

ISSUE 5; December 2020

Description

- The IQRB-2 low noise rubidium oscillator is a sub-miniature atomic oscillator combined with 'active noise filter' technology. This rubidium oscillator has 100 times less drift than OCXOs and with short term stability of 0.002ppb/s at 100s this rubidium oscillator provides significant improvements in performance over other rubidium components.
- FEATURES:
 - 10MHz output
 - 96 x 60 x 40mm standard size
 - 113dBc/Hz @ 1Hz phase noise
 - 0.05ppb accuracy
 - 0.002ppb/s @ 100s
 - Atomic accuracy
 - Low noise and high stability
 - 100 times less drift than OCXOs
- APPLICATIONS:
 - Long-Term Evolution (LTE) high-speed wireless communications.
 - Extended holdover for CDMA, WiMAX and LTE base stations.
 - Higher stability and low phase noise communication and surveillance applications.

Frequency Parameters

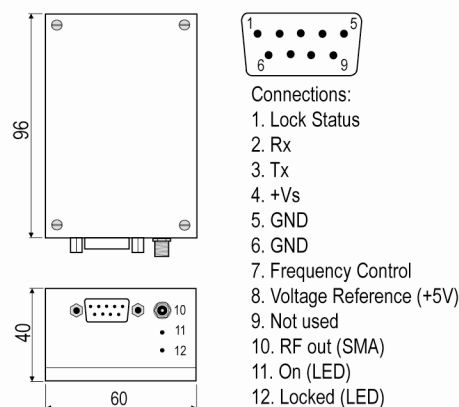
- Frequency 10.0MHz
- Frequency Tolerance ± 0.05 ppb
- Tolerance Condition @ 25°C
- Frequency Stability ± 0.30 ppb
- Short Term Stability:
 - 1s 0.002ppb max
 - 10s 0.003ppb max
 - 100s 0.002ppb max
 - 1hr 0.001ppb max
- Ageing:
 - Day ± 0.003 ppb max
 - Month ± 0.04 ppb max
- Magnetic Field Sensitivity (Gauss): ± 0.02 ppb max
- Retrace: ± 0.02 ppb typ
- Note: Standard operating temperature range is -20 to 60°C. Operating temperature range of -40 to 60°C is available upon request, please contact an IQD Sales Office.

Electrical Parameters

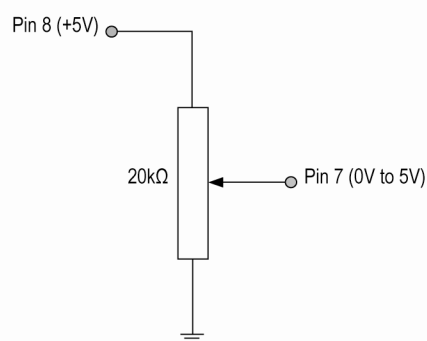
- Supply Voltage 12.0V
- Note: The device will operate over the Supply Voltage Range 12V to 15V.
- Power Consumption Start Up (@ 25°C): 22W @ 12V, 1.8A max.
- Power Consumption Steady State: 6W @ 12V, 0.5A max.
- Warm Up Time: 5mins typ to lock @ 25°C.
- Lock Monitor: Pin 1 is high (5V) when out of lock and low (0V) when locked.



Outline (mm)



Frequency Control & Voltage Reference Circuit



Sales Office Contact Details:

UK: +44 (0)1460 270200
Germany: 0800 1808 443

France: 0800 901 383
USA: +1.760.318.2824

Email: info@iqdfrequencyproducts.com
Web: www.iqdfrequencyproducts.com

Frequency Adjustment

- Pulling ± 2 ppb max
- Control Voltage 2.5V ± 2.5 V
- Input Impedance 10k Ω min
- Note: The oscillator will detect if no control voltage is applied to Pin 7 and will automatically set the control voltage internally to 2.5V.

Operating Temperature Ranges

- -20 to 60°C

Output Details

- Output Compatibility Sine
- Drive Capability 50 Ω
- Output Level: +7dBm ± 2 dBm
- Output Connector Type: SMA
- Rx and Tx connections for RS232 communication of the status of the oscillator.

Noise Parameters

- Phase Noise (typ):
 - 113dBc/Hz @ 1Hz
 - 138dBc/Hz @ 10Hz
 - 152dBc/Hz @ 100Hz
 - 155dBc/Hz @ 1kHz
 - 158dBc/Hz @ 10kHz
- Harmonics: -30dBc max
- Spurious: -80dBc max

Environmental Parameters

- Storage Temperature Range: -40 to 85°C
- Mechanical Shock: IEC 60068-2-27, Test Ea: Acceleration of 50G peak amplitude for 11ms duration.
- Vibration: IEC 60068-2-06, Test Fc: 10Hz-55Hz 1.5mm displacement, 55Hz-500Hz 10G acceleration.
- Atmospheric Pressure: -60m to 4000m: 1×10^{-13} mbar max
- EMI: Compliant to FCC Part 15, Class B.

Manufacturing Details

- MTBF (Stationary): Approx 100000hrs

Compliance

- RoHS Status (2015/863/EU) Compliant
- REACH Status Non-Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

Packaging Details

- Pack Style: Bulk Bulk pack
Pack Size: 1

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