

One-PLL Clock Generator

Features

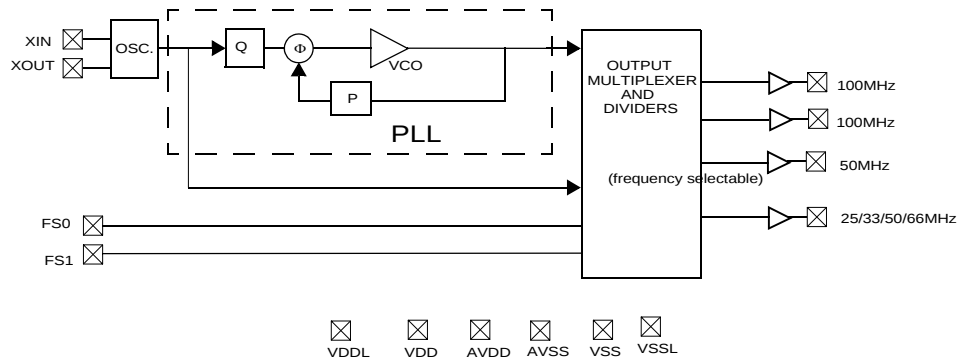
- Integrated phase-locked loop
- Low skew, low jitter, high accuracy outputs
- 3.3V operation with 2.5 V output option

Benefits

- Internal PLL with up to 333 MHz internal operation.
- Meets critical timing requirements in complex system designs.
- Enables application compatibility.

Part Number	Outputs	Input Frequency	Output Frequency Range
CY26114	4	25 MHz Crystal Input	2 copies of 100 MHz, 1 copy of 50 MHz, 1 copy 25, 33, 50, and 66 MHz (frequency selectable)

Logic Block Diagram



CLK4 Frequency Select Options

FS1	FS0	CLK 4	Units
0	0	25	MHz
0	1	33	MHz
1	0	50	MHz
1	1	66	MHz

Pin Configurations

Figure 1. CY26114, 16-Pin TSSOP

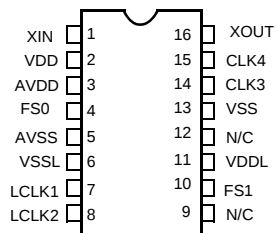


Table 1. Pin Definitions

Name	Pin Number	Description
XIN	1	Reference Crystal Input
V _{DD}	2	Voltage Supply
AV _{DD}	3	Analog Voltage Supply
FS0	4	Frequency Select 0
AV _{SS}	5	Analog Ground
V _{SSL}	6	LCLK Ground
LCLK1	7	100 MHz Output clock at V _{DDL} Level
LCLK2	8	100 MHz Output clock at V _{DDL} Level
N/C	9	No Connect
FS1	10	Frequency Select 1
V _{DDL}	11	LCLK Voltage Supply (2.5V or 3.3V)
N/C	12	No Connect
VSS	13	Ground
CLK3	14	50 MHz Output Clock
CLK4	15	25, 33, 50, and 66 MHz Clock Output (frequency selectable)
XOUT ^[1]	16	Reference Crystal Output

Note

1. Float XOUT if XIN is externally driven.

Absolute Maximum Conditions

Parameter	Description	Min	Max	Unit
V_{DD}	Supply Voltage	-0.5	7.0	V
V_{DDL}	IO Supply Voltage		7.0	V
T_J	Junction Temperature		125	°C
	Digital Inputs	$AV_{SS} - 0.3$	$AV_{DD} + 0.3$	V
	Digital Outputs Referred to V_{DD}	$V_{SS} - 0.3$	$V_{DD} + 0.3$	V
	Digital Outputs Referred to V_{DDL}	$V_{SS} - 0.3$	$V_{DDL} + 0.3$	V
	Electro-Static Discharge	2		kV

Recommended Operating Conditions

Parameter	Description	Min	Typ	Max	Unit
V_{DD}	Operating Voltage	3.0	3.3	3.6	V
V_{DDL}	Operating Voltage	2.375	2.5	2.625	V
T_A	Ambient Temperature	0		70	°C
C_{LOAD}	Maximum Load Capacitance			15	pF
f_{REF}	Reference Frequency		25		MHz
t_{PU}	Power Up Time—for all VDDs to reach minimum specified voltage (power ramps must be monotonic)	0.05		500	ms

DC Electrical Characteristics

Parameter ^[2]	Name	Description	Min	Typ	Max	Unit
I_{OH}	Output High Current	$V_{OH} = V_{DD} - 0.5$, $V_{DD}/V_{DDL} = 3.3V$	12	24		mA
I_{OL}	Output Low Current	$V_{OL} = 0.5$, $V_{DD}/V_{DDL} = 3.3V$	12	24		mA
I_{OH}	Output High Current	$V_{OH} = V_{DDL} - 0.5$, $V_{DDL} = 2.5V$	8	16		mA
I_{OL}	Output Low Current	$V_{OL} = 0.5$, $V_{DDL} = 2.5V$	8	16		mA
V_{IH}	Input High Voltage	CMOS levels, 70% of V_{DD}	0.7			VDD
V_{IL}	Input Low Voltage	CMOS levels, 30% of V_{DD}			0.3	VDD
I_{VDD}	Supply Current	AV_{DD}/V_{DD} Current			25	mA
I_{VDDL}	Supply Current	V_{DDL} Current ($V_{DDL} = 3.6V$)			20	mA
I_{VDDL}	Supply Current	V_{DDL} Current ($V_{DDL} = 2.625V$)			15	mA

AC Electrical Characteristics

Parameter ^[2]	Name	Description	Min	Typ	Max	Unit
DC	Output Duty Cycle	Duty cycle is defined in Figure 2; t_1/t_2 , 50% of V_{DD}	45	50	55	%
t_3	Rising Edge Rate	Output clock rise time, 20%–80% of $V_{DD}/V_{DDL} = 3.3V$	0.8	1.4		V/ns
t_3	Rising Edge Rate	Output clock rise time, 20%–80% of $V_{DDL} = 2.5V$	0.6	1.2		V/ns
t_4	Falling Edge Rate	Output clock fall time, 80%–20% of $V_{DD}/V_{DDL} = 3.3V$	0.8	1.4		V/ns
t_4	Falling Edge Rate	Output clock fall time, 80%–20% of $V_{DDL} = 2.5V$	0.6	1.2		V/ns
t_5	Skew	Delay between related outputs at rising edge			250	ps
t_9	Clock Jitter	Peak to peak period jitter			200	ps
t_{10}	PLL Lock Time				3	ms

Note

2. Not 100% tested.

Figure 2. Duty Cycle Definitions: $DC = t_2/t_1$

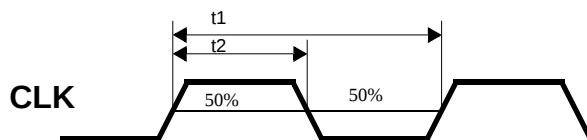


Figure 3. Rise Time and Fall Time Definitions

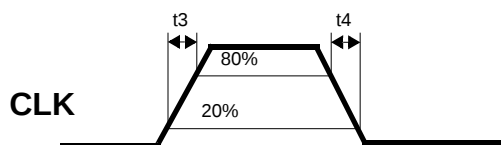
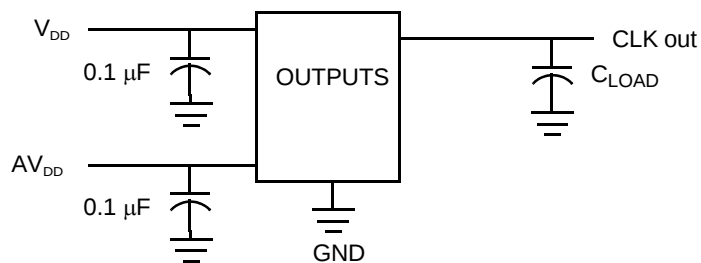


Figure 4. Test Circuit



Ordering Information

Ordering Code	Package Name	Package Type	Operating Range	Operating Voltage
CY26114ZC ^[3]	Z16	16-Pin TSSOP	Commercial	3.3V
CY26114KZC	Z16	16-Pin TSSOP	Commercial	3.3V
CY26114KZCT	Z16	16-Pin TSSOP- Tape and Reel	Commercial	3.3V

Note

3. Not recommended for new designs.

Document History Page

Document Title: CY26114 One-PLL Clock Generator Document Number: 38-07098				
Revision	ECN No.	Origin of Change	Submission Date	Description of Change
**	107333	CKN	12/14/02	New Data Sheet
*A	121867	RBI	08/28/01	Power up requirements added to Operating Conditions Information
*B	2441946	AESA	05/15/08	Updated template. Added Note "Not recommended for new designs." Added part number CY26114KZC, and CY26114KZCT in ordering information table.

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