



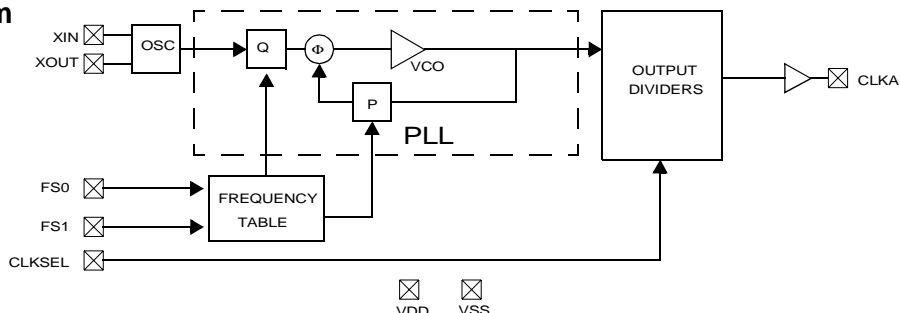
CY24115

MediaClock™ Mini Disc Clock Generator

Features	Benefits
• Integrated phase-locked loop (PLL)	High-performance PLL tailored for mini disc applications
• Low-jitter, high-accuracy outputs	Meets critical timing requirements in complex system designs
• 3.3V operation	Enables application compatibility
• 8-pin SOIC package	Industry standard package saves on board space

Part Number	Outputs	Input Frequency Range	Output Frequencies
CY24115-1	1	1 MHz–30 MHz	45.1584 MHz/90.3168 MHz (selectable)
CY24115-2	1	1 MHz–30 MHz	90.3168 MHz/180.6336 MHz (selectable)

Logic Block Diagram



Pin Configurations

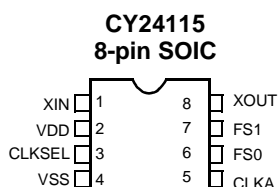


Table 1. CLKSEL Function CY24115-1

CLKSEL	CLKA	Unit	PPM Error
0	45.1584	MHz	0
1	90.3168	MHz	0

Table 2. CLKSEL Function, CY24115-2

CLKSEL	CLKA	Unit	PPM Error
0	90.3168	MHz	0
1	180.6336	MHz	0

Table 3. Input Frequency Function, CY24115-1 and CY24115-2

FS1	FS0	Xtal Input	Unit
0	0	2.8224	MHz
0	1	5.6448	MHz
1	0	11.2896	MHz
1	1	22.5792	MHz

Pin Summary

Pin Name	Pin Number	Pin Description
X _{IN}	1	Reference input (crystal or external input)
V _{DD}	2	3.3V voltage supply
CLKSEL	3	CLKA Select Line For 24115-1, see <i>Table 1</i> for output values For 24115-2, see <i>Table 2</i> for output values
V _{SS}	4	Ground
CLKA	5	24115-1: 45.1584 MHz/90.3168 MHz (frequency selectable). See <i>Table 1</i> . 24115-2: 90.3168 MHz/180.6336 MHz (frequency selectable). See <i>Table 2</i> .
FS0	6	Input Frequency FS0. See <i>Table 3</i> .
FS1	7	Input Frequency FS1. See <i>Table 3</i> .
X _{OUT} ^[1]	8	Reference Output

Absolute Maximum Conditions

Parameter	Description	Min.	Max.	Unit
V _{DD}	Supply Voltage	-0.5	7.0	V
T _S	Storage Temperature ^[2]	-65	125	°C
T _J	Junction Temperature		125	°C
	Digital Inputs	V _{SS} - 0.3	V _{DD} + 0.3	V
	Digital Outputs Referred to V _{DD}	V _{SS} - 0.3	V _{DD} + 0.3	V
	Electrostatic Discharge	2		kV

Recommended Operating Conditions

Parameter	Description	Min.	Typ.	Max.	Unit
V _{DD}	Operating Voltage	3.14	3.3	3.47	V
T _A	Ambient Temperature	0		70	°C
C _{LOAD}	Max. Load Capacitance			15	pF
f _{REF}	Reference Frequency	2.8224		22.5792	MHz
t ₁	Driven Reference Edge Rate	0.8			V/ns
DC _{IN}	Driven Reference Duty Cycle	40		60	%
C _{IN}	X _{IN} , X _{OUT} capacitance		12		pF
t _{PU}	Power-up time for all VDD's to reach minimum specified voltage (power ramps must be monotonic)	0.05		500	ms

DC Electrical Characteristics

Parameter	Name	Description	Min.	Typ.	Max.	Unit
I _{OH}	Output High Current	V _{OH} = V _{DD} - 0.5, V _{DD} = 3.3V (source)	12	24		mA
I _{OL}	Output Low Current	V _{OL} = 0.5, V _{DD} = 3.3V (sink)	12	24		mA
C _{IN}	Input Capacitance	CLKSEL, FS0, FS1, excludes X _{IN} , X _{OUT}			7	pF
V _{IL}	Input Low Voltage				30	% of V _{DD}
V _{IH}	Input High Voltage		70			% of V _{DD}
I _{IZ}	Input Leakage Current			5		μA
I _{DD}	Supply Current	Sum of Core and Output Current			35	mA

Notes:

1. Float X_{OUT} if X_{IN} is externally driven.
2. Rated for 10 years.

AC Electrical Characteristics ($V_{DD} = 3.3V$)

Parameter ^[3]	Name	Description	Min.	Typ.	Max.	Unit
DC	Output Duty Cycle	Duty Cycle is defined in Figure 1, 50% of V_{DD}	45	50	55	%
t_3	Rising Edge Slew Rate	Output Clock Rise Time, 20%–80% of V_{DD}	0.8	1.4		V/ns
t_4	Falling Edge Slew Rate	Output Clock Fall Time, 80%–20% of V_{DD}	0.8	1.4		V/ns
t_9	Clock Jitter	Peak to Peak period jitter			350	ps
t_{10}	PLL Lock Time				3	ms

Notes:

3. Not 100% tested.

Test Circuit

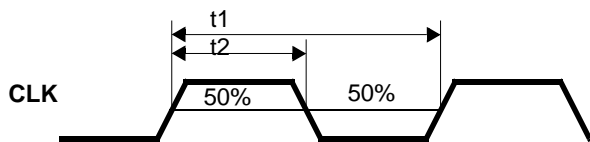
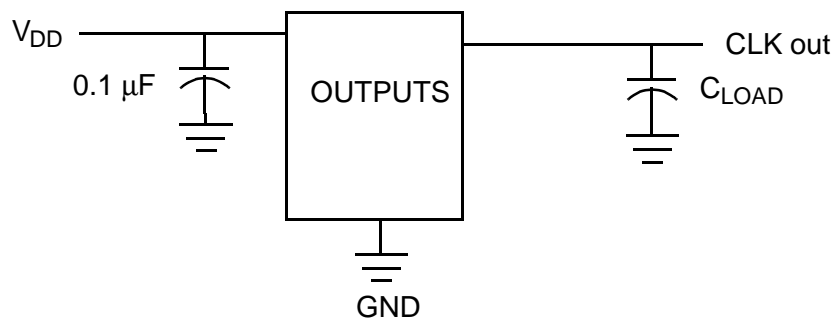


Figure 1. Duty Cycle Definition; $DC = t_2/t_1$

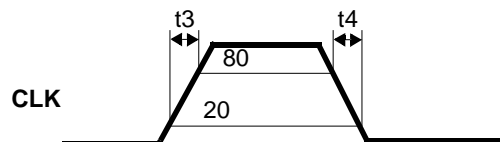


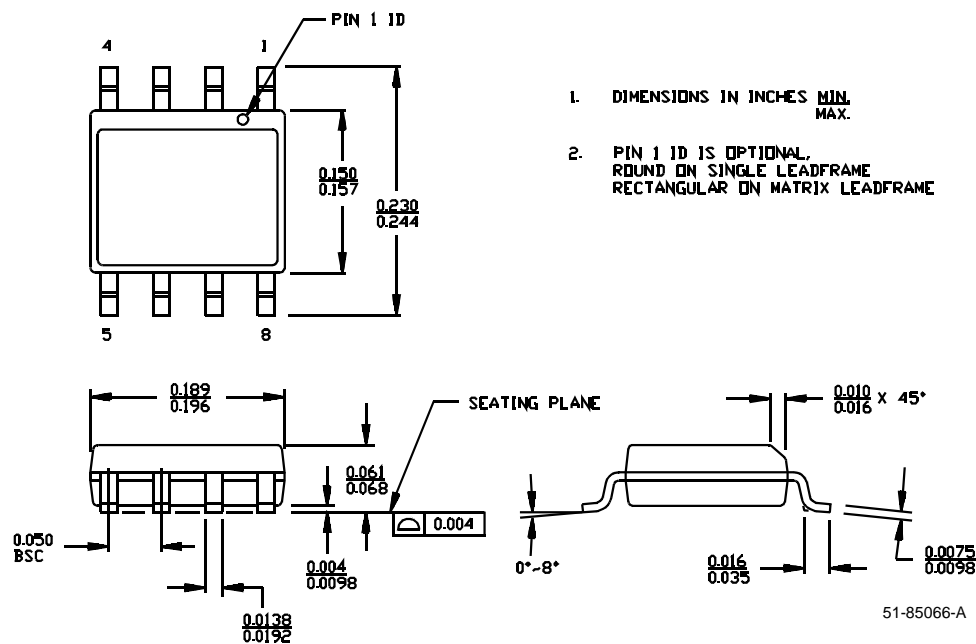
Figure 2. Rise and Fall Time Definitions

Ordering Information

Ordering Code	Package Name	Package Type	Operating Range	Operating Voltage
CY24115SC-1	S8	8-pin SOIC	Commercial	3.3V
CY24115SC-2	S8	8-pin SOIC	Commercial	3.3V

Package Diagram

8-lead (150-mil) SOIC S8



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REV.	ECN NO.	Issue Date	Orig. of Change	Description of Change
**	110767	02/06/02	CKN	New Data Sheet
*A	113515	04/30/02	CKN	Changed from Preliminary to Final P. 2 in Electrical Characteristics table added (source) to row 1 and (sink) to row 2
*B	121884	12/14/02	RBI	Power up requirements added to Operating Conditions Information