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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Description



- A GPS disciplined OCXO incorporating a GPS receiver unit to give 1PPS and 10MHz output. With 1.5µs holdover stability achieved by using an adaptive algorithm. Standard NMEA0183 data is available to the user via a serial port.
- Model IQCM-110
- Model Issue number 1
- Working States (Reference Drawing):
 Run1: Fast track. Adjust the OCXO 10MHz output frequency quickly to track the GPS.
 Run2: Slow track. Adjust the OCXO 10MHz output frequency slowly when phase error is in the defined range.
 Holdover: No GPS input present; an algorithm enables adaptive modelling of the frequency stability of an OCXO with reference to the GPS timing signal.
 Free Run: Clock module powered up with no GPS input.
- NMEA Data Words:
 The following standard GNSS data is available to the user via the interface on pin 6 and pin 7: GPRMC, GPVTG, GPGLL, GPGGA, GPGSA, GPGSV, GPZDA. These are broadcast every second in sync with the 1PPS output.
- Note 1: The IQCM-110 should be left powered and running for 7 days minimum before operation to allow for the OCXO's internal drift to stabilise.
 Note 2: The adaptive module algorithm can be built after two days operation with good GPS signal, however this data will be lost at power down.
 Note 3: When State Input (Pin 8) is set low the IQCM-110 will operate in Holdover mode regardless of the 1PPS signal condition.

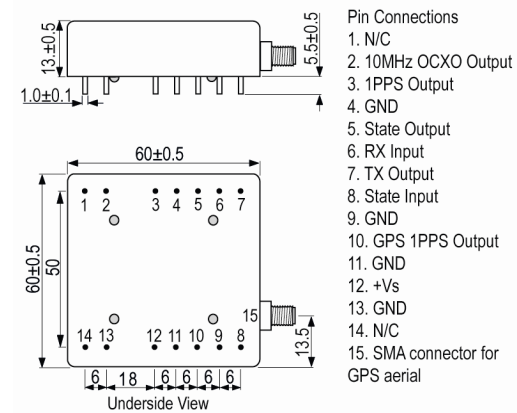


Frequency Parameters

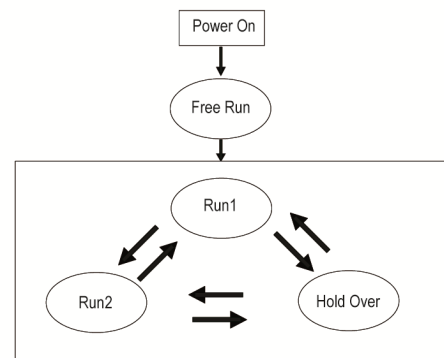
- Frequency 10.00MHz
 - Operating Temperature Range -20.00 to 75.00°C
 - 10MHz RF Output Details, Pin 2:
 HCMOS Compatible
 (Sinewave 50Ω option available)
 VoH: 2.7V min
 VoL: 0.4V max
 Rise and Fall Time: 8ns max
 Duty Cycle: 45/55% max
 Accuracy (24-hour averaging when locked to 1PPS): ±1E-12
 Short Term Stability (tested after power for 1hr ref to 25°C, 1s, using PN9000 test equipment): 2E-11 max
 Ageing (Vs and temperature constant, reference to T=25°C, Vs = 5.0V and after 30 days operation): ±0.2ppb per day, ±10ppb per year
 - 1PPS Output from internal GPS receiver, Pin 10, Phase Accuracy when locked to GPS:
 Initial Lock Status (<30mins locked to GPS): ±200ns max
 Full Lock (>30mins locked to GPS): ±80ns max
 Steady Lock State (>24hrs GPS lock): 25ns RMS max
 - 24hrs Holdover Capability:
 Reference 7 days powered on, 2 days GPS lock.
 Temperature varied <1°C/min within operating temperature range.
- Total Temperature Change Holdover Capability
 $\Delta T < \pm 2^\circ C$ $\pm 1.5 \mu s$

Note: Other options available on request.

Outline (mm)



Workflow Diagram



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Electrical Parameters

- Supply Voltage 5.0V ±5%
- 1PPS output from internal GPS receiver, Pin 10:
Waveform: HCMOS
Test Condition: 15pF
ViH: 2.7V min
ViL: 0.4V max
Pulse Width: 100ms min
- State Input, Pin 8 (<5mA load):
Lock: 2.7V min
Unlock: 0.4V max
Pin 8 has an internal pull-up cct.
- Power Supply Details, Pin 12:
Supply Voltage: 5.0V ±5%
Current Consumption: 2A during warm up, 1A steady state @ 25°C
AC Ripple: 50mV pk-pk max, 10Hz to 1MHz
- GPS Internal Receiver Specification:
Type: GPS Position Lock
Number of Channels: 50
Frequency Band: L1 (1575.42MHz)
Tracking Code: C/A Code
Tracking Capability: 12 Satellites
Sensitivity: Tracking and Navigation 162dBm
Reacquisition -157dBm
Cold Start (autonomous) -148dBm
Antenna Input SMA-KE (active antenna recommended)

Output Details

- Output Compatability HCMOS
- 1PPS Reference Output, Pin 3 (15pF test condition):
Waveform: HCMOS
VoH: 2.7V min
VoL: 0.4V max
Pulse Width: 100ms min
- Lock Status Indicator, Pin 5:
Module Locked: 2.7V min
Module Holdover: 0.4V max
Module Locked means Working State is = Run2
Current: 5mA max
- Serial Interface (Pin 6 and Pin 7):
NMEA-0183
VoL and ViL: 0.4V max
VoH and ViH: 2.7V min
Baud rate: 9600
Bits: 8
Parity: N
Stop Bit: 1

Noise Parameters

- Phase Noise on 10MHz RF Output Signal (dBm/Hz):

Offset	Typical	Max
10Hz	-118	-113
100Hz	-138	-133
1kHz	-148	-143
10kHz	-150	-145
100kHz	-150	-145
1MHz	-150	-150

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Environmental Parameters

- Operating Temperature Range: -20 to 75°C
- Storage Conditions:
 - Temperature: -55 to 105°C
 - Humidity: 30 to 80%
- Shock: IEC 68-2-27 Test Ea, Severity 50A: 50G 11ms half sinewave, 3 times in three mutually perpendicular planes.
- Vibration: IEC 68-2-06, Test Fc: 10G, 0.75mm acceleration, 10Hz to 500Hz, 3 times in three mutually perpendicular planes.

Manufacturing Details

- ESD Levels: ANSI/ESDA/JEDEC JS-001-2010:
 - Human Body Model, Class 2: 2000V to 4000V
 - Machine Model, Class B: 200V to 400V

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

Packaging Details

- Pack Style: Bulk Loose in bulk pack
 - Pack Size: 1
- *Alternative packing option available*

Technical Notes

- *Holdover stability 1.5µs in 24hrs ref ±2°C*

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