Customer Code:

DATASHEET

DAPU P/N: CM11T-Y328-28.8MHz

Customer P/N: _____

DAPU			Customer Approval
Drew	Audited	Approved	
Date: 2019.12.09			Stamp, please! Thanks!

Guangdong Dapu Telecom Technology Co.,Ltd

Bldg16,.N.Ind.Zone,SSL Industry Park, Dongguan City, Guangdong Province, China

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Table of Amendment

Version	Revision contents	Prepared by	Revised date
Preliminary	The first issued		2019.12.09

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1. General Description

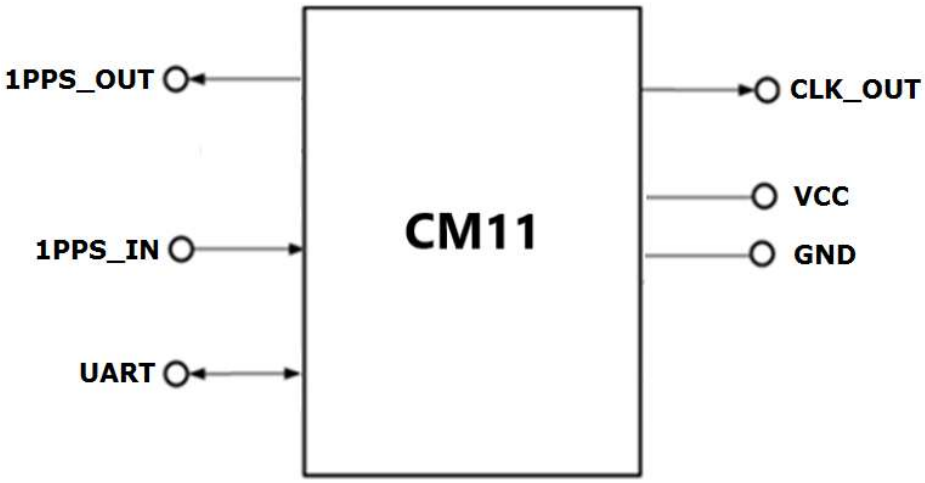

Figure 1 CM11T

Figure 1 is the basic diagram of CM11T. CM11T is a high-performance clock module designed to provide precise frequency and can be calibrated automatically via a high-level reference input.

Key features:

- **Reference:** 1PPS from GNSS receiver, IEEE1588 etc. to calibrate the CLK_OUT accuracy;
- **Temperature Stability:** ±0.05ppm;
- **Frequency accuracy:**1E-8;
- **Clocks Input and Output:**1* reference input,1* reference output and 1*28.8MHz output;
- **Serial Interface:**1*UART for management;
- **Mechanical Size:**14.8mm*11.8mm*4.0mm;
- **Power Consumption:** Less than 170mW;

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2. Pin Definition

Table 1 Pin Definition

Pin Group	Pin#	Pin Name	Type	Description
Power Supply	2	VCC	PWR	Power Supply
	3	GND	GND	Ground
UART	4	RXD	I	Asynchronous Serial Data Output/Input
	5	TXD	O	
Input Clock	6	Reference IN	I	Reference Input (Note 1)
Output Clock	7	Reference OUT	O	1PPS Output (Note 2)
	1	CLK_OUT	O	28.8 MHz Output

Note 1： Support 1PPS or 10MHz input.

Note 2： Support 1PPS and other Frequency output.

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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		28.80		MHz	Synchronizing with 1PPS reference.
	Output Waveform		Sine Wave			
	Level	6	8	10	dBm	TA=25℃+/-5℃,load=50Ohm
	Harmonics Suppression			-30	dBc	
	Spurious Suppression			-70	dBc	
	Frequency vs. Temperature	-0.05		+0.05	$\times 10^{-6}$	Vcc=3.3V; Oload=50Ohm; TAvaries from-40℃ to 85℃.
	Frequency vs. Power	-0.01		+0.01	$\times 10^{-6}$	+3.3V+/-5%
	Frequency vs. Load	-0.01		+0.01	$\times 10^{-6}$	Oload+/-10%
	Accuracy	-0.01		+0.01	$\times 10^{-6}$	TA=25℃+/-5℃, After Calibration
	First Year Aging	-0.25		+0.25	$\times 10^{-6}$	Vcc=3.3 V；TA=25℃.Up to 0.1ppm after Calibration
	Phase Noise		-90	-85	dBc/Hz	10Hz
			-118	-115		100Hz
			-138	-135		1KHz
			-150	-145		10KHz
1PPS Output	Pulse Width		100		ms	
	Accuracy	-50		+50	ns	Synchronizing with 1PPS reference
	Time			100	s	Synchronizing time
Supply Voltage	Supply Voltage	3.135	3.3	3.465	V	

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	Current			50	mA	@25℃,Oload=50Ohm

5. UART

UART interface is used for management, 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).

6. Environmental Conditions

Table 4Environmental Conditions

Parameter	Conditions	
Operating Temperature	-40℃ to 85℃	
Storage Temperature	-55℃ to 85℃	
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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7. Typical Application

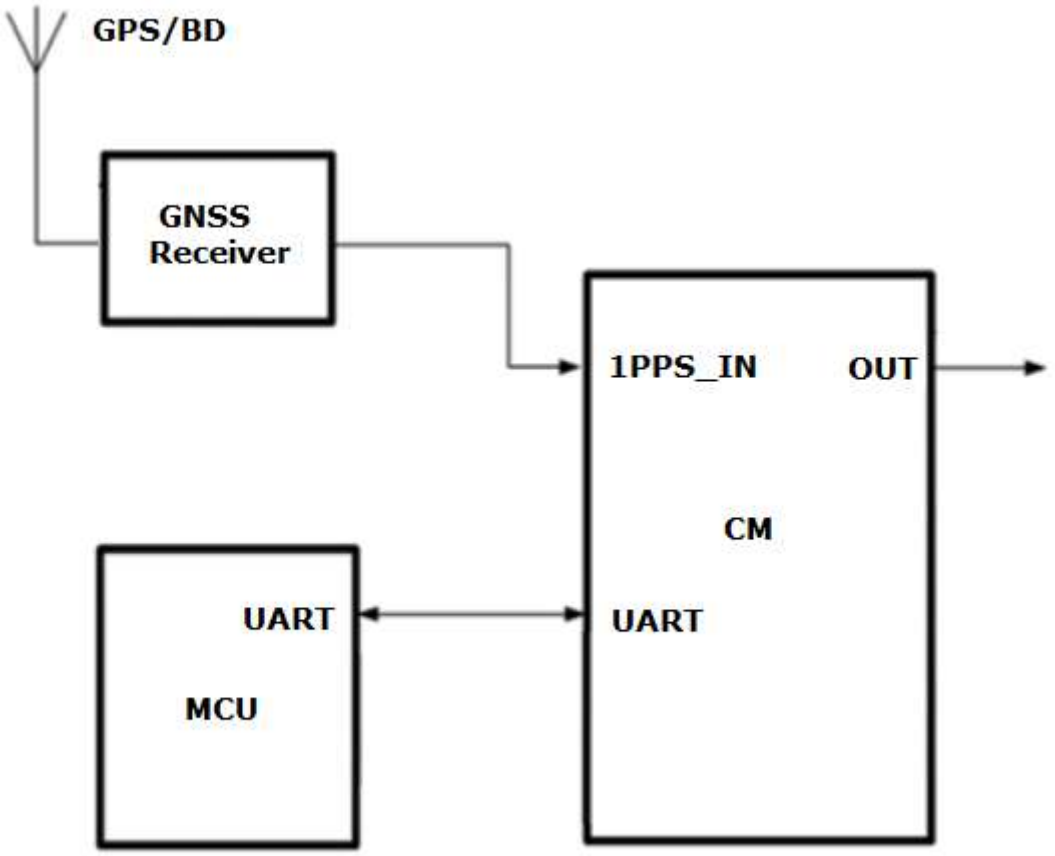

Figure 2 Typical Application

GNSS Receiver offers 1PPS signal to CM.

The MCU monitors the work state of CM.

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8. Mechanical Structure (mm)

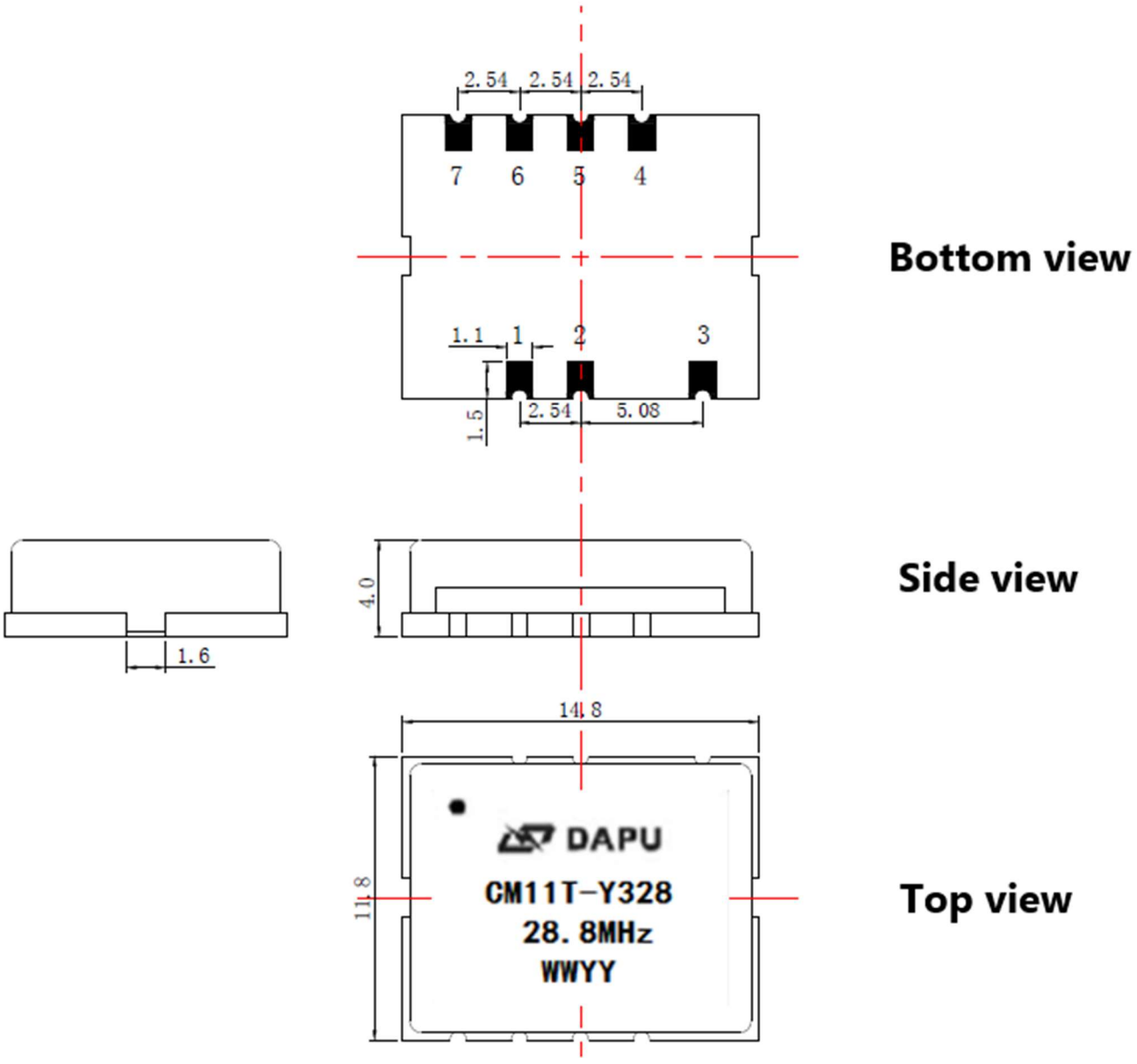

Figure 3 Mechanical structure

Note1: Tolerance ± 0.2mm without mark.

Note2: WW represents Week.
YY represents Year.

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9. Package（mm）

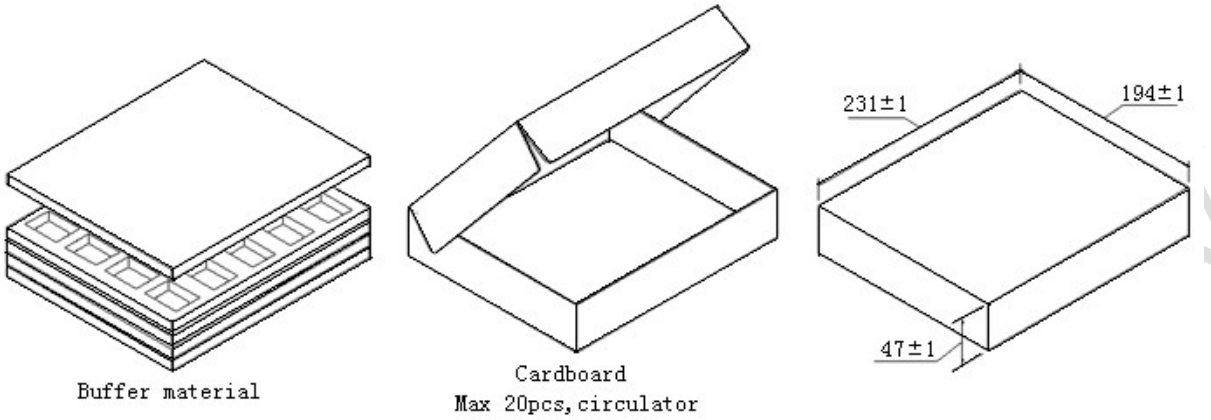

Figure 4 Package