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
- 128 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

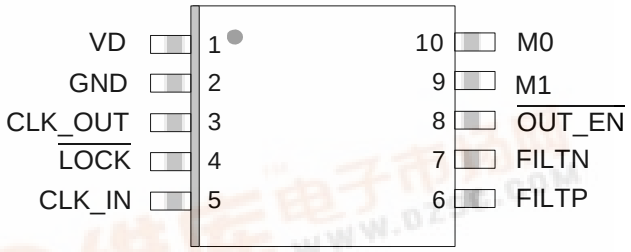
General Description

The CS2300-02 is an extremely versatile system clocking device that utilizes a programmable phase lock loop. The CS2300-02 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 CS2300-02 is a CS2300-OTP device that has been preconfigured at the factory. There are three hardware configuration pins available for mode and feature selection.

Ordering Information

The CS2300-02 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.

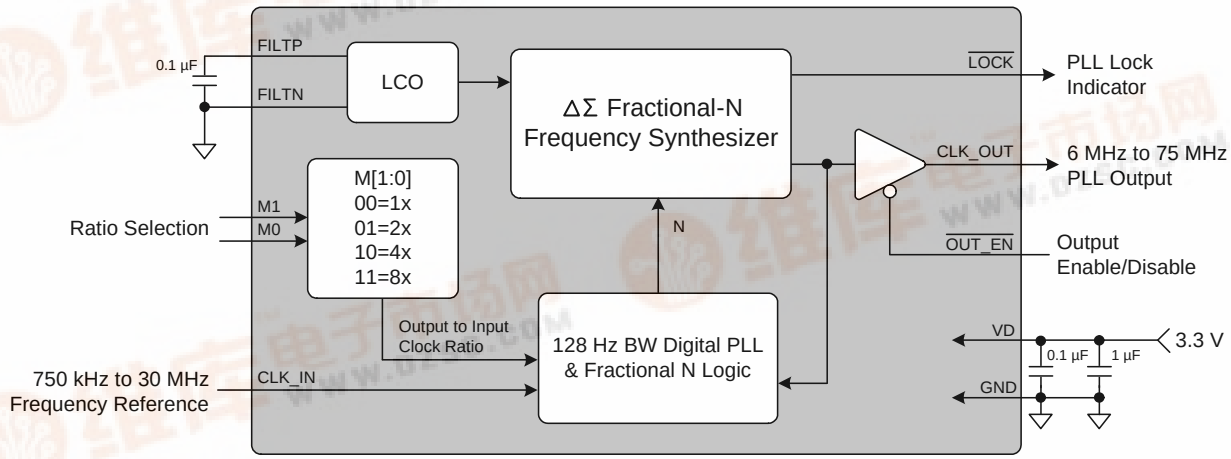
Pin-Out Diagram



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

$\overline{\text{OUT\_EN}}$	CLK_OUT
0	Enabled
1	High Impedance



Advance Product Information

This document contains information for a new product.
Cirrus Logic reserves the right to modify this product without notice.

1. PIN DESCRIPTIONS

Pin Name	#	Pin Description
VD	1	Digital Power
GND	2	Ground
CLK_OUT	3	PLL Clock Output
$\overline{\text{LOCK}}$	4	Active Low PLL Lock Indicator
CLK_IN	5	Clock Input
FILTP FILTN	6 7	LCO Filter Connections
$\overline{\text{OUT\_EN}}$	8	Active Low CLK_OUT Enable Input
M1 M0	9 10	Mode Selection Inputs

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 CS2300-02 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 CS2300-02 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.

OTP Modal and Global Configuration Parameters Form						
	Mode 0	**Mode 1**	**Mode 2**	**Mode 3**		
Ratio 0 (dec)	1	2	4	8		
Ratio 0 (hex)	00:10:00:00	00:20:00:00	00:40:00:00	00:80:00:00		
RModSel1	0	0	0	0		
RModSel0	0	0	0	0		
AuxOutSrc1	1	1	1	1		
AuxOutSrc0	1	1	1	1		
AutoRMod	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				
1	1	1				

5. ORDERING INFORMATION

Product	Description	Package	Pb-Free	Grade	Temp Range	Container	Order#
CS2300-02	Clocking Device	10L-MSOP	Yes	Commercial	-10° to +70°C	Rail	CS230002-CZZ
						Tape and Reel	CS230002-CZZR
CDK-2000	Evaluation Platform	-	Yes	-	-	-	CDK-2000-LCO

6. REVISION HISTORY

Release	Changes
A1	Initial Release

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.