

# 1x, 4x, 128x, and 256x Clock Multiplier with Internal LCO

## Features

- ◆ Clock Multiplier / Jitter Reduction
  - Generates a Low Jitter 6 - 75 MHz Clock from a Jittery 23 kHz to 30 MHz Clock Source
- ◆ Internal LCO Reference Clock
- ◆ 128 Hz Loop Filter Bandwidth
- ◆ Selectable Multiplication Factors
  - 1x, 4x, 128x, and 256x
- ◆ Selectable Aux Output Pin
- ◆ Minimal Board Space Required
  - No External Analog Loop-filter Components

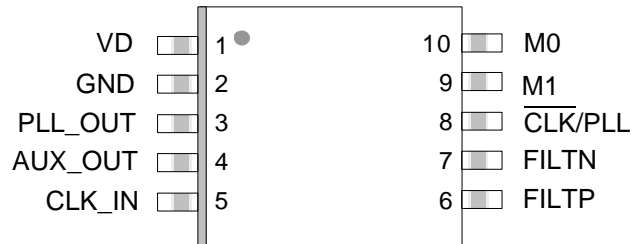
## General Description

The CS2300-03 is an extremely versatile system clocking device that utilizes a programmable phase lock loop. The CS2300-03 is based on a hybrid analog-digital PLL architecture comprised of a unique combination of a Delta-Sigma Fractional-N Frequency Synthesizer and a Digital PLL. This architecture allows for generation of a low-jitter clock relative to an external noisy synchronization clock with frequencies as low as 23 kHz. The CS2300-03 is a CS2300-OTP device that has been pre-configured at the factory. There are three hardware configuration pins available for mode and feature selection.

## Ordering Information

The CS2300-03 is available in a 10-pin MSOP package in Commercial (-10°C to +70°C) grade. Customer development kits are also available for custom device prototyping and device evaluation. Please see “[Ordering Information](#)” on page 2 for complete details.

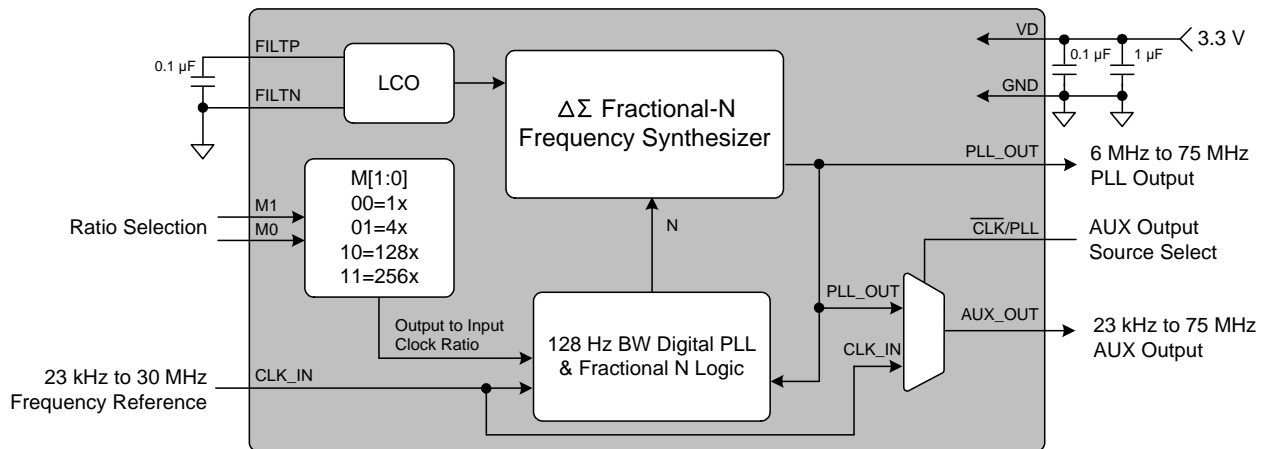
## Pin-Out Diagram



## Hardware Controls Settings

M1	M0	PLL_OUT
0	0	1x CLK_IN
0	1	4x CLK_IN
1	0	128x CLK_IN
1	1	256x CLK_IN

CLK/PLL	AUX_OUT Source
0	CLK_IN
1	PLL_OUT



## 1. PIN DESCRIPTIONS

Pin Name	#	Pin Description
VD	1	Digital Power
GND	2	Ground
PLL_OUT	3	PLL Clock Output
AUX_OUT	4	AUX Output
CLK_IN	5	Clock Input
FILTP	6	LCO Filter Connections
FILTN	7	
CLK/PLL	8	AUX Output Source Selection Input
M1	9	Mode Selection Inputs
M0	10	

See the CS2300-OTP datasheet for additional pin description information.

## 2. SPECIFICATIONS

Please see the CS2300-OTP datasheet for package information, device characteristics, and specifications except where noted due to specific programming options.

## 3. OPERATIONAL INFORMATION

Complete operational information can be found in the CS2300-OTP datasheet. Specific operational details dictated by the programming of the CS2300-03 are included below.

- The PLL clock output is forced to 0 when the PLL is unlocked, both upon loss of the CLK\_IN signal or briefly when switching mode pin configurations.
- The minimum loop filter bandwidth once locked is 128 Hz.

## 4. CONFIGURATION INFORMATION

The CS2300-03 has been factory pre-programmed with a unique configuration. The following table outlines the specific configuration profile which can be compared to the CS2300-OTP datasheet for detailed functional descriptions.

<i>OTP Modal and Global Configuration Parameters Form</i>							
	Mode 0		Mode 1		Mode 2		Mode 3
<b>Ratio 0 (dec)</b>	1		4		128		256
<b>Ratio 0 (hex)</b>	00:10:00:00		00:40:00:00		08:00:00:00		10:00:00:00
<b>RModSel1</b>	0		0		0		0
<b>RModSel0</b>	0		0		0		0
<b>AuxOutSrc1</b>	0		0		0		0
<b>AuxOutSrc0</b>	1		1		1		1
<b>AutoRMod</b>	0		0		0		0
Global Configuration Set							
ClkSkipEn	AuxLockCfg	ClkOutUnl	LFRatioCfg	M2Cfg2	M2Cfg1	M2Cfg0	
0	0	0	1	1	1	1	
ClkIn_BW2	ClkIn_BW1	ClkIn_BW0					
1	1	1					

## 5. ORDERING INFORMATION

Product	Description	Package	Pb-Free	Grade	Temp Range	Container	Order#
CS2300-03	Clocking Device	10L-MSOP	Yes	Commercial	-10° to +70°C	Rail	CS230003-CZZ
						Tape and Reel	CS230003-CZZR
CDK-2000	Evaluation Platform	-	Yes	-	-	-	CDK-2000-LCO

## 6. REVISION HISTORY

Release	Changes
A1	Initial Release

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### Contacting Cirrus Logic Support

For all product questions and inquiries, contact a Cirrus Logic Sales Representative.  
To find one nearest you, go to [www.cirrus.com](http://www.cirrus.com).

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### Наши контакты:

**Телефон:** +7 812 627 14 35

**Электронная почта:** [sales@st-electron.ru](mailto:sales@st-electron.ru)

**Адрес:** 198099, Санкт-Петербург,  
Промышленная ул, дом № 19, литера Н,  
помещение 100-Н Офис 331