Customer Code : _____

DATASHEET

DAPU P/N: **CC23B-D328**

Customer P/N:_____

DAPU			Customer Approval
Drew	Audited	Approved	
Amway.wei	Tony · Wang	James.Liu	
Date：2019.02.15			Stamp, please! Thanks!

Guangdong Dapu Telecom Technology Co.,Ltd

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Table of Amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	Amway	2018.10.25
1.1	'Pin Definition'	Amway	2018.10.25
1.2	'Mechanical Structure'	Amway	2019.02.15

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Table of Content

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1. General Description

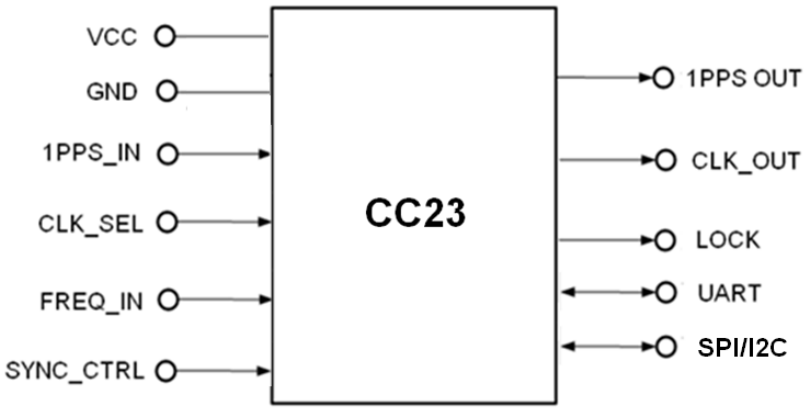

Figure 1 CC23

Figure 1 is the basic diagram of CC23.

Key features:

- **Reference:** 1PPS and TOD from GNSS receiver, IEEE1588 etc.;
- **Clocks Input and Output:** 1*1PPS input,1*Clock input 1*1PPS output and 1*Clock output;
- **Serial Interface:** 1*UART for TOD, 1* SPI/I2C for external DAC;
- **Mechanical Size:** 36mm*27mm*4.2mm.

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2. Pin Definition

Table 1 Pin Definition

Pin group	Pin#	Pin Name	Type	Description
Supply Voltage	10,12	GND	GND	Ground
	8	VCC	PWR	Power Supply
Control and Status Pins	2	SYNC_CTRL	I	Synchronizing Procedure Control
	14	LOCK	O	Lock Status
	1	CLK_SEL	I	High : 38.4 MHz Low : 100MHz
UART	3	RXD0	I	Asynchronous Serial Data Output/Input
	4	TXD0	O	
SPI/I2C	5	SYNC	I	SPI/I2C interfaces SPI default
	6	SDA	I	
	7	SCL	O	
Input Clock	13	1PPS_IN	I	1PPS Reference Input.
	15	CLK_IN	I	Support 38.4MHz and 100 MHz
Output Clocks	11	1PPS_OUT	O	1PPS Output
	9	CLK_OUT	O	Same as reference clock in
NC	16	NC	NC	NC

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
Supply Voltage	Supply Voltage	3.135	3.3	3.465	V	
	Current			40	mA	@25℃
	AC Ripple			50	mV pk-pk	10Hz to 1MHz

5. UART & SPI/I2C

UART interface is used for management and TOD, which has a fixed baud rate (115200) using 1 stop bit and no parity. It is a LVTTL-compatible port and needs an external translator to work with other signal types (such as RS-232C or RS-485). SPI/I2C interface is for external DAC to perform the synchronizing and holdover algorithm.

Time of Day

A TOD message format can be a GPRMC message or one of a group of other GPS messages or proprietary messages to suit specific causes. Such as a GPRMC message has the format $GPRMC,122356,A,0000.0000,N,00000.0000,W,0.0.0.0,120508,,,A*F6 in which the commas are separators. The message is 62 characters in length (i.e. 62 bytes). No parity bit is used, but each byte has a stop bit. The architecture of the message is shown in Table 4.

Table 4 Architecture of GPRMC message

Elements	Description
$GPRMC	Message header.
122356	UTC value.
A	Status (A = active, V = void).
0000.0000,N	Latitude, north (fixed to zero).
00000.0000,W	Longitude, west (fixed to zero).
0.0	Speed over ground (fixed to zero).
0.0	Track angle (fixed to zero).
120508	Date (ddmmyy).
A	A = autonomous, D = differential, E = estimated, S = simulation, N = not valid.
*F6	Checksum.

SPI/I2C interfaces is used to control the external DAC. It is a LVTTL-compatible port;

6. Control and Status Pins

CC23 is a clock module which synchronizes the local clock to reference such as 1 PPS retrieving from GPS. CC23 will work normally performing synchronizing algorithm when the SYNC_CTRL pin is driven high. It also could be force to work in free-run or holdover status when the SYNC_CTRL pin is driven low.

CLK_SEL is for configuring frequency of external clock input. The external clock input is a part of the clock system,

two frequency could be accepted. When the CLK_SEL is high, the frequency should be 38.4MHz, When the CLK_SEL is low, the frequency should be 100MHz.

The LOCK pin indicates the lock status of CC23. High level indicates the module is locked to external 1PPS reference. When the module never is locked to reference after power up, the status of module is free-run, the LOCK pin outputs low. When the reference is lost, the status of module is holdover, the LOCK pin also output low.

7. 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; ANSI/ESDA/JEDEC JS-001-2010.	
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℃	

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8. Mechanical Structure (mm)

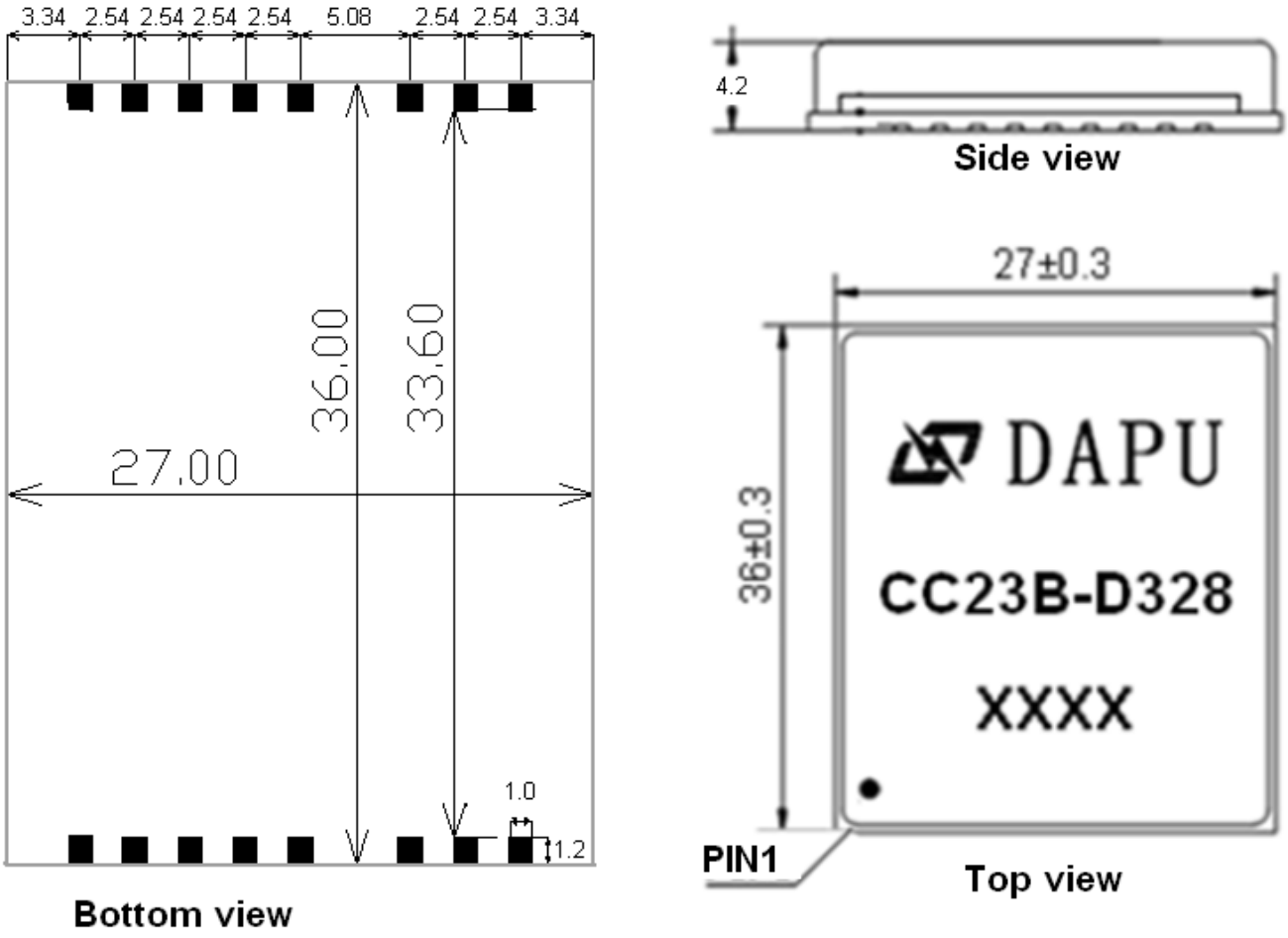

Figure 3 Mechanical structure

Note1: Tolerance ± 0.3mm without mark.

Note2: WW represents Week.
YY represents Year.

9.Reflow Soldering Curve (RoHS)

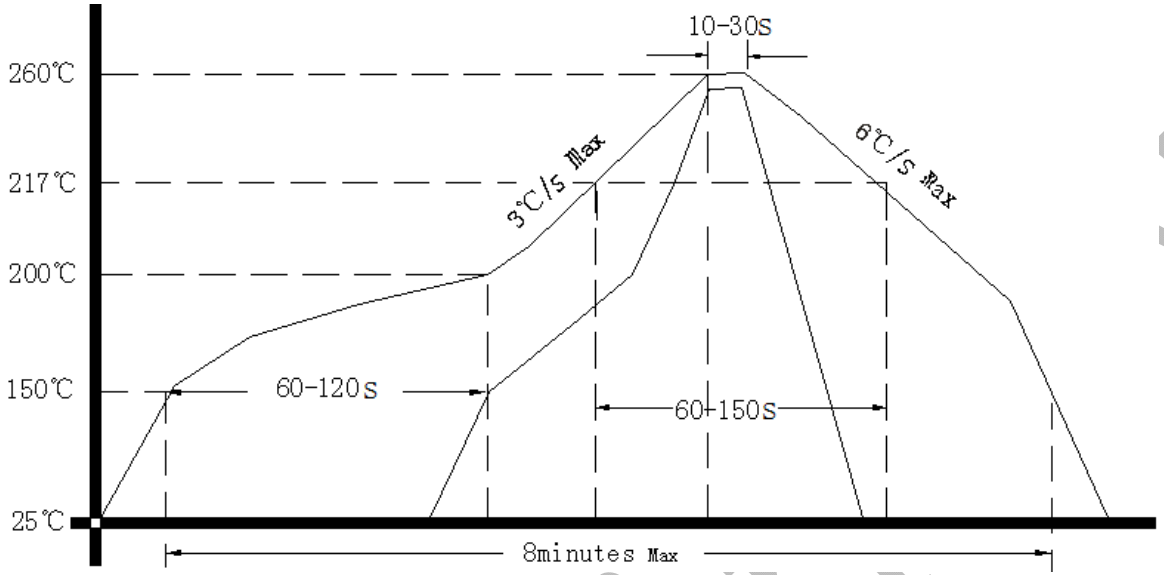

Figure 4 Reflow soldering curve

10.Package（mm）

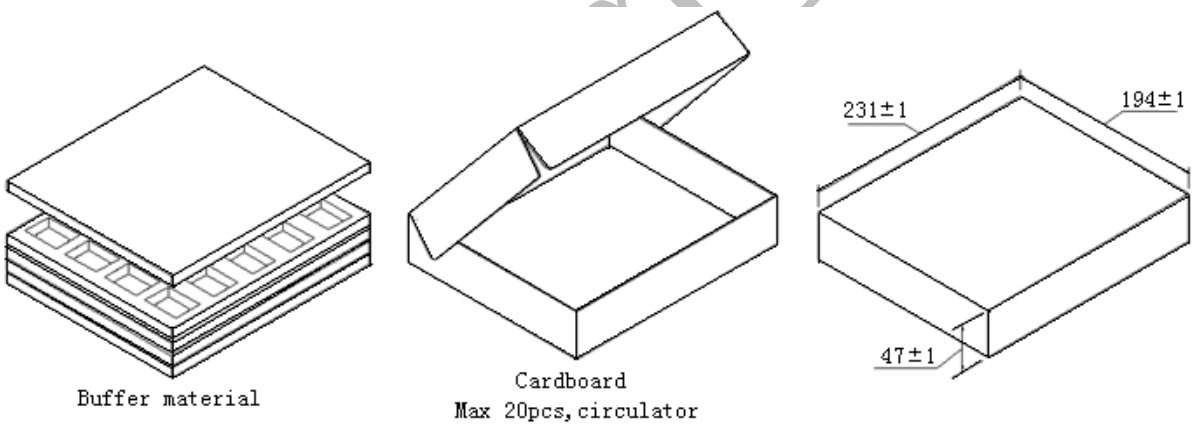

Figure 5 Package