

Travelling Merchant: _____

DATASHEET

Standard: CM66G-N129-10.00MHz

P/N: _____

| Plot | | | The Label |
|------------------|---------|----------|------------------------|
| Drew | Audited | Approved | Stamp, please! Thanks! |
| | | | |
| Date: 2014.12.26 | | | |

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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 | $\times 10^{-6}$ | | | |



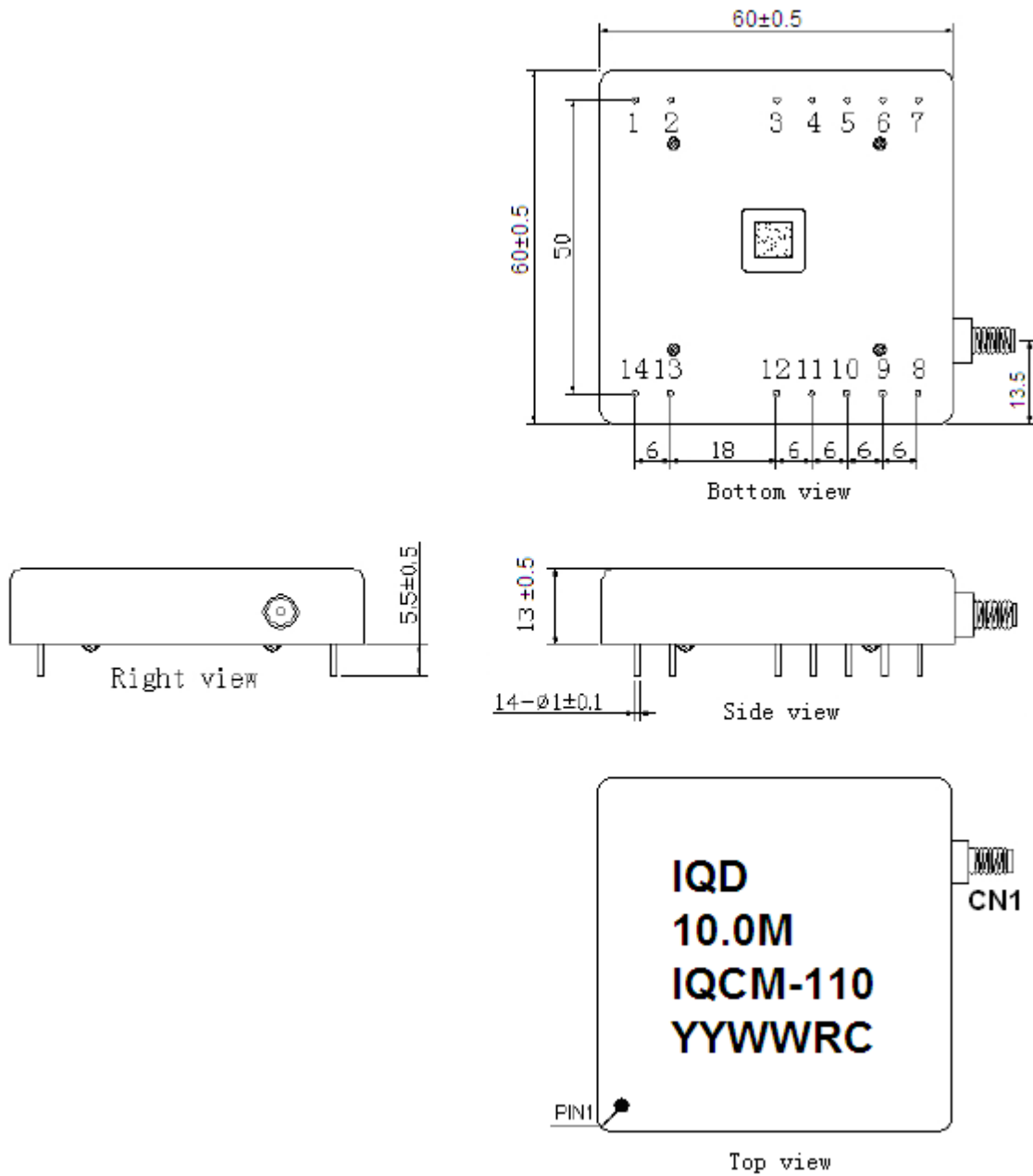
| | | | | | | |
|---|--|--------|------|------|---------|---|
| | Phase Noise (All conditions) | | -118 | -113 | dBc/Hz | 10Hz |
| | | | -138 | -133 | | 100Hz |
| | | | -148 | -143 | | 1KHz |
| | | | -150 | -145 | | 10KHz |
| | | | -150 | -145 | | 100KHz |
| | | | -150 | -150 | | 1MHz |
| | Connector | Pin 2 | | | | |
| GPS 1PPS Output | Parameters | Min. | Typ. | Max. | Unit. | Test Condition |
| | Waveform | HCMOS | | | | |
| | High-Level Output Voltage (V_{IH}) | 2.7 | | | V | 15pF |
| | Low-Level Output Voltage (V_{IL}) | | | 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 | -8 | | +8 | μ s | $\Delta T = \pm 2^{\circ}C$, 24 hours holdover after turn on 7days and GPS lock 3days. Temperature variable speed less than $1^{\circ}C$ 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 $^{\circ}C$ |
| | 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_{OH}) | 2.7 | | | V | 15pF |
| | 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 | | | | |
| 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 ± 0.2 mm without mark

Note2: Referential Weight 82 ± 10 g

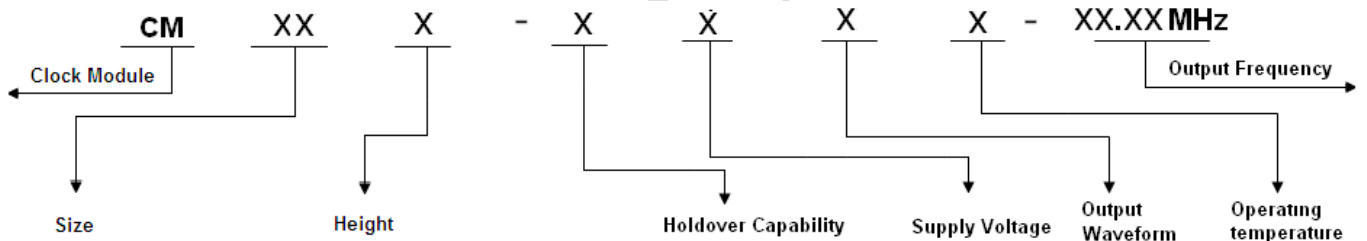
Note3: The YY representative: year

The WW representative: week



| 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 |

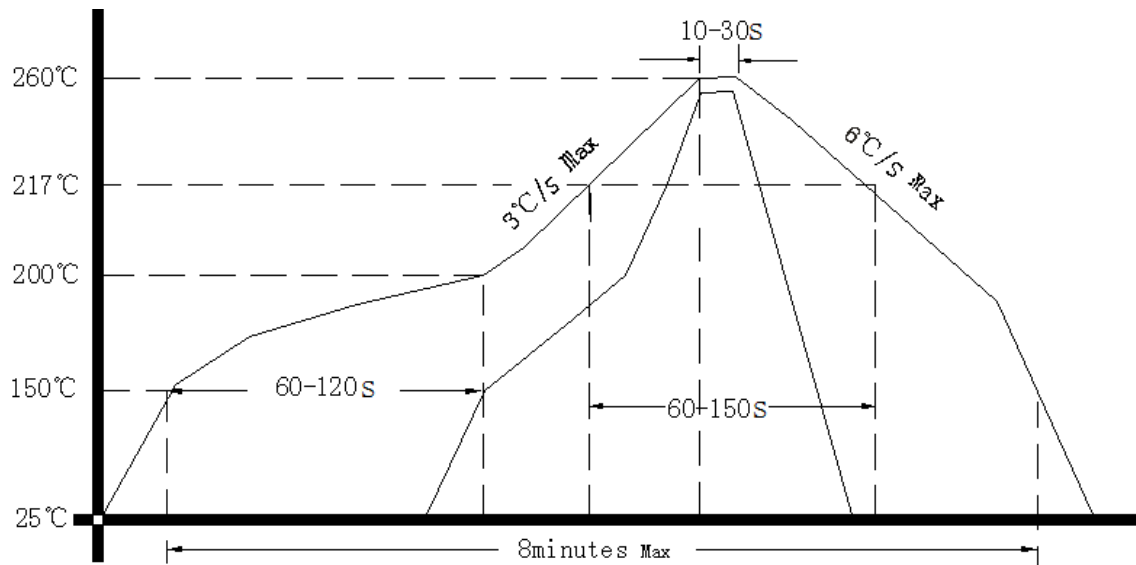
3. Coding Rules



| 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 |
| 55 50×50 (mm) | B 19mm, single Freq, internal GPS receiver | B ±3.0µs 0°C~60°C 24hours | | | 2 -10°C~70°C |
| 66 60×60 (mm) | C 19mm, single Freq, internal dual-mode receiver | C ±8.0µs 0°C~60°C 24hours | | | 6 -40°C~70°C |
| 65 65×65 (mm) | F 13mm, single Freq, external GPS receiver | D ±1.5µs ΔT=±5°C 24hours | | | 8 -40°C~85°C |
| 77 75×75 (mm) | 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 | | | |
| | 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)

