



CY24207

MediaClock™ PDP Clock Generator

Features

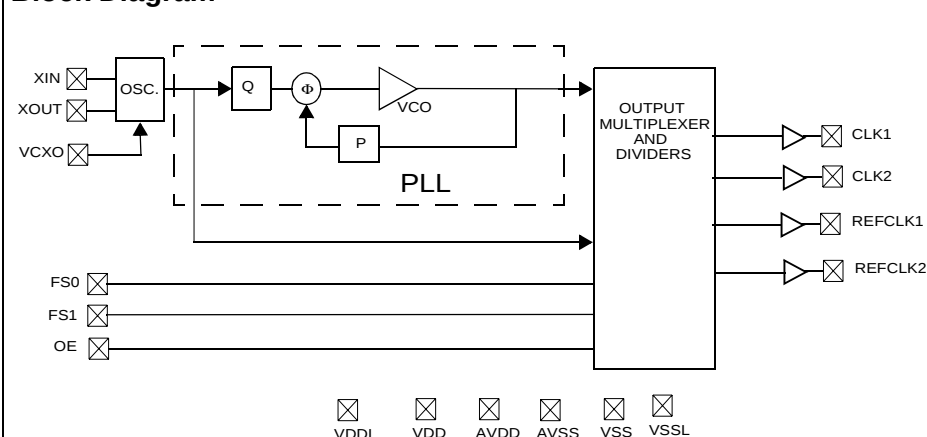
- Integrated phase-locked loop (PLL)
- Low-jitter, high-accuracy outputs
- VCXO with Analog Adjust
- 3.3V operation

Benefits

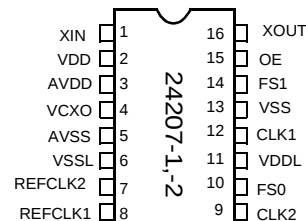
- Internal PLL with up to 400-MHz internal operation
- Meets critical timing requirements in complex system designs
- Large ± 200 -ppm range, better linearity
- Enables application compatibility

Part Number	Outputs	Input Frequency	Output Frequency Range
CY24207-1	4	27-MHz Crystal Input	Two copies of 27-MHz reference clock output, two copies of 54/53.946053/67.425/67.357642 MHz (frequency selectable)
CY24207-2	4	27-MHz Crystal Input	Two copies of 27-MHz reference clock output, two copies of 54/53.946053/67.425/68.400599 MHz (frequency selectable)

Block Diagram



Pin Configuration 16-pin TSSOP



Frequency Select Options

OE	FS1	FS0	CLK1/CLK2 (-1) ^[1]	CLK1/CLK2 (-2) ^[1]	REFCLK 1/2	Unit
0	0	0	off	off	27	MHz
0	0	1	off	off	27	MHz
0	1	0	off	off	27	MHz
0	1	1	off	off	27	MHz
1	0	0	54	54	27	MHz
1	0	1	53.946053 (–1 ppm)	53.946053 (–1 ppm)	27	MHz
1	1	0	67.425	67.425	27	MHz
1	1	1	67.357642 (3.8 ppm)	68.400599 (–8.8 ppm)	27	MHz

Note:

1. "off" = output is driven high.

Pin Description

Pin No.	Name	Description
1	XIN	Reference crystal input
2	V _{DD}	Voltage supply
3	AV _{DD}	Analog voltage supply
4	VCXO	Input analog control for VCXO
5	AV _{SS}	Analog ground
6	V _{SSL}	CLK ground
7	REFCLK2	Reference clock output
8	REFCLK1	Reference clock output
9	CLK1 (–1)	54/53.946053/67.425/67.357642 MHz clock output (frequency selectable)
9	CLK1 (–2)	54/53.946053/67.425/68.400599 MHz clock output (frequency selectable)
10	FS0	Frequency Select 0, weak internal pull-up
11	V _{DDL}	CLK voltage supply
12	CLK2 (–1)	54/53.946053/67.425/67.357642 MHz clock output (frequency selectable)
12	CLK2 (–2)	54/53.946053/67.425/68.400599 MHz clock output (frequency selectable)
13	V _{SS}	Ground
14	FS1	Frequency Select 1, weak internal pull-up
15	OE	Output Enable, weak internal pull-up
16	XOUT	Reference crystal output

Absolute Maximum Conditions

Supply Voltage (V_{DD} , AV_{DDL} , V_{DDL}).....-0.5 to +7.0V
 DC Input Voltage.....-0.5V to $V_{DD}+0.5$
 Storage Temperature (Non-condensing).....-55°C to +125°C
 Junction Temperature -40°C to +125°C

Data Retention @ $T_j = 125^\circ\text{C}$> 10 years
 Package Power Dissipation..... 350 mW
 ESD (Human Body Model) MIL-STD-883..... 2000V
 (Above which the useful life may be impaired. For user guidelines, not tested.)

Pullable Crystal Specifications

Parameter	Description	Conditions	Min.	Typ.	Max.	Units
F_{NOM}	Nominal crystal frequency	Parallel resonance, fundamental mode, AT cut		27.0		MHz
C_{LNOM}	Nominal load capacitance			14		pF
R_1	Equivalent series resistance (ESR)	Fundamental mode			25	Ω
R_3/R_1	Ratio of third overtone mode ESR to fundamental mode ESR	Ratio used because typical R_1 values are much less than the maximum spec	3			
DL	Crystal drive level	No external series resistor assumed		0.5	2	mW
F_{3SEPHI}	Third overtone separation from $3 \cdot F_{NOM}$	High side	300			ppm
F_{3SEPLO}	Third overtone separation from $3 \cdot F_{NOM}$	Low side			-150	ppm
C_0	Crystal shunt capacitance				7	pF
C_0/C_1	Ratio of shunt to motional capacitance		180		250	
C_1	Crystal motional capacitance		14.4	18	21.6	fF

Recommended Operating Conditions

Parameter	Description	Min.	Typ.	Max.	Unit
$V_{DD}/AV_{DDL}/V_{DDL}$	Operating Voltage	3.135	3.3	3.465	V
T_A	Ambient Temperature	0		70	$^\circ\text{C}$
C_{LOAD}	Max. Load Capacitance			15	pF
t_{PU}	Power-up time for all V_{DD} s to reach minimum specified voltage (power ramps must be monotonic)	0.05		500	ms

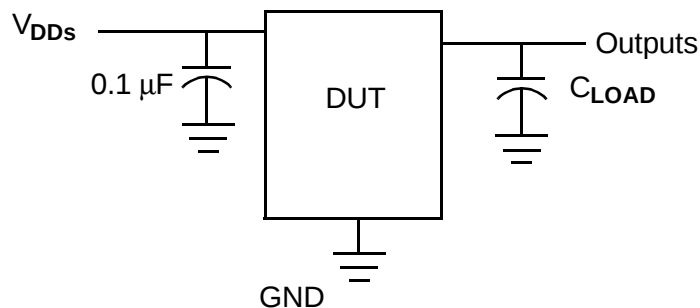
DC Electrical Specifications

Parameter ²	Name	Description	Min.	Typ.	Max.	Unit
I_{OH}	Output High Current	$V_{OH} = V_{DD} - 0.5$, $V_{DD}/V_{DDL} = 3.3\text{V}$	12	24		mA
I_{OL}	Output Low Current	$V_{OL} = 0.5$, $V_{DD}/V_{DDL} = 3.3\text{V}$	12	24		mA
V_{IH}	Input High Voltage	CMOS levels, 70% of V_{DD}	0.7			V_{DD}
V_{IL}	Input Low Voltage	CMOS levels, 30% of V_{DD}			0.3	V_{DD}
I_{VDD}	Supply Current	AV_{DD}/V_{DD} Current			25	mA
I_{VDDL}	Supply Current	V_{DDL} Current ($V_{DDL} = 3.47\text{V}$)			20	mA
C_{IN}	Input Capacitance	excluding XIN and XOUT			7	pF
$f_{\Delta XO}$	V_{CXO} pullability range			± 200		ppm
V_{VCXO}	V_{CXO} input range		0		V_{DD}	V
R_{UP}	Pull-up resistor on inputs	$V_{DD} = 3.14$ to 3.47V , measured at $V_{IN} = 0\text{V}$		100	150	k Ω

AC Electrical Specifications

Parameter ^[2]	Name	Description	Min.	Typ.	Max.	Unit
DC	Output Duty Cycle	Duty Cycle is defined in Figure 1; t_1/t_2 , 50% of V_{DD}	45	50	55	%
ER	Rising Edge Rate	Output Clock Edge Rate, Measured from 20% to 80% of V_{DD} , $C_{LOAD} = 15$ pF. See Figure 2.	0.8	1.4		V/ns
EF	Falling Edge Rate	Output Clock Edge Rate, Measured from 80% to 20% of V_{DD} , $C_{LOAD} = 15$ pF. See Figure 2.	0.8	1.4		V/ns
t_9	Clock Jitter	CLK1, CLK2 Peak-Peak period jitter		120		ps
t_{10}	PLL Lock Time				3	ms

Test and Measurement Set-up



Voltage and Timing Definitions

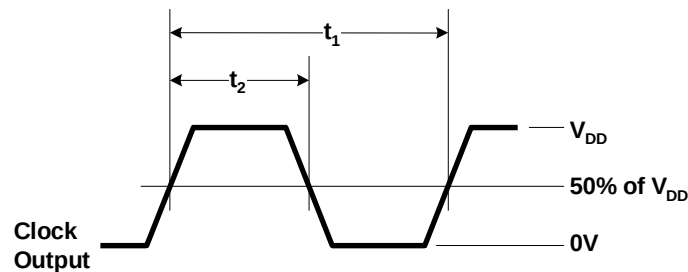


Figure 1. Duty Cycle Definition

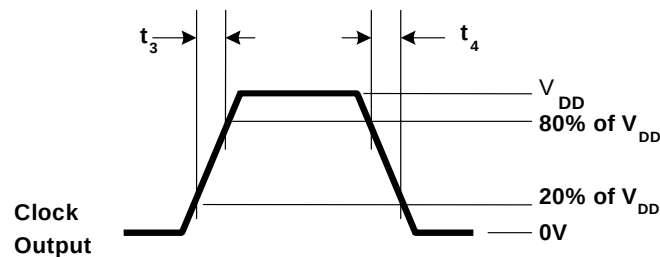


Figure 2. $ER = (0.6 \times V_{DD}) / t_3$, $EF = (0.6 \times V_{DD}) / t_4$

Note:

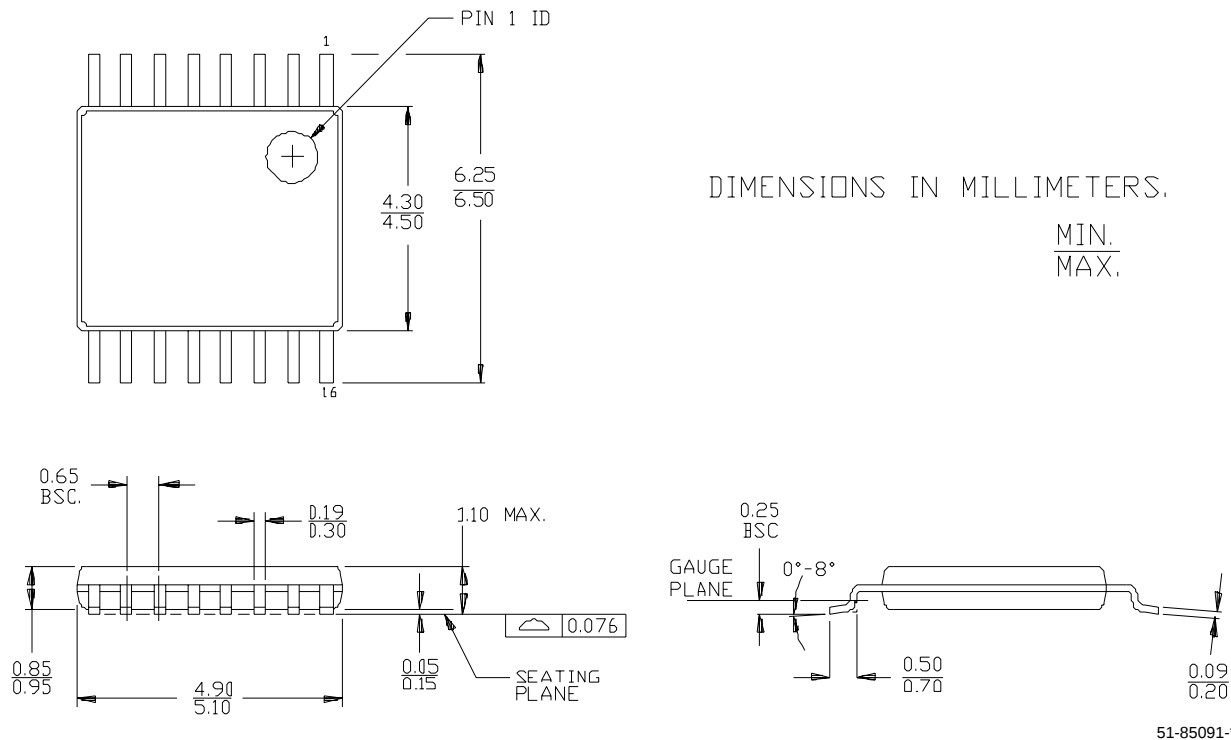
2. Not 100% tested.

Ordering Information

Ordering Code	Package Type	Operating Range	Operating Voltage
CY24207ZC-1	16-pin TSSOP	Commercial	3.3V
CY24207ZC-1T	16-pin TSSOP	Commercial	3.3V
CY24207ZC-2	16-pin TSSOP	Commercial	3.3V
CY24207ZC-2T	16-pin TSSOP	Commercial	3.3V

Package Drawing and Dimensions

16-lead Thin Shrink Small Outline Package (4.40 MM Body) Z16



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Document History Page

Document Title: CY24207 MediaClock™ PDP Clock Generator Document Number: 38-07553				
REV.	ECN NO.	Issue Date	Orig. of Change	Description of Change
*. *	127230	06/26/03	RGL	New Data Sheet
*A	128248	07/31/03	IJATMP	Added -2 part number Added CLK1/CLK2 (-2) column to Frequency Select Options Added new definitions for Pins 9 and 12 in Pin Description table