

RUBIDIUM OSCILLATOR

Part Number: 830908376502 | IQRB-4

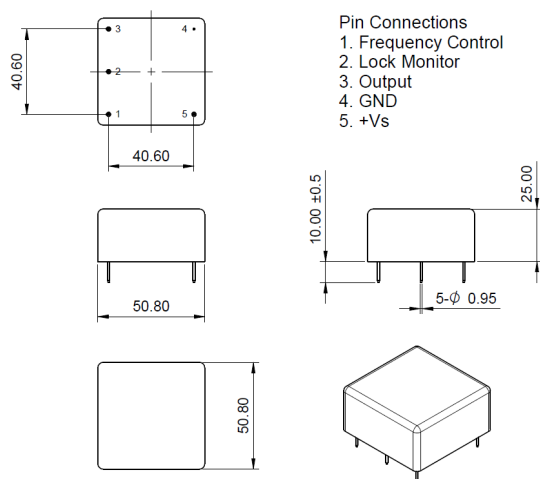
AKA Number: LFRBX0083765B



General Information

The IQRB-4 rubidium oscillator is a sub-miniature atomic clock in a 65 cc OCXO style package, running on a 5 V supply voltage.

Dimensions [mm]



Frequency Parameters

Frequency	10.0 MHz
Frequency Tolerance	± 0.05 ppb max @ 25 °C
Frequency Stability	± 0.8 ppb max.
Operating Temperature	-10 °C to 60 °C
Ageing	± 0.005 ppb max. per day. ± 0.05 ppb max. per month.
■ Temperature Stability: -10 to 60 °C ±0.08 ppb typ, ±0.8 ppb max.	
■ Retrace: ±0.02 ppb max.	
■ Magnetic Field Sensitivity, DC (±2 Gauss): <±0.04 ppb/Gauss max.	

Electrical Parameters

Supply Voltage	5 V ± 3 %
Rise Time t_r	11 ns typ.
Fall Time t_f	11 ns typ.
Duty Cycle	49/51 %
■ Input Power: Warm Up (@ 25 °C): 18 W @ 5 V, 3.6 A max. Steady State: 6 W, 1.2 A max, 800 mA typ.	
■ Warm Up Time: 7 mins to lock @ 25 °C	
■ Lock Monitor: Pin 2 is high (5 V) when out of lock and low (0 V) when locked.	

Output Details

Output Compatibility	CMOS
Drive Capability	15 pF
Drive Capability: 15pF	

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Frequency Adjustment

Pulling Total Pulling ± 3 ppb typ. ± 5 ppb max

Control Voltage 0 V to 3.3 V

Input Impedance 10 k Ω min.

- Linearity: Positive slope.
- Control Voltage Input Current (Pin 1 swept from 0 V to 3.3 V): 40 μ A typ.
- Control Voltage Input Capacitance (Pin 1): 5 pF typ.
- Note: if no voltage is applied to the control voltage (pin1) it will be internally set. If a voltage is applied (even GND) to Pin 1, the oscillator will accept the external control voltage input.

Material Parameters

Termination Finish Au
Kovar alloy

Moisture Sensitivity Level (MSL) Not Applicable

Manufacturing Details

- These products need to maintain thermal stability to obtain optimum performance. Large copper plates should be avoided under the device, or mount the device with 1 mm clearance from the PCB. Avoid airflow and do not attempt to mount heat sink to the device.
- The oscillator base plate runs hot: be aware that this may cause damage to other components in close proximity.

Company Address

IQD Frequency Products Ltd.
Station Road
Crewkerne
Somerset
TA18 8AR, United Kingdom

Noise Parameters

- Short Term Stability (ADEV) typical

1 s 5.0E-11

10 s 9.0E-12

100 s 4.5E-12

- Phase Noise (typ)

-67 dBc/Hz @ 1 Hz

-95 dBc/Hz @ 10 Hz

-127 dBc/Hz @ 100 Hz

-140 dBc/Hz @ 1 kHz

-148 dBc/Hz @ 10 kHz

-148 dBc/Hz @ 100 kHz

Environmental Parameters

Storage Temperature Range: -55 $^{\circ}$ C to 95 $^{\circ}$ C

- Base Plate Temperature: -30 to 85 $^{\circ}$ C
- Case Temperature (after 1 hr, ambient temp 25 $^{\circ}$ C, no ventilation): 55 $^{\circ}$ C typ.
- Mechanical Shock: IEC 60068-2-27, Test Ea: Acceleration of 50 g peak amplitude for 11 ms duration.
- Vibration: IEC 60068-2-06, Test Fc: 10 Hz-55 Hz 1.5 mm displacement, 55 Hz-500 Hz 10 g acceleration.
- Atmospheric Pressure: -60 m to 4000 m: 1E-13 mbar max.
- EMI: Compliant to FCC Part 15, Class B

Technical Standards

RoHS Status 2015/863/EU - Compliant

REACH Status Compliant

Packaging Details

Packaging SPQ Bulk 1 pcs

Bulk pack.