

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

# DATASHEET

DAPU P/N: CM66K-G129-10.00MHzCustomer P/N: IQCM-112

DAPU			Customer Approval
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2019.06.20			

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## 1. Electrical Parameters

	PARAMETERS						NOTES
	Type	Auto Position Lock					
Internal Receiver Characteristics	Number Of Channels	72					
	Frequency Band	GPS L1C/A,SBAS L1C/A,QZSS L1C/A, QZSS L1SAIF,GLONASS L1OF,BeiDouB1,Galileo E1B/C					
	Sensitivity	Tracking & Navigation -165dBm					
		Acquisition -148dBm					
	Antenna INPUT	SMA-KE					CN1
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	10.00			MHz		
	Waveform	HCMOS					
	High-level Output Voltage (V <sub>OH</sub> )	2.7			V	< 5mA Load	
	Low-level Output Voltage (V <sub>OL</sub> )			0.4	V	< 5mA Load	
	Rise/Fall Time			8	ns	< 5mA Load	
	Duty Cycle	45	50	55	%	< 5mA Load	
	Accuracy	-1		+1	×10 <sup>-12</sup>	24 hours average when locked to 1 PPS	
	Short-term Stability			0.02	×10 <sup>-9</sup>	Temperature stability, no EMI/EMC or other interference, test after power for 1 hour ref. to 25°C; 1s, using PN9000 equipment.	
	Aging Tolerance Per Day	-0.2		+0.2	×10 <sup>-9</sup>	V <sub>cc</sub> , T <sub>A</sub> constant measurement referenced to frequency observed with T <sub>A</sub> =25°C, V <sub>cc</sub> =5.0V, in FREE RUN condition and after 30 days of operation.	
	Aging Tolerance 1 Year	-0.01		+0.01	×10 <sup>-6</sup>		



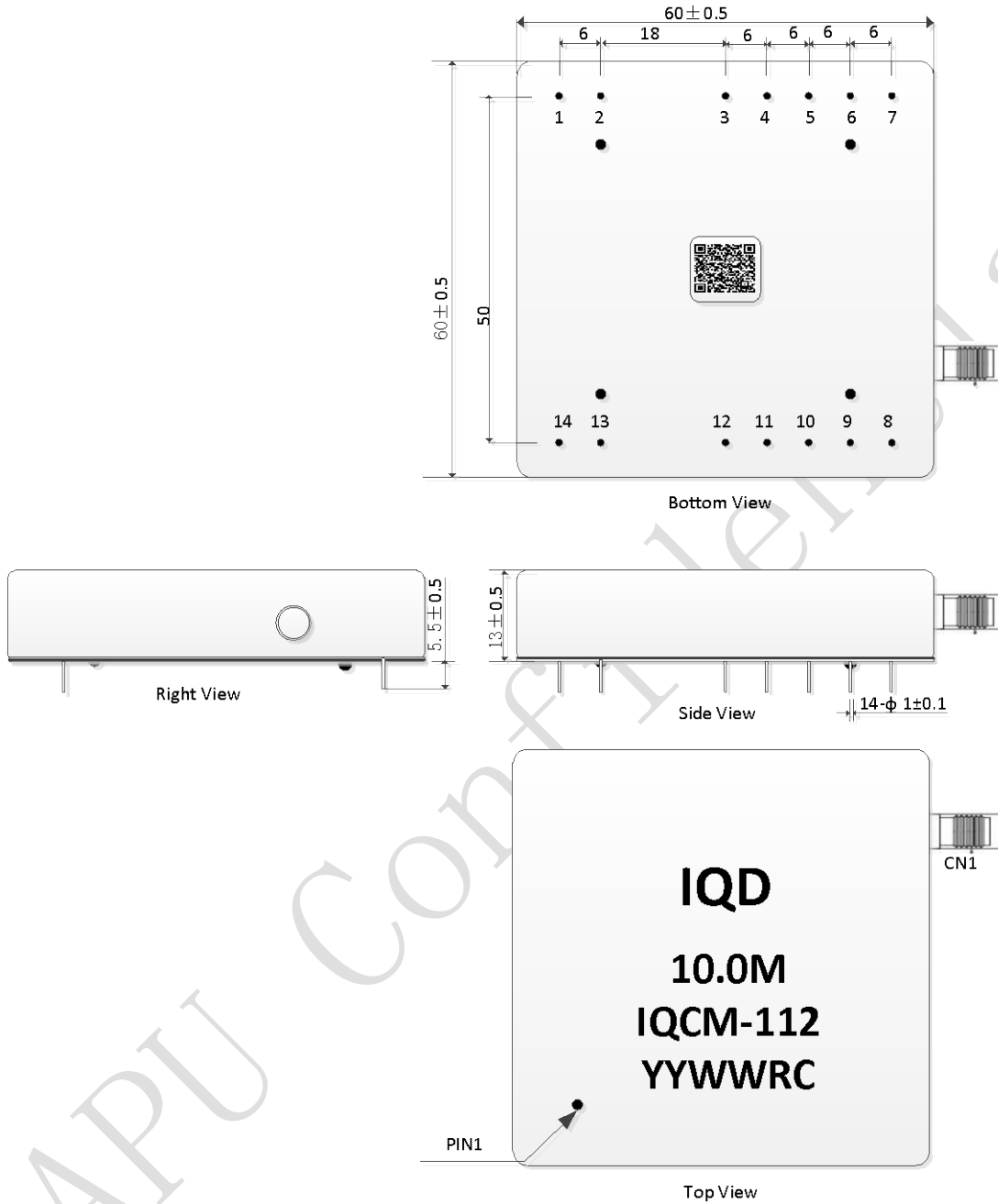
	Phase Noise (All conditions)		-118	-113	dBc/Hz	10Hz
			-138	-133		100Hz
			-148	-143		1KHz
			-150	-145		10KHz
			-150	-145		100KHz
			-150	-150		1MHz
	Connector	Pin 2				
GPS 1PPS Output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Waveform	HCMOS				
	High-Level Output Voltage (V <sub>IH</sub> )	2.7			V	15pF
	Low-Level Output Voltage (V <sub>IL</sub> )			0.4	V	
	Pulse Width		100		ms	
	Connector	Pin 10				
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.	
	8 hours	-1.5		+1.5	μs	ΔT=±5°C, 8 hours holdover after turn on 4 days and GPS lock 3 days, Temperature variable speed less than 1°C 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°C
	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 <sub>OH</sub> )	2.7			V	15pF
	Low-level Output voltage (V <sub>OL</sub> )			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				
Environmental Conditions	Parameter	Conditions				
	Operating temperature	-20°C to +75°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 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 (°C)	-10~35°C				



## 2. Mechanical Structure(mm)

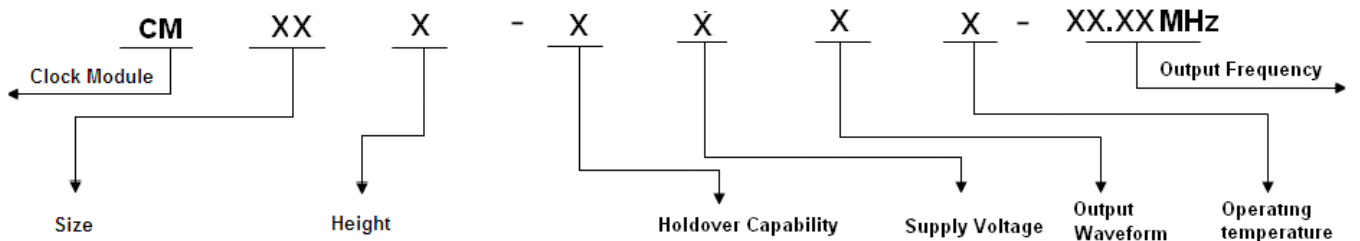


- Note1:** Tolerance  $\pm 0.20$ mm without mark
- Note2:** The first two xx representative: week  
After two xx representative: year
- Note3:** Referential Weight  $82 \pm 10$ g



PIN DEFINITION		
PIN	NAME	DESCRIPTION
2	10MHz OUTPUT	10MHz 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 OUTPUT	1PPS from the internal GPS/BD receiver.
12	VCC	Power supply input, 4.75V to 5.25V.
1、14	NC	Not connected.
4、9、11、13	GND	GND

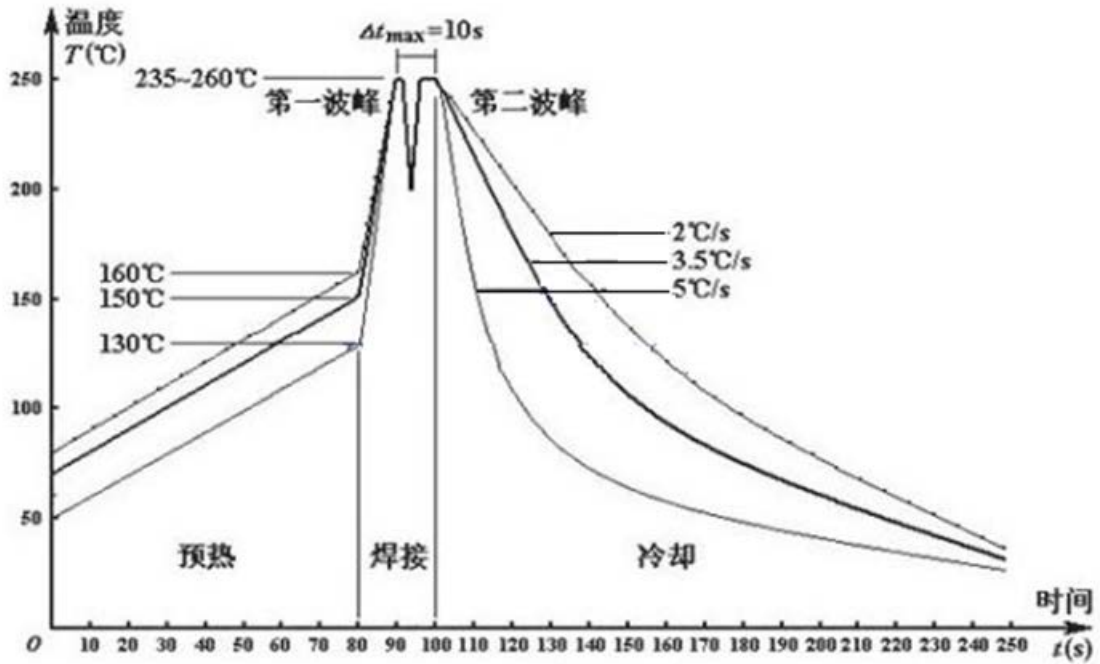
### 3. Coding Rules



Size	Height	Holdover Capability	Supply Voltage	Output Waveform	Operating temperature
66 60×60 (mm)	A 19mm, single Freq, external GPS receiver	A ±1.5µs 0°C~60°C 24hours	1 5.0V	1 Sine Wave 2 HCMOS	1 0°C~80°C
65 65×65 (mm)	B 19mm, single Freq, internal GPS receiver	B ±3.0µs 0°C~60°C 24hours			2 -10°C~70°C
	C 19mm, single Freq, internal dual-mode receiver	C ±8.0µs 0°C~60°C 24hours			6 -40°C~70°C
	F 13mm, single Freq, external GPS receiver	D ±1.5µs ΔT=±5°C 24hours			8 -40°C~85°C
	G 13mm, single Freq, internal GPS receiver	E ±3.0µs ΔT=±5°C 24hours			9 -20°C~75°C
	H 13mm, dual-Freqs, internal GPS receiver	F ±8.0µs ΔT=±5°C 24hours			
	K 13mm, single Freq, internal dual-mode receiver	G ±1.5µs ΔT=±5°C 8hours			
	L 13mm, dual-Freqs, internal dual-mode receiver	H ±3.0µs ΔT=±5°C 8hours			
		I ±8.0µs ΔT=±5°C 8hours			
		K ±1.5µs ΔT=±2°C 24hours			
		M ±3.0µs ΔT=±2°C 24hours			
		N ±8.0µs ΔT=±2°C 24hours			
		O ±1.5µs ΔT=±2°C 8hours			
		P ±3.0µs ΔT=±2°C 8hours			
		Q ±8.0µs ΔT=±2°C 8hours			



#### 4. Wave Soldering Curve (RoHS)



#### 5. Package (mm)

