

Travelling Merchant: \_\_\_\_\_

# DATASHEET

Standard: CM66G-M129-10.00MHz

P/N: \_\_\_\_\_

Plot			The Label
Drew	Audited	Approved	Stamp, please! Thanks!
Date: 2014.02.08			

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## 1. Electrical Parameters

Internal Receiver Characteristics	PARAMETERS						NOTES
	Type	Auto Position Lock					
	Number Of Channels	50					
	Frequency Band	L1 (1575.42 MHz)					
	Tracking Code	C/A Code					
	Tracking Capability	12 Satellites					
	Sensitivity	Tracking & Navigation	-162dBm				
		Reacquisition	-157dBm				
Cold Start (Autonomous)		-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 ( $V_{OH}$ )	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	-1		+1	$\times 10^{-12}$	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°C; 1s, using PN9000 equipment.	
	Aging Tolerance Per Day	-0.2		+0.2	$\times 10^{-9}$	$V_{cc}, T_A$ constant measurement referenced to frequency observed with $T_A=25^\circ\text{C}, V_{cc}=5.0\text{V}$ , in FREE RUN condition and after 30 days of operation.	
Aging Tolerance 1 Year	-0.01		+0.01	$\times 10^{-6}$			



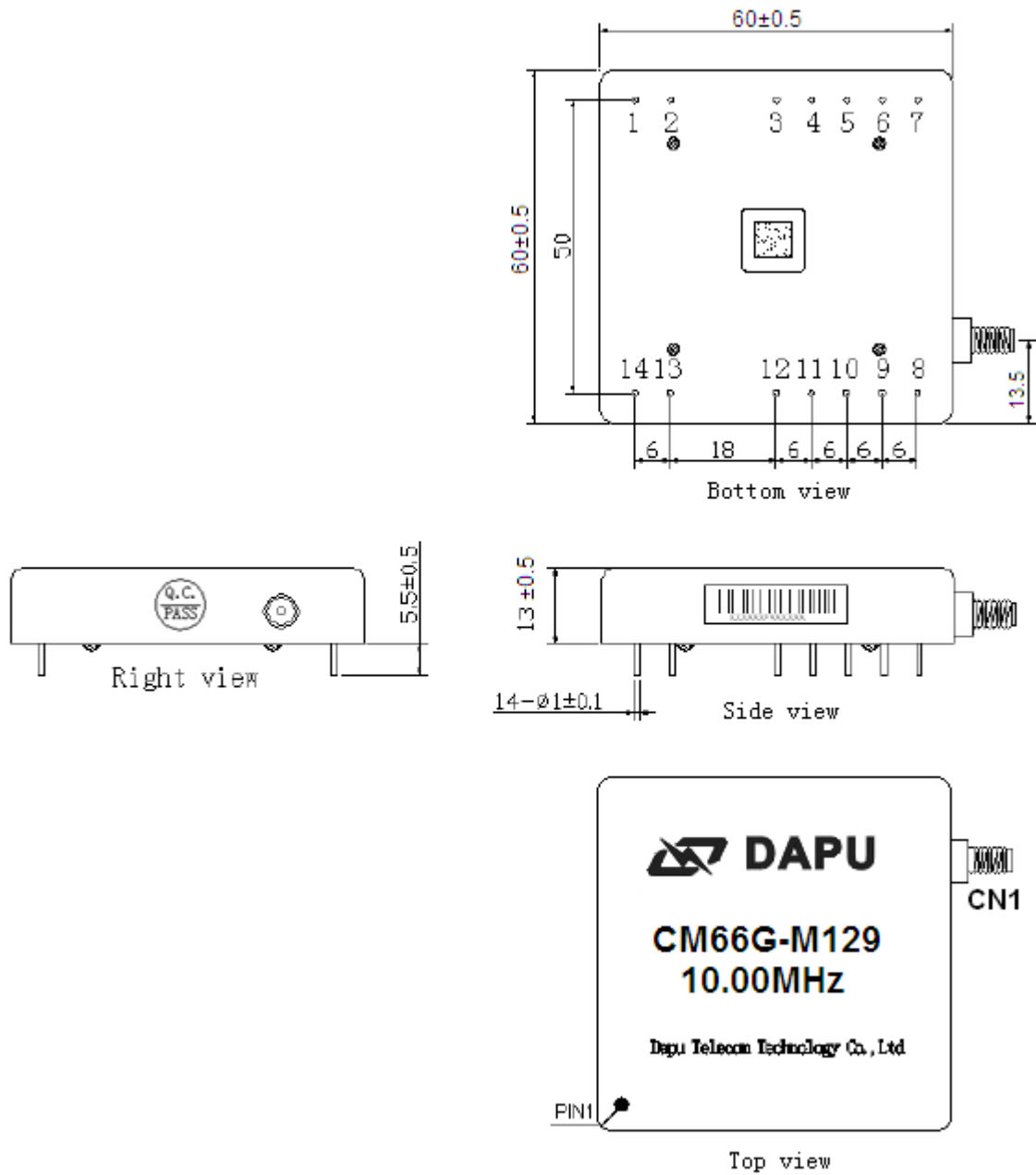
	Phase Noise (All conditions)		-118	-113	dBc/Hz	10Hz
			-138	-133		100Hz
			-148	-143		1KHz
			-150	-145		10KHz
			-150	-145		100KHz
			-150	-150		1MHz
	Connector	Pin 2				
GPS 1PPS Output	Parameters	Min.	Typ.	Max.	Unit.	Test Condition
	Waveform	HCMOS				
	High-Level Output Voltage (V <sub>IH</sub> )	2.7			V	
	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.	
	24 hours	-3		+3	μs	ΔT=±2°C, 24 hours holdover after turn on 7days and GPS lock 3days. Temperature variable speed less than 1°Cper 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	50Ω
	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.					



## 2. Mechanical Structure(mm)



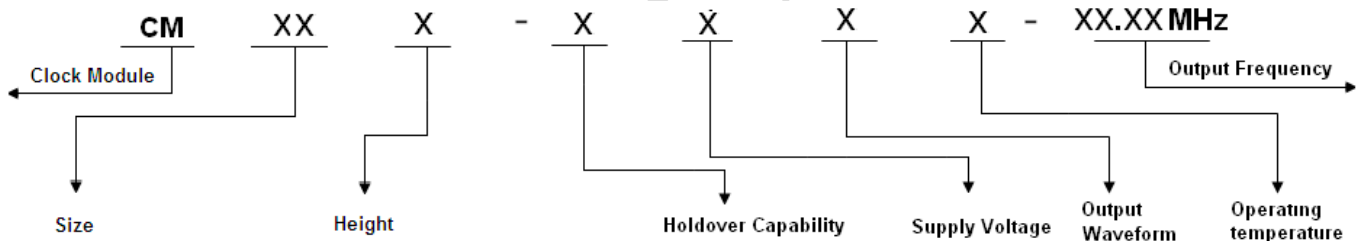
**Note1:** Tolerance  $\pm 0.2$ mm without mark

**Note2:** 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	GPS 1PPS OUTPUT	1PPS from the internal GPS receiver.
12	VCC	Power supply input, 4.75V to 5.25V.
1、14	NC	Not connected.
4、9、11、13	GND	GND

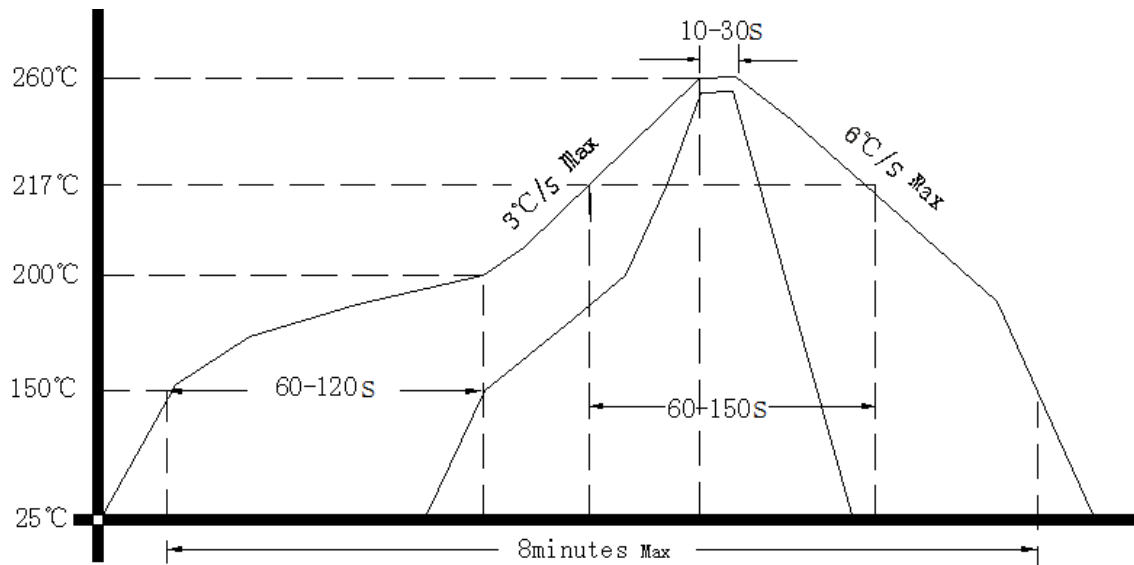
### 3. Coding Rules



Size	Height	Holdover Capability	Supply Voltage	Output Waveform	Operating temperature
33 36×36 (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 2 -10°C~70°C
55 50×50 (mm)	B 19mm, single Freq, internal GPS receiver	B ±3.0µs 0°C~60°C 24hours			
66 60×60 (mm)	C 19mm, single Freq, internal dual-mode receiver	C ±8.0µs 0°C~60°C 24hours	1 5.0V	1 Sine Wave 2 HCMOS	6 -40°C~70°C 8 -40°C~85°C 9 -20°C~75°C
65 65×65 (mm)	F 13mm, single Freq, external GPS receiver	D ±1.5µs ΔT=±5°C 24hours			
77 75×75 (mm)	G 13mm, single Freq, internal GPS receiver	E ±3.0µs ΔT=±5°C 24hours			
	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			
	P 13mm, for PTP, 1588 applications	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			
		Z ±12 µs ΔT=±5°C 12hours			



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



#### 5. Package (mm)

