Customer Code:

DATASHEET

DAPU P/N: **CM23B-G428-10.00MHz**

Customer P/N: _____

DAPU			Customer Approval
Drew	Audited	Approved	
Amway.wei	Carry.Wang	Jason Zhao	
Date: 2024.08.05			Stamp, please! Thanks!

Guangdong Dapu Telecom TechnologyCo.,Ltd

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Table of Amendment

Version	Revision contents	Prepared by	Revised date
1.0	preview release	Amway	2024.07.25
1.1	Del “UART”, The “Pin Definition” changed	Amway	2024.08.05

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1. General Description

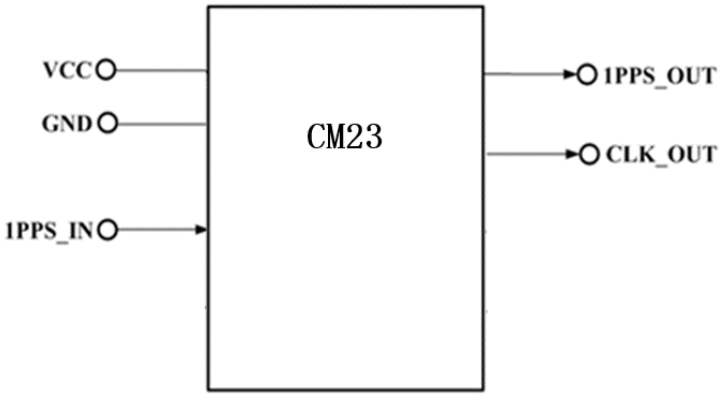

Figure 1 CM23

Figure 1 is the basic diagram of CM23. CM23 is a high-performance clock module designed to provide precise frequency and can be calibrated automatically via a high-level reference 1PPS input.

Key features:

- **Reference:** 1PPS from GNSS receiver, IEEE1588 etc. to calibrate the 10.0MHz CLK_OUT accuracy;
- **Temperature Stability:** ±0.5ppb;
- **Frequency accuracy:** 5E-8, power on 5 minutes;
- **Clocks Input and Output:**1*1PPS input and 1*10.0MHz output;
- **Mechanical Size:**36.2mm*27.2mm*13mm.

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2. Pin Definition

Table 1 Pin Definition

Pin group	Pin#	Pin Name	Type	Description
Input Clock	3	1PPS_IN	I	1PPS Reference Input.
Supply Voltage	1	VCC	PWR	Power Supply
Supply Voltage	4	GND	GND	Ground.
Output Clock	5	CLK_OUT	O	10.0MHz output
	2	1PPS_OUT	O	1PPS output

3. Electrical Parameters

Table 2 Electrical Parameters

Parameter	Symbol	Minimum	Typical	Maximum	Units
LVCMOS Input					
High Level Input Voltage	V_{IH}	2.4			V
Low Level Input Voltage	V_{IL}			0.4	V
LVCMOS Output					
High Level Output Voltage	V_{OH}	2.4			V
Low Level Output Voltage	V_{OL}			0.4	V

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4. Performance

Table 3 Performance

Item	Parameter	Minimum	Typical	Maximum	Units	Test Condition
Clock Output	Nominal Frequency		10.0		MHz	Synchronizing with 1PPS reference.
	Wave		HCMOS			
	Duty Cycle	45		55	%	Load 15pF
	Frequency vs. Temperature	-0.5		+0.5	$\times10^{-9}$	Vcc=5.0V; O_{load}=50Ω, T_A varies from -40℃ to 85℃, temperature slope less than 2℃per minute.
	Accuracy	-5		+5	$\times10^{-10}$	power on 5 minutes after calibrated.
	Short-term Stability			0.005	$\times10^{-9}$	Vcc=5.0V; T_A=25℃; 1s;
	Daily Aging	-0.5		+0.5	$\times10^{-9}$	power on 30 day ,Vcc=5.0V; T_A=25℃.
	Yearly Aging	-0.3		+0.3	$\times10^{-6}$	
	Phase Noise			-98	dBc/Hz	1Hz
				-133		10Hz
				-155		100Hz
				-160		1KHz
				-162		10KHz
				-163		100KHz
	Holdover	-2.0		+2.0	us	Δ=±5℃ Holdover 8 hours, after lock 1PPS 72 hours
Supply Voltage	Supply Voltage	4.75	5.0	5.25	V	
	Warm Up Current			1000	mA	
	Steady Current			450	mA	@25℃

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5. Environmental Conditions

Table 5 Environmental Conditions

Parameter	Conditions	
Operating Temperature	-40℃ to 85℃	
Storage Temperature	-55℃ to 105℃	
Storage Humidity	30%~80%	
ESD Level	Human Body Model, class2: 2000V to 4000V; ANSI/ESDA/JEDEC JS-001-2010.	
	Machine Model, class B: 200V to 400V; JEDEC JESD22-A115C.	
Moisture Sensitivity Level	Not humidity sensitive.	
Vibration	Test Condition: 0.75mm ;acceleration:10g;10Hz～500Hz, one cycle per 30 min, test 2 hour. (3 times for each 3 directions X,Y, Z), IEC 68-2-06 Test Fc.	
Shock	50g; 11ms; half sine wave (3 times for each 3 directions X,Y, Z),IEC 68-2-27 Test Ea/Severity 50A.	
Relative Humidity	20%～70%	Full Package Storage
Temperature	-10℃~35℃	

6. Typical Application

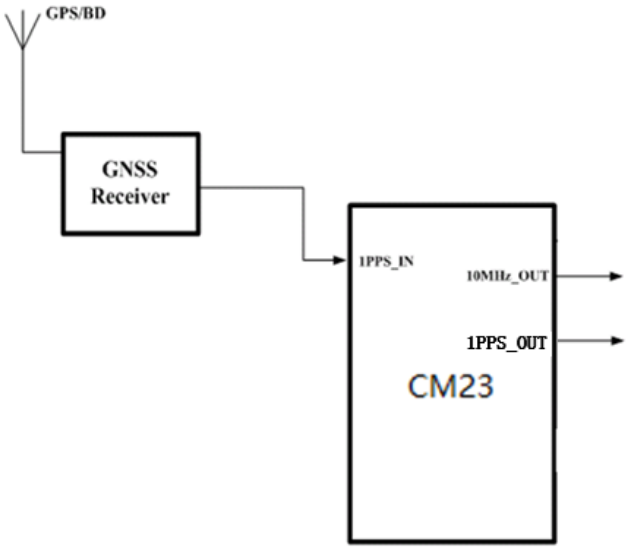

Figure 2Typical application

GNSS Receiver offers 1PPS signal to CM23.

The MCU monitors the work state of CM23.

7. Mechanical Structure (mm)

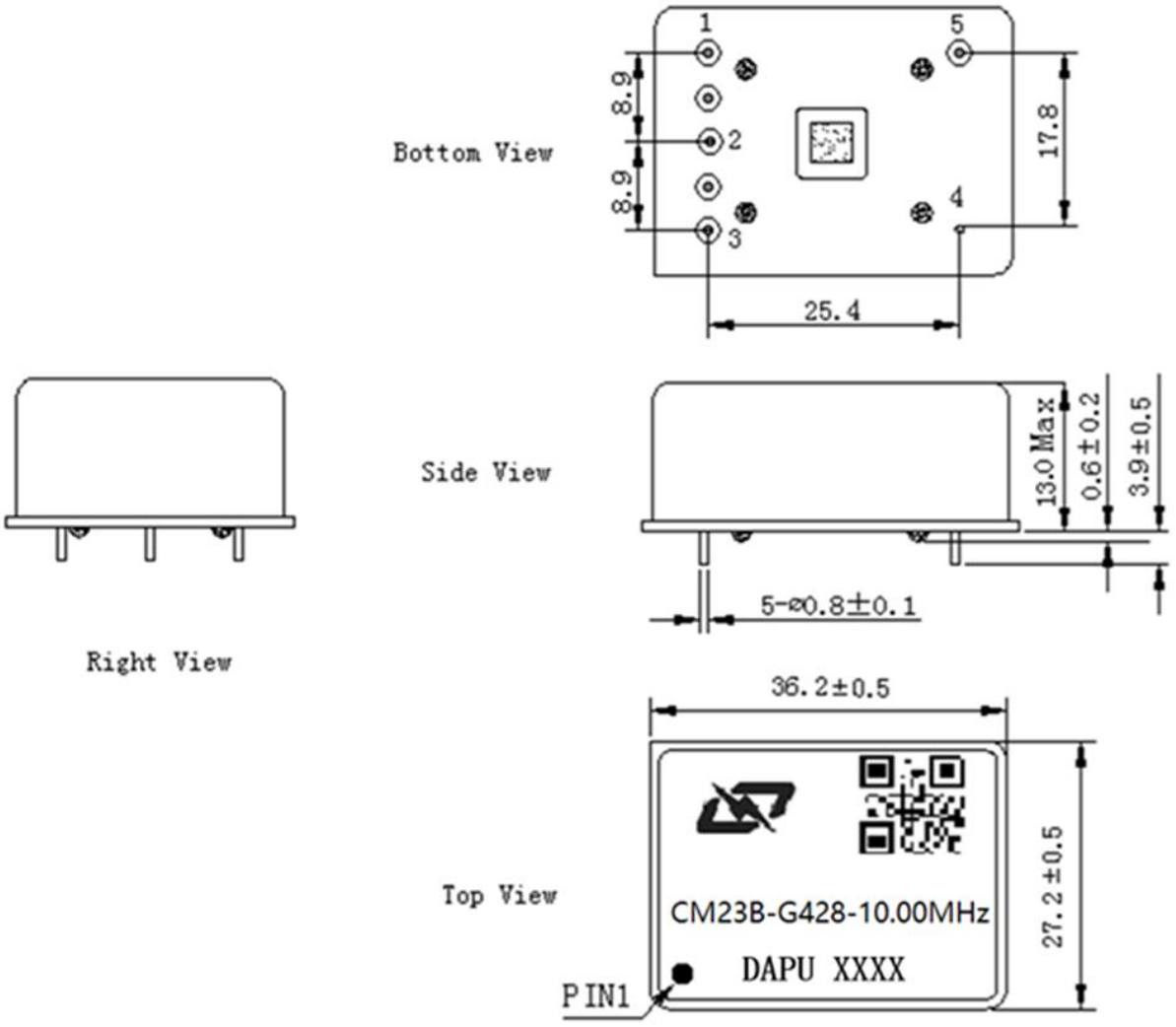

Figure 3 Mechanical structure

Note1: Tolerance ± 0.3mm without mark.

Note2: The first two xx representative: year
After two xx representative: week

8. Wave Soldering Curve(RoHS)

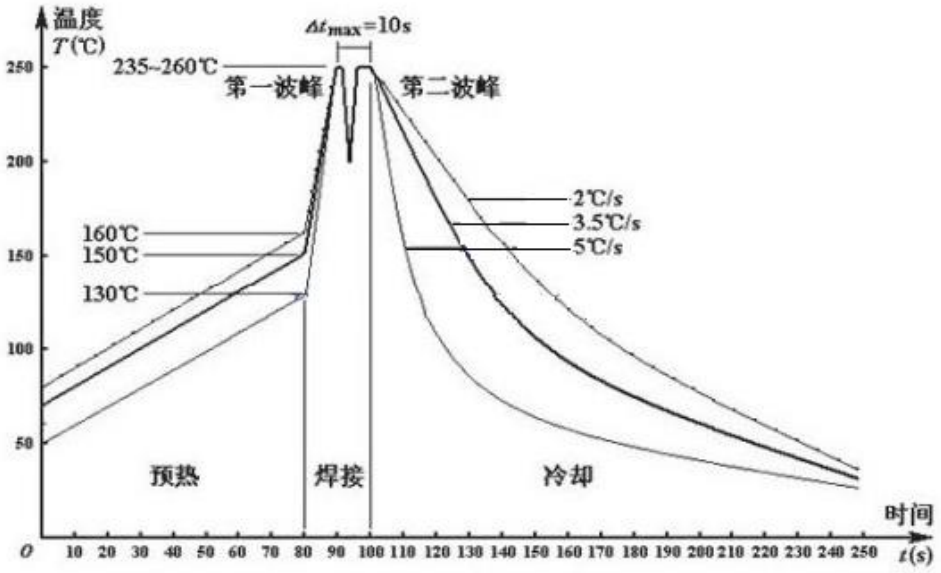

Figure 4 Wave soldering curve

9. Package（mm）

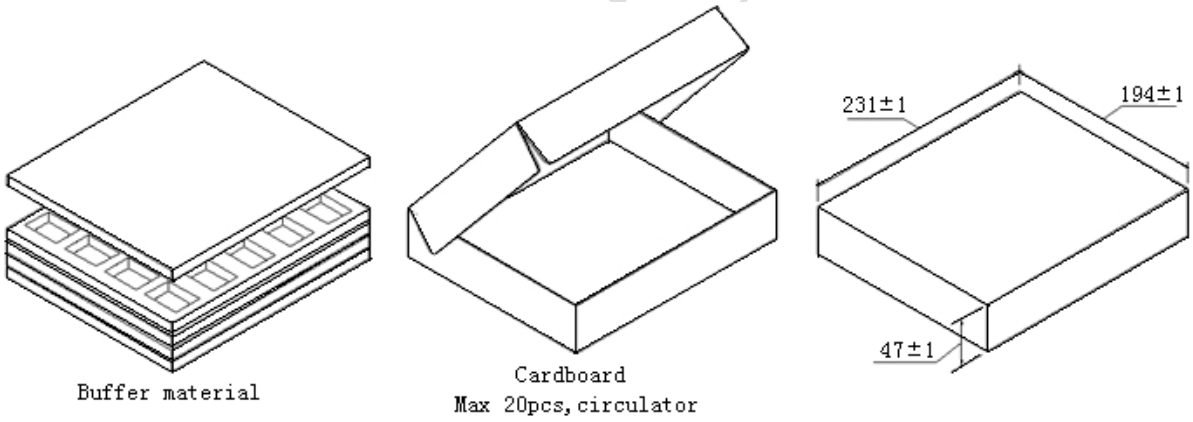

Figure 5 Package