Customer Code : _____

DATASHEET

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

Customer P/N: _____

DAPU			Customer Approval
Drew	Audited	Approved	黄永收 2020.2.20 Stamp, please! Thanks!
Amway.wei	Tony·Wang	James.Liu	
Date: 2020.02.20			

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	2014.12.17
1.1	Modified the 1st page "Full Package Storage" added "Rise/Fall Time", "Holdover Capability- Test Condition", "Warm up current" and "Warm-Up- Test Condition" changed	Amway	2015.11.06
1.2	"Mechanical Structure" changed	Amway	2016.03.06
1.3	"Pulse Width" changed	Amway	2019.03.13
1.4	"Mechanical Structure" "ESD Level" changed, Hight 15mm to 12.4mm; "Day aging": 5ppb to 3ppb; "Temperature stability":10ppb to 5ppb; "Holdover Capability" changed: from 80us to 50us	Amway	2020.02.20

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1. Electrical Parameters

1 PPS Reference Output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Waveform	HCMOS				
	High-Level Output Voltage (V_{IH})	2.4		3.4	V	
	Low-Level Output 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			10	ns	Load 15pF
	Duty Cycle	45	50	55	%	Load 15pF
	Frequency Tolerance vs. Operating Temperature Range	-5		5	$\times 10^{-9}$	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 5mins

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						with GPS lock.
	Aging Tolerance Per Day	-3		+3	$\times 10^{-9}$	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	$\times 10^{-6}$	
	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	-50		+50	μs	△T=±2℃, 24 hours holdover after turn on 1hour and lock 1 hour. 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			800	mA	
	Steady Consumption			300	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	50Ω
	Low-level Output voltage (V_{OL})			0.4	V	
	Pulse Width		1		ms	
	Accuracy	-200		+200	ns	24 hours average when locked to 1PPS after power on 2days.

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	Connector	Pin 7				
Serial Interfaces	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Rx high-level Input Voltage (V_{IH})	2.4		3.4	V	
	Rx low-level Input Voltage (V_{IL})			0.4	V	
	Tx high-level Output Voltage (V_{IH})	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; 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 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℃				

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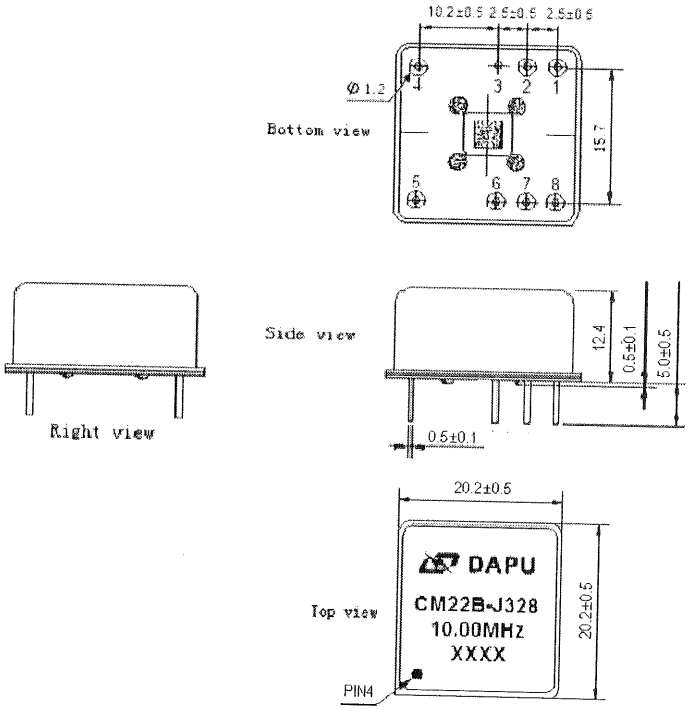
2. Mechanical Structure(mm)



Note1: Tolerance ± 0.3mm 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	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.

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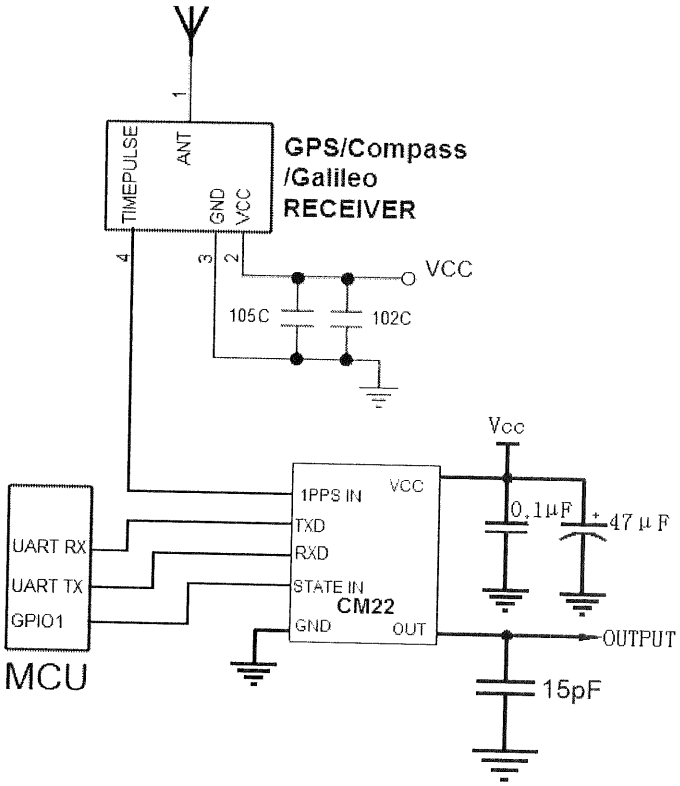
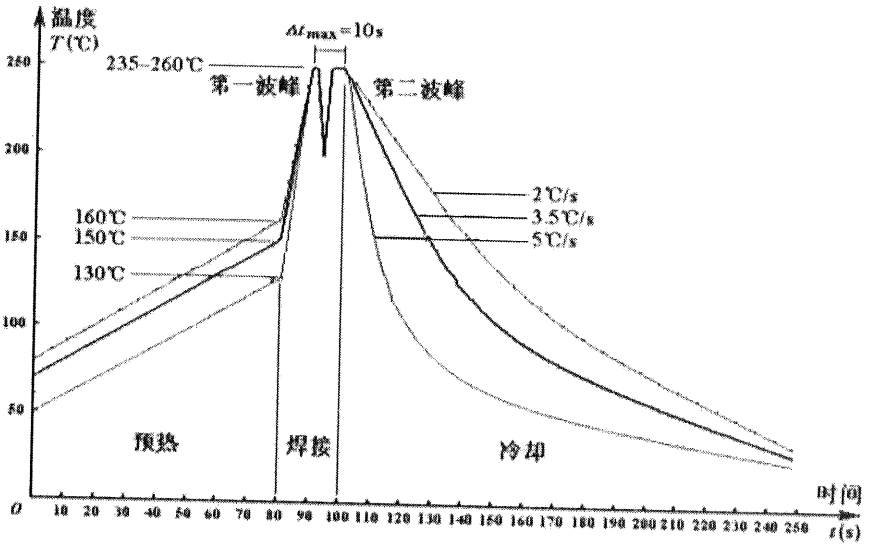
3. Typical Application



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

4. Wave Soldering Curve (RoHS)



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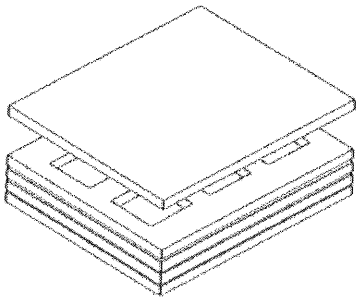
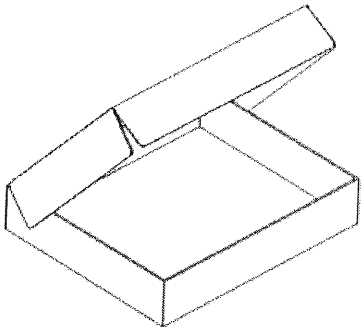
5. Package（mm）



Buffer material



Cardboard
Max18pcs. circulator