive Strength**
- ◆ **Input/Output Frequency:**
 - **Fundamental Crystal: 10MHz to 40MHz**
- ◆ **Very Low Jitter and Phase Noise**
- ◆ **Low Current Consumption**
- ◆ **Single 1.62V to 3.63V Power Supply**
- ◆ **Available in DFN-6L GREEN/RoHS Compliant Package**



Thank You!