Customer Code : _____

DATASHEET

DAPU P/N: **CM66F-D128-19.20MHz**

Customer P/N: _____

DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Amway.wei	Carry.Wang	James.Liu	
Date: 2017.12.18			

Guangdong Dapu Telecom Technology Co.,Ltd

Bldg 16,.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
1.0	The first issued	Amway	2017.12.18

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1. Electrical Parameters

State Input	Parameters	Min.	Typ.	Max.	Unit.	
	Lock	2.7			V	<5mA Load
	Holdover			0.4	V	<5mA Load
	Connector	Pin 8				
RF Output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Nominal Frequency	19.20			MHz	
	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	< 5mA Load
	Duty Cycle	45	50	55	%	< 5mA Load
	Accuracy	-5		+5	$\times 10^{-12}$	24 hours average when locked to 1 PPS
	Short-term Stability			0.02	$\times 10^{-9}$	Temperature stability, no EMI\EMC or other interference, test after power for 1 hour ref. to 25℃; 1s, using PN9000 equipment.
	Aging Tolerance Per Day	-1		+1	$\times 10^{-9}$	V_{cc},T_A constant measurement referenced to frequency observed with T_A=25℃,V_{cc}=5.0V, in FREE RUN condition and after 30 days of operation.
	Aging Tolerance 1 Year	-0.1		+0.1	$\times 10^{-6}$	
	Phase Noise (All conditions)		-85	-80	dBc/Hz	10Hz
			-115	-110		100Hz
			-138	-133		1KHz
			-145	-140		10KHz
			-150	-145		100KHz
			-150	-145		1MHz
	Connector	Pin 2				
1PPS Input	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Waveform	HCMOS				
	High-Level Output Voltage (V_{IH})	2.7			V	
	Low-Level Output Voltage (V_{IL})			0.4	V	
	Pulse Width		100		ms	
	Connector	Pin 10				

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State Output	Parameters	Min.	Typ.	Max.	Unit.	
	Lock	2.7			V	<5mA Load
	Holdover			0.4	V	<5mA Load
	Connector	Pin 5				
Holdover Capability	Holdover Time	Min.	Typ.	Max.	Unit.	
	24hours	-1.5		+1.5	μs	ΔT=±5℃, 24hours holdover after turn on and lock 2days.Temperature variable speed less than 1 ℃ per minute
Supply Voltage	Parameters	Min.	Typ.	Max.	Unit.	
	Supply voltage	4.75	5.0	5.25	V	
	Current consumption			2000	mA	During Warm-up
				1000	mA	During steady state operation @25℃
	AC ripple		50		mVpk-pk	10Hz to 1MHz
	Connector	Pin 12				
1 PPS Output Waveform Characteristics	Parameters	Min.	Typ.	Max.	Unit.	
	Waveform	HCMOS				
	High-Level Output Voltage(V_{OH})	2.7			V	<5mA Load
	Low-level Output voltage (V_{OL})			0.4	V	
	Pulse width		100		ms	
	Connector	Pin 3				
Serial Interfaces	Parameters	Min.	Typ.	Max.	Unit.	
	Rx high-level input voltage (VH)	2.7			V	
	Rx low-level input voltage (VL)			0.4	V	
	Tx high-level output voltage (VH)	2.7			V	
	Tx low-level output voltage (VL)			0.4	V	
	Data format	NMEA-0183				
	Serial protocol	9600-N-8-1				
	Connector	Pin6 and Pin7				

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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.
Full Package Storage	Relative humidity (%)	20%～70%
	Temperature (℃)	-10~35℃

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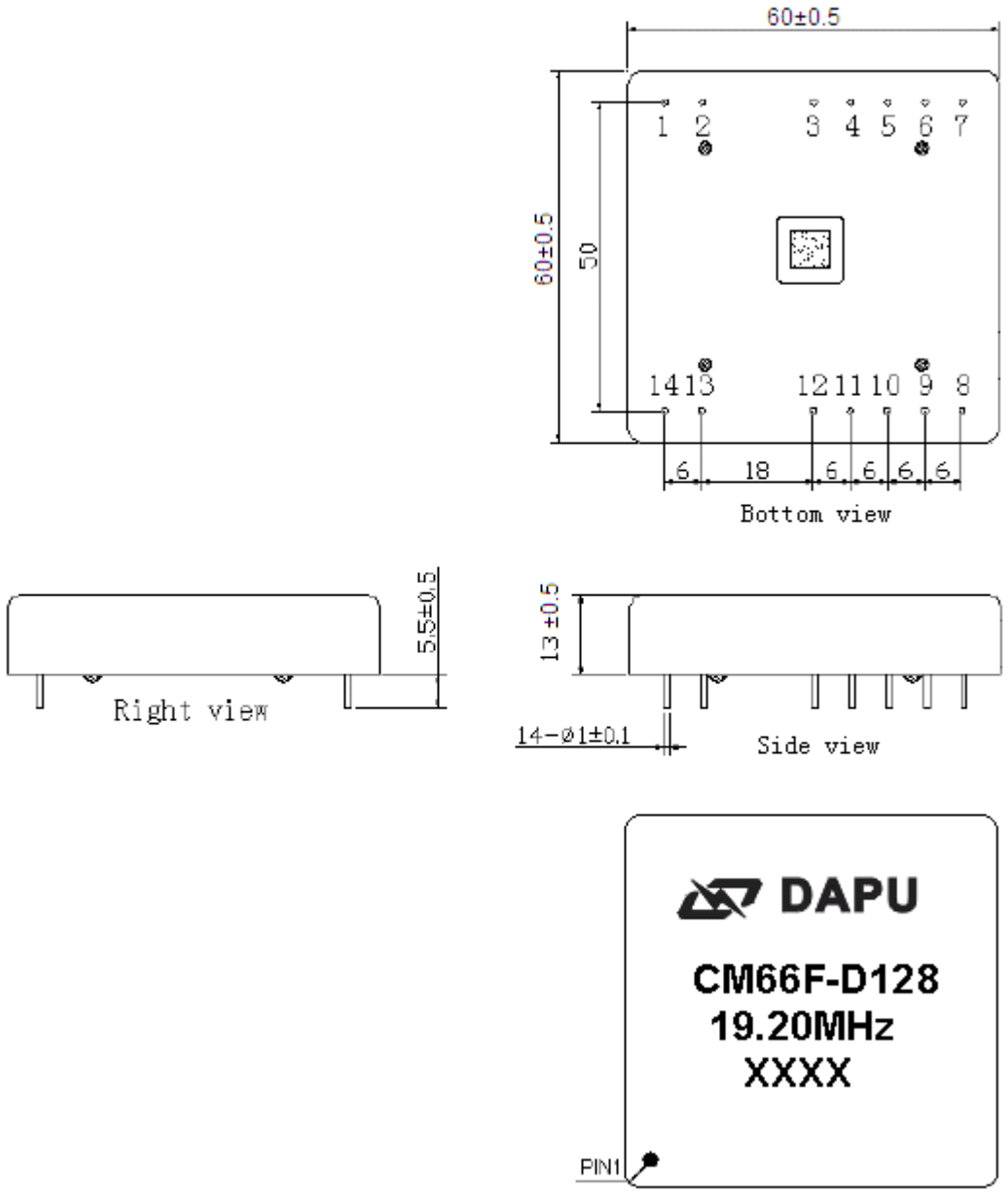
2. Mechanical Structure(mm)



Note1: Tolerance ± 0.20mm without mark

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

Note3: Referential weight 82±10g

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PIN DEFINITION			
PIN	**NAME**		**DESCRIPTION**
2	19.20MHz OUTPUT		19.20MHz OCXO frequency output .
3	1PPS OUTPUT		The clock module 1PPS output .
5	State OUTPUT		State output. Output high level when the CM is locked and stable, others low level.
6	RX INPUT		Asynchronous serial data input. 9600-N-8-1.
7	TX OUTPUT		Asynchronous serial data output. 9600-N-8-1.
8	State INPUT	H: Lock Enable	The work state is set to normal operation when the state input is high.
		L: Lock Disable	The module cannot be locked when the state input is low level.
10	1PPS IN		1PPS Input.
12	VCC		Power supply input, 4.75V to 5.25V.
1、14	NC		Not connected.
4、9、11、13	GND		GND

3. Coding Rules

CM XX X - X X X X - XX.XX MHz

Clock Module — Output Frequency

Size

65	65×65(mm)
55	50×50(mm)
22	20×20(mm)
66	60×60(mm)
77	75×75(mm)
33	35×35(mm)
54	54×50(mm)

Height

A	Without GPS Receiver,single Freq.19mm
B	Without GPS Receiver,single Freq.15mm
F	Without GPS Receiver,single Freq.13mm
G	Build-in GPS Receiver,single Freq.13mm
H	Build-in GPS Receiver,dual-Freq.13mm
K	Build-in GPS/BeiDou Receiver,single Freq.13mm
L	Build-in GPS/BeiDou Receiver,dual-Freq.13mm
P	13mm,PTP Function,SMT
T	19mm, PTP Function,DIP

Holdover Capability

A	±1.5μs	ΔT=±30℃	24hours
W	±1.5μs	ΔT=±15℃	24hours
D	±1.5μs	ΔT=±5℃	24hours
E	±3.0μs	ΔT=±5℃	24hours
F	±8.0μs	ΔT=±5℃	24hours
J	±80μs	ΔT=±5℃	24hours *1
S	±44μs	ΔT=±5℃	24hours *2

Supply Voltage

1	5.0V
3	3.3V

Output Waveform

1	Sine Wave
2	HCMOS

Operating temperature

8	-40℃~85℃
9	-20℃~75℃

NOTE:*1 Power on and lock to the GPS 1PPS 2 hours
*2 Power on and lock to the PTP 48 hours
Default power on 7 days and lock to the reference source 3 days

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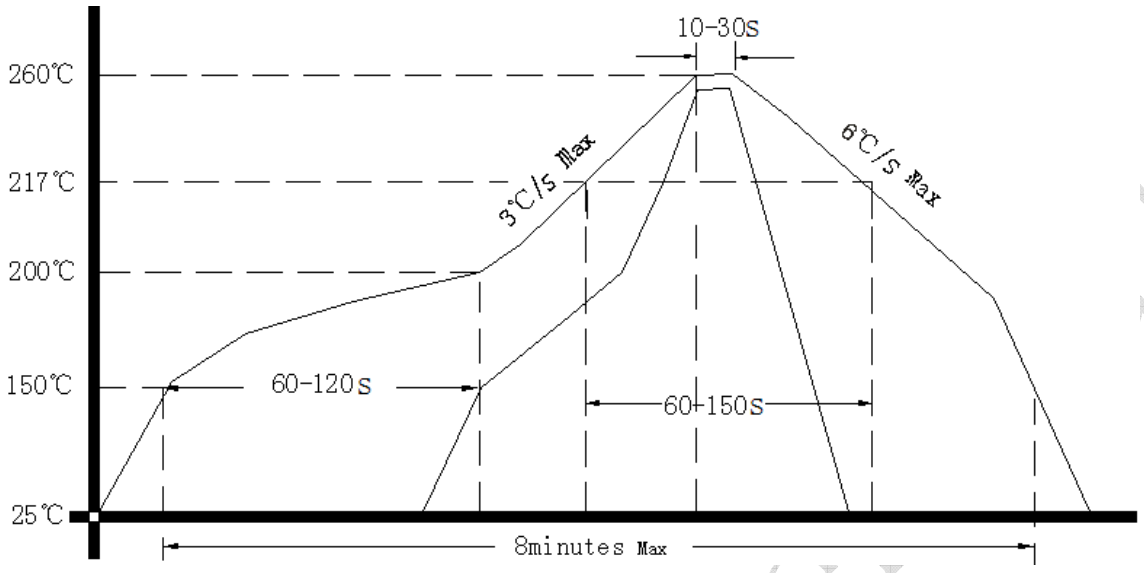
4. Reflow Soldering Curve (RoHS)



5. Package（mm）