Customer Code : _____

DATASHEET

DAPU P/N: **CM22B-J328-10.00MHz-D**

Customer P/N: _____

DAPU			Customer Approval
Drew	Audited	Approved	
Amway.wei	Carry.Wang	James.Liu	
Date: 2018.03.26			Stamp, please! Thanks!

Guangdong Dapu Telecom Technology Co.,Ltd

Bldg13-16,.N.Ind.Zone,SSL Industry Park, Dongguan City, Guangdong Province, China

TEL：0086-0769-88010888 FAX：0086-0769-81800098

Bldg13-16,.N.Ind.Zone,SSL Industry Park, Dongguan City, Guangdong Province, PRC China
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Table of amendment

Version	Revision contents	Prepared by	Revised date
1.0	The first issued	Amway	2017.06.20
1.1	The ” Mechanical Structure” changed	Amway	2018.03.26

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1. Electrical Parameters

1 PPS Reference Input	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Waveform	HCMOS				
	High-Level Input Voltage (V_{IH})	2.4		3.4	V	
	Low-Level Intput Voltage (V_{IL})			0.4	V	
	Pulse Width	10			μs	
	Connector	Pin 4				
State Input	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Lock	2.4		3.4	V	<5mA Load
	Holdover			0.4	V	<5mA Load
	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	< 5mA Load
	Low-level Output Voltage (V_{OL})			0.4	V	< 5mA Load
	Rise/Fall Time			8	ns	Load 15pF
	Duty Cycle	45	50	55	%	Load 15pF
	Frequency Tolerance vs. Operating Temperature Range	-0.01		+0.01	$\times 10^{-6}$	T_A varied from-40℃ to 85℃, 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℃per minute.
	Accuracy	-0.01		+0.01	$\times 10^{-9}$	24 hours average when locked to 1PPS after power on 2days.
	Short-term Stability	-0.1		+0.1	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference, test after power for 1 hour ref. to 25℃; 1s, using PN9000 equipment.
	Warm-Up	-1		+1	$\times 10^{-6}$	T_A=25℃, V_{cc}=3.3V constant measurement referenced to 10.00MHz, after power on 3min with GPS lock.

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	Aging Tolerance Per Day	-5		+5	$\times10^{-9}$	Constant measurement referenced to frequency observed with T_A=25℃, Vcc =3.3V, after 30days of operation.
	Aging Tolerance 1 Year	-0.5		+0.5	$\times10^{-6}$	
	Phase Noise (All conditions)		-100	-90	dBc/Hz	10Hz
			-130	-120		100Hz
			-148	-143		1KHz
			-150	-145		10KHz
			-150	-145		100KHz
			-150	-145		1MHz
	Connector	Pin8				
Holdover Capability	Holdover Time	Min.	Typ.	Max.	Unit.	Test Condition
	24 Hours	-80		+80	μs	△T=±5℃, 24 hours holdover after turn on and lock 2 hours. Temperature variable speed less than 1℃ per minute.
Supply Voltage	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Supply Voltage	3.13	3.3	3.47	V	
	Warm up current			750	mA	
	Steady Consumption			250	mA	@25℃
	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	
	Low-level Output voltage (V_{OL})			0.4	V	
	Pulse Width	10			μs	
	Phase accuracy	-50		50	ns	Power on, the 1 PPS output is the reference 1PPS in;.
		-300		300	ns	When the CM is locked and stable, the 1PPS output is the divided OCXO frequency output.
	Connector	Pin 7				

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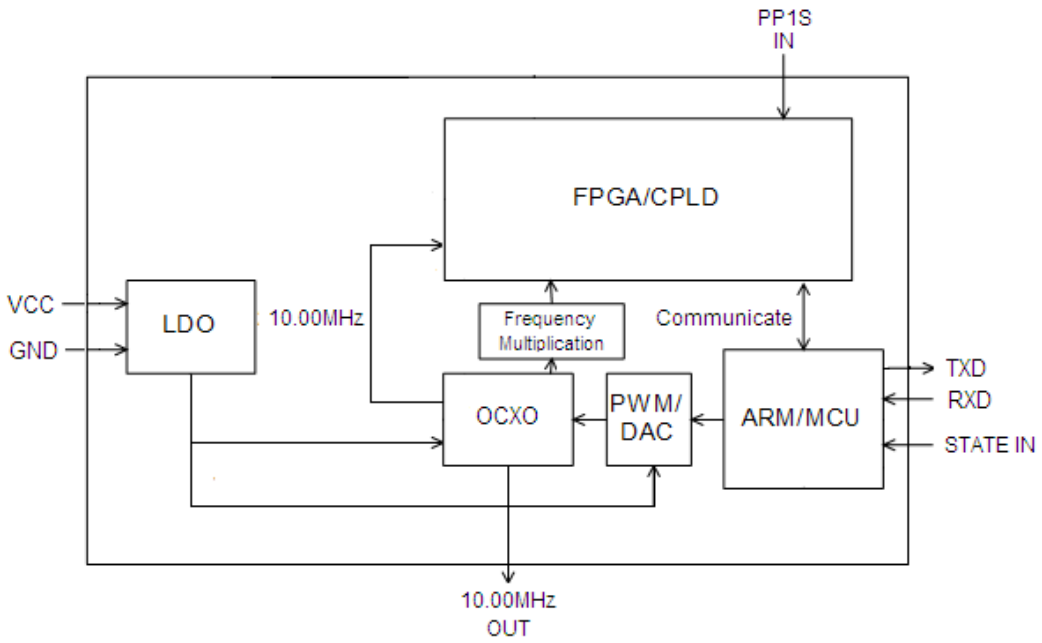
	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
Serial Interfaces	Rx high-level Input Voltage (VH)	2.4		3.4	V	
	Rx low-level Input Voltage (VL)			0.4	V	
	Tx high-level Output Voltage (VH)	2.4		3.4	V	
	Tx low-level Output Voltage (VL)			0.4	V	
	Serial Protocol	9600-N-8-1				
	Connector	Pin5 / Pin6				
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 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 (℃)	-10~35℃				

2. Functional Block Diagram



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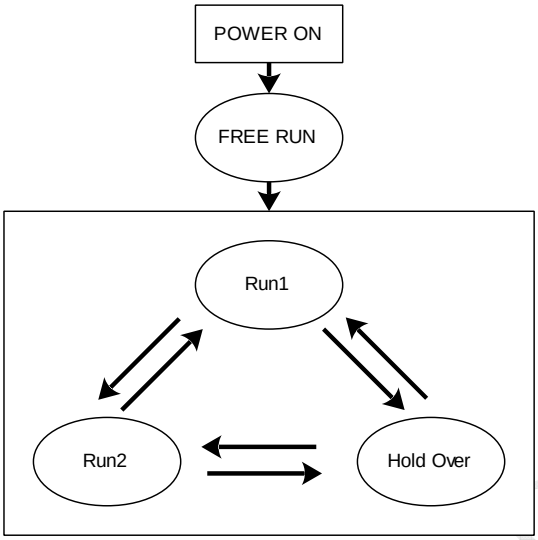
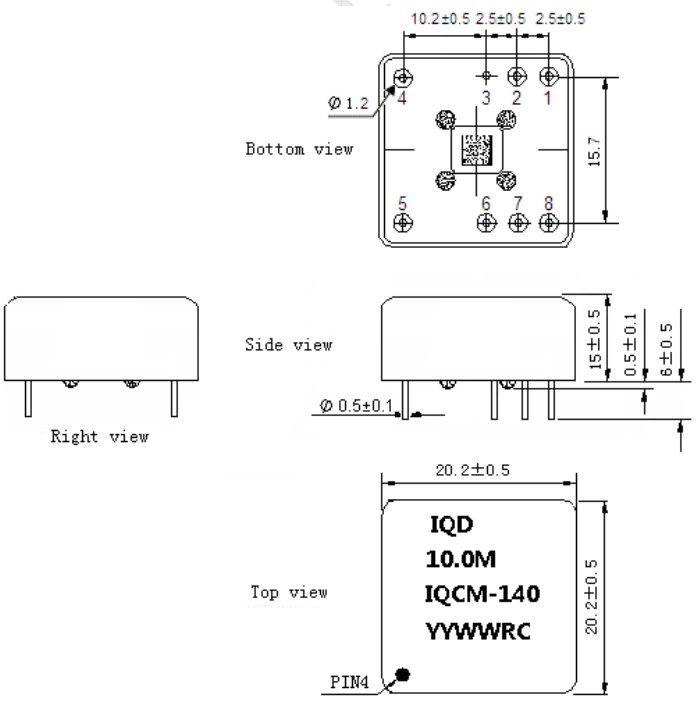
3. Workflow Diagram



Run1: Fast track. Adjust the OCXO 10MHz output frequence quickly to track the 1PPS of 10MHz with 1PPS reference.
Run2: Slow track. Adjust the OCXO 10MHz output frequence 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 ± 0.20mm without mark

Note2: The first two yy representative: year
After two ww representative: week

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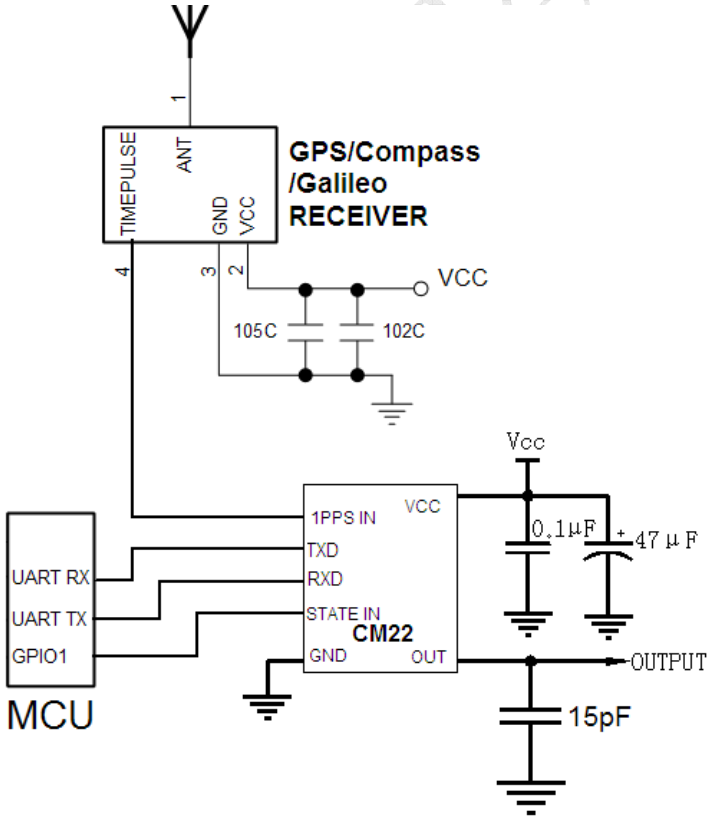
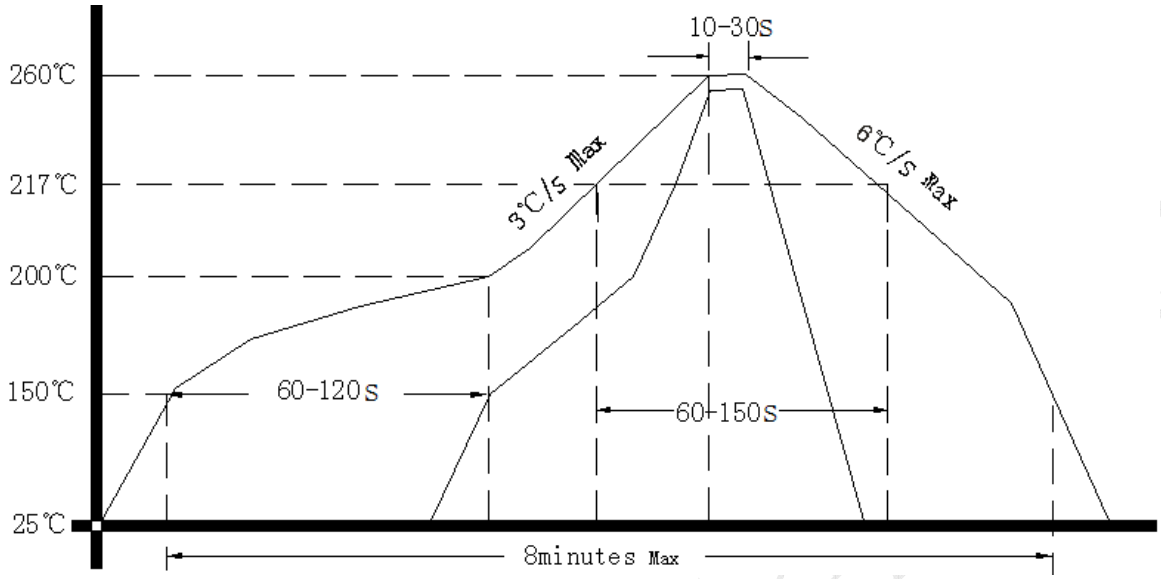
PIN DEFINITION			
PIN	**NAME**		**DESCRIPTION**
1	State INPUT	H: Lock	The work state is set to normal operation when the state input is high.
		L: Holdover	The work state is set to hold over when the state input is low.
2	VCC		Power supply: 3.13V to 3.47V
3	GND		GND
4	PP1S Input		PP1S reference input
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 OCXO frequency output, synchronization with PP1S 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）