

Customer Code : \_\_\_\_\_

# DATASHEET

DAPU P/N: CM22B-Y328-10.00MHz-B

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DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2016.07.03			

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## 1. Electrical Parameters

	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
1 PPS Reference Input	Waveform	HCMOS				
	High-Level Input Voltage ( $V_{IH}$ )	2.4		3.4	V	50Ω
	Low-Level Input Voltage ( $V_{IL}$ )			0.4	V	
	Pulse Width	10			μs	
	Connector	Pin 4				
	State Input	Parameters	Min.	Typ.	Max.	Unit.
Lock		2.4		3.4	V	$O_{load}=15pF$
Holdover				0.4	V	$O_{load}=15pF$
Connector		Pin 1				
RF Output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Nominal Frequency	10.00			MHz	Synchronization with input 1PPS
	Waveform	HCMOS				
	High-level Output Voltage ( $V_{OH}$ )	2.7			V	$O_{load}=15pF$
	Low-level Output Voltage ( $V_{OL}$ )			0.4	V	$O_{load}=15pF$
	Rise/Fall Time			10	ns	$O_{load}=15pF$
	Duty Cycle	45	50	55	%	$O_{load}=15pF$
	Frequency Tolerance vs. Operating Temperature Range	-0.5		+0.5	$\times 10^{-6}$	$T_A$ varied from -40°C to 85°C, measurement referenced to frequency observed with $f_{ref}=(f_{max}+f_{min})/2$ , $V_{cc}=3.3V$ , $O_{load}=15pF$ , temperature variable speed less than 2°C per minute.
	Accuracy	-0.01		+0.01	$\times 10^{-9}$	24 hours average when locked to 1PPS after power on 2 days.
	Warm-Up	-1		+1	$\times 10^{-6}$	$T_A=25^\circ C$ , $V_{cc}=3.3V$ constant measurement referenced to 10.00MHz, after power on 5mins with GPS lock.
	Aging Tolerance Per Day	-0.02		+0.02	$\times 10^{-6}$	$T_A=25^\circ C$ , $V_{cc}=3.3V$ , and after 1h of operation.
	Aging Tolerance Per Year	-1		+1	$\times 10^{-6}$	



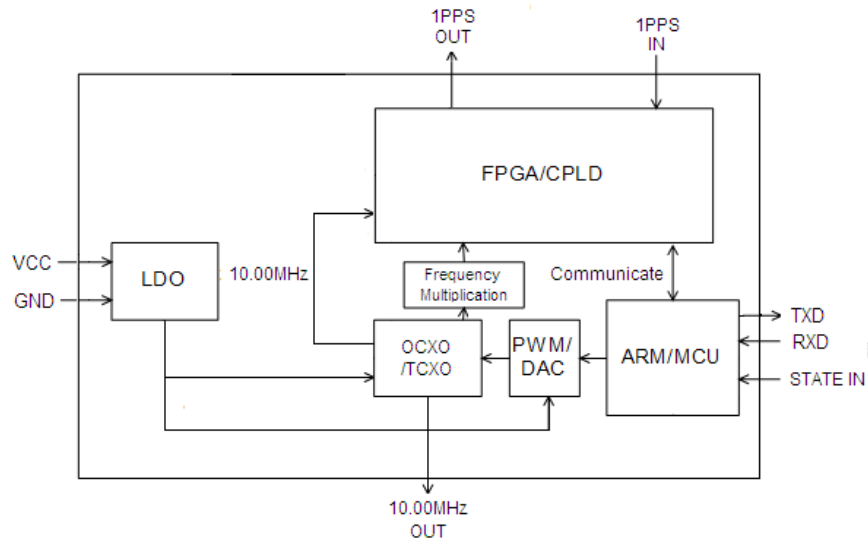
	Phase Noise (All conditions)		-85	-75	dBc/Hz	10Hz
			-115	-105		100Hz
			-135	-130		1KHz
			-145	-140		10KHz
			-145	-140		100KHz
			-148	-143		1MHz
Connector		Pin8				
Holdover Capability	Holdover Time	Min.	Typ.	Max.	Unit.	Test Condition
	30mins	-0.1		+0.1	ms	$\Delta T = \pm 20^{\circ}\text{C}$ , 30 mins holdover after turn on 30mins and lock 30 mins. Temperature variable speed less than $10^{\circ}\text{C}$ per minute.
Supply Voltage	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Supply Voltage	3.13	3.3	3.47	V	
	Warm up current			200	mA	
	Steady Consumption			75	mA	@ $25^{\circ}\text{C}$
	AC Ripple			50	mVpk-pk	10Hz to 1MHz
	Connector	Pin 2				
1 PPS Output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Waveform	HCMOS				
	High-Level Output Voltage ( $V_{OH}$ )	2.4			V	50 $\Omega$
	Low-level Output voltage ( $V_{OL}$ )			0.4	V	
	Pulse Width		1		ms	
	Connector	Pin 7				
Serial Interfaces	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Rx high-level Input Voltage ( $V_H$ )	2.4		3.4	V	
	Rx low-level Input Voltage ( $V_L$ )			0.4	V	
	Tx high-level Output Voltage ( $V_H$ )	2.4		3.4	V	
	Tx low-level Output Voltage ( $V_L$ )			0.4	V	
	Serial Protocol	9600-N-8-1				
Connector	Pin5 / Pin6					



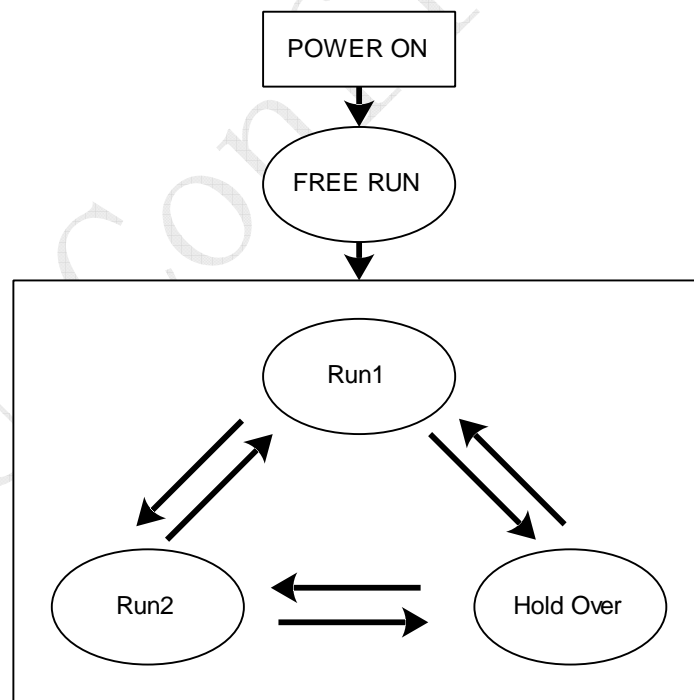
	Parameter	Conditions	
Environmental Conditions	Operating Temperature	-40°C to 85°C	
	Storage Temperature	-55°C to 105°C	
	Storage Humidity	30%~80%	
	ESD Level	Human Body Model,class2: 2000V to 4000V; ANSI/ESDA/JEDEC JS-001-2010.	
		Machine Model, class B: 200V to 400V; ANSI/ESDA/JEDEC JS-001-2010.	
	Moisture Sensitivity Level	Not humidity sensitive.	
	Vibration	Test Condition: 0.75mm ;acceleration:10g;10Hz~500Hz, one cycle per 30 min, test 2 hours. (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.	
Full Package Storage	Relative humidity (%)	20%~70%	
	Temperature (°C)	-10~35°C	



## 2. Functional Block Diagram



## 3. Workflow Diagram



Run1: Fast track. Adjust the 10MHz output frequency quickly to track the 1PPS of 10MHz with 1PPS reference.

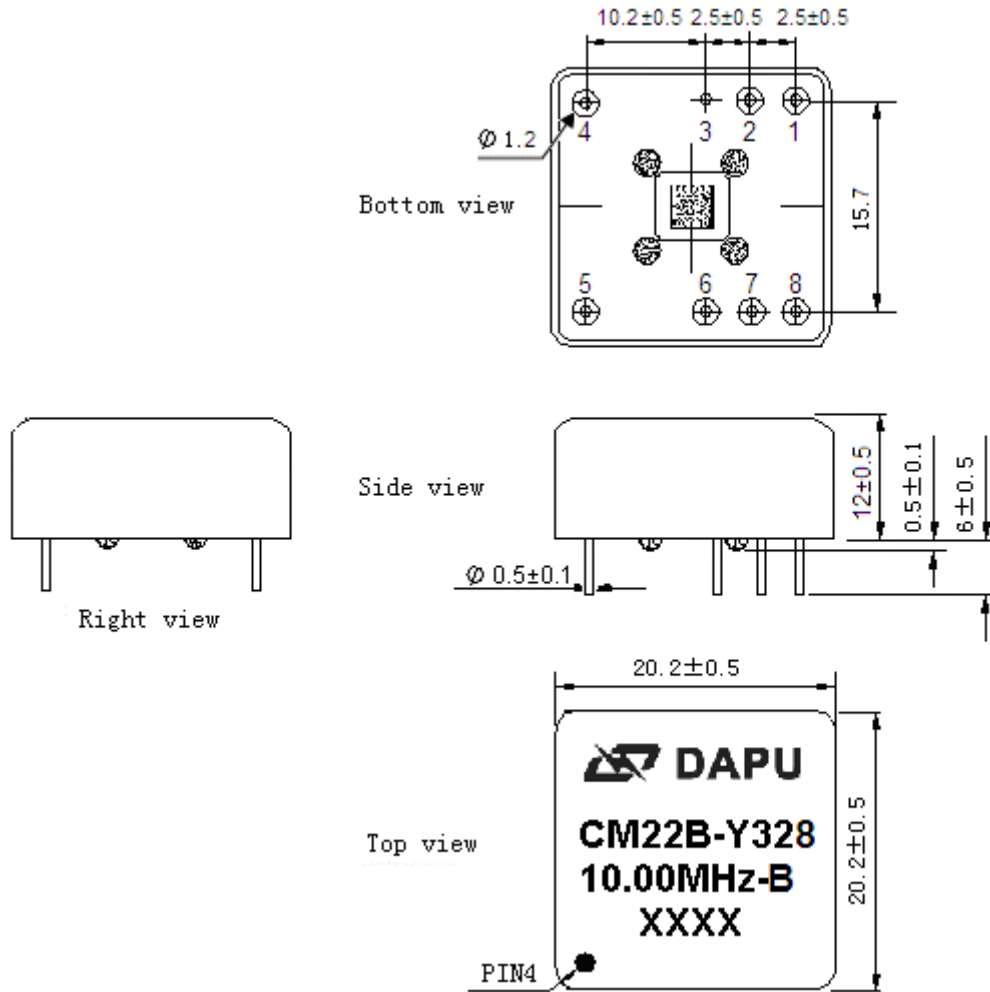
Run2: Slow track. Adjust the 10MHz output frequency slowly when the phase error is in the define range.

Hold Over: GPS 1PPS reference miss, an algorithm has been developed which enables adaptive modeling of the frequency stability of an OCXO with reference to a GPS timing signal.

Free Run: Clock module power on without 1PPS reference anyway.



#### 4. Mechanical Structure(mm)



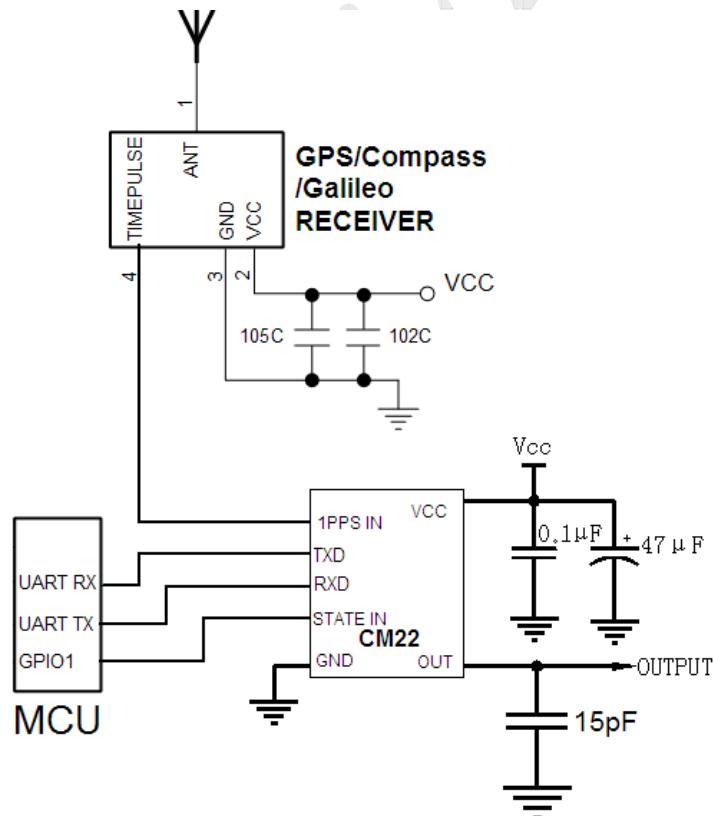
**Note1:** Tolerance  $\pm 0.20$ mm without mark

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



PIN DEFINITION			
PIN	NAME	DESCRIPTION	
1	State INPUT	H: Lock	The work state is set to normal operation when the state input is high.
		L: Holdover	The work state is set to hold over when the state input is low.
2	VCC	Power supply: 3.13V to 3.47V	
3	GND	GND	
4	1PPS Input	1PPS reference input	
5	RXD	Asynchronous serial data input. 9600-N-8-1.	
6	TXD	Asynchronous serial data output.9600-N-8-1.	
7	1PPS OUTPUT	The clock module 1PPS output .	
8	10.00MHz OUTPUT	10.00MHz frequency output, synchronization with 1PPS reference.	

### 5. Typical Application

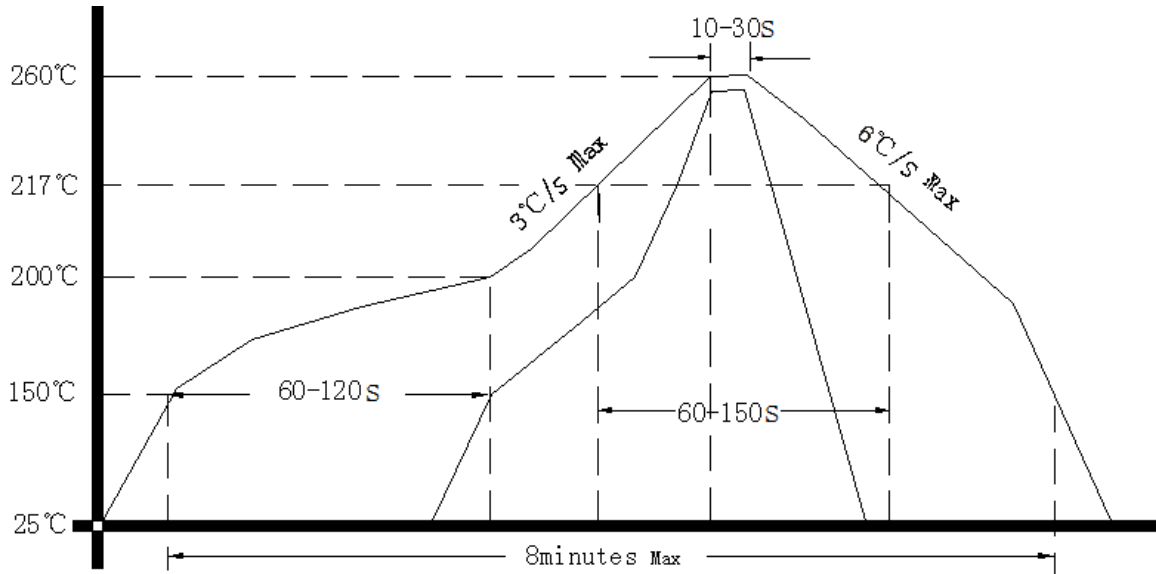


Satellite receiver offer 1PPS signal to the clock module CM22B.  
 The MCU monitor the work state of CM22B.  
 The CM22B power of 3.3V.





## 6. Reflow Soldering Curve (RoHS)



## 7. Package (mm)

