

## 1x, 2x, 4x, and 8x Clock Multiplier with Internal LCO

### Features

- ◆ Clock Multiplier / Jitter Reduction
  - Generates a Low Jitter 6 - 75 MHz Clock from a Jittery 750 kHz to 30 MHz Clock Source
- ◆ Internal LCO Reference Clock
- ◆ 1 Hz Loop Filter Bandwidth
- ◆ Selectable Multiplication Factors
  - 1x, 2x, 4x, and 8x
- ◆ Output Enable Pin
- ◆ Lock Indicator
- ◆ Minimal Board Space Required
  - No External Analog Loop-filter Components

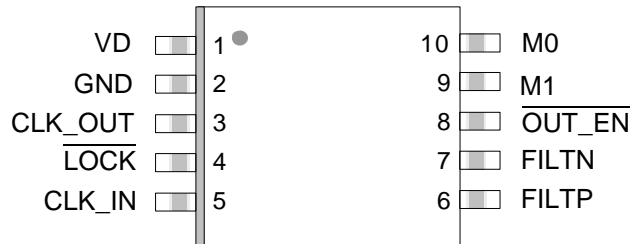
### General Description

The CS2300-01 is an extremely versatile system clocking device that utilizes a programmable phase lock loop. The CS2300-01 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 750 kHz. The CS2300-01 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 CS2300-01 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.

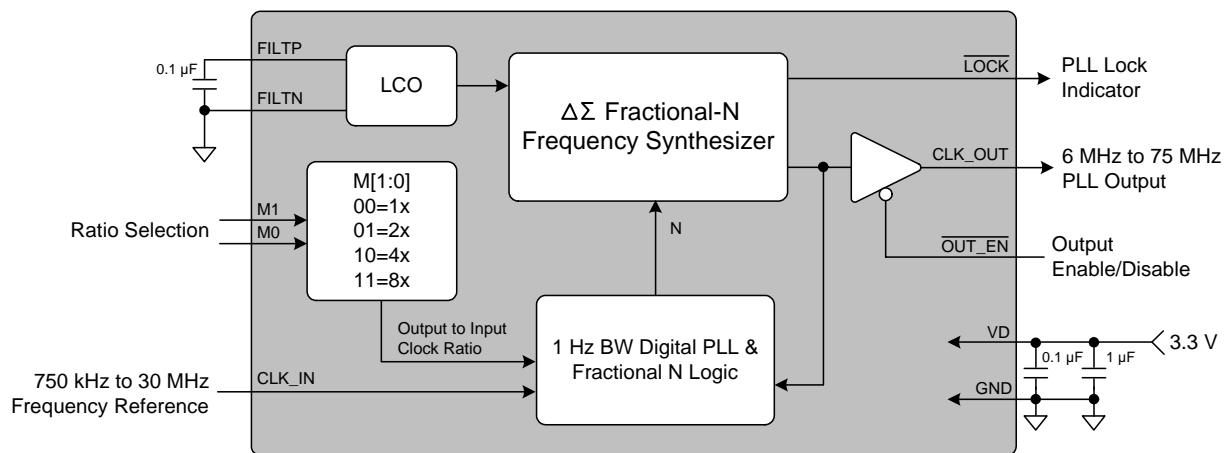
### Pin-Out Diagram



### Hardware Controls Settings

M1	M0	PLL_OUT
0	0	1x CLK_IN
0	1	2x CLK_IN
1	0	4x CLK_IN
1	1	8x CLK_IN

OUT_EN	CLK_OUT
0	Enabled
1	High Impedance



## 1. PIN DESCRIPTIONS

Pin Name	#	Pin Description
VD	1	Digital Power
GND	2	Ground
CLK_OUT	3	PLL Clock Output
LOCK	4	Active Low PLL Lock Indicator
CLK_IN	5	Clock Input
FILTP	6	LCO Filter Connections
FILT_N	7	
OUT_EN	8	Active Low CLK_OUT Enable 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 CS2300-01 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 1 Hz.

## 4. CONFIGURATION INFORMATION

The CS2300-01 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	2	4	8		
<b>Ratio 0 (hex)</b>	00:10:00:00	00:20:00:00	00:40:00:00	00:80:00:00		
<b>RModSel1</b>	0	0	0	0		
<b>RModSel0</b>	0	0	0	0		
<b>AuxOutSrc1</b>	1	1	1	1		
<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	0	0	0
ClkIn_BW2	ClkIn_BW1	ClkIn_BW0				
0	0	0				

## 5. ORDERING INFORMATION

Product	Description	Package	Pb-Free	Grade	Temp Range	Container	Order#
CS2300-01	Clocking Device	10L-MSOP	Yes	Commercial	-10° to +70°C	Rail	CS230001-CZZ
						Tape and Reel	CS230001-CZZR
CDK-2000	Evaluation Platform	-	Yes	-	-	-	CDK-2000-LCO

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## 6. REVISION HISTORY

Release	Changes
A1	Initial Release
A2	Corrected part number
A3	Reduced page count and updated formatting
A4	Updated formatting

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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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