



RFS2: Low Phase Noise Rubidium Oscillator

Description

The RFS2 is a high quality rubidium oscillator module. Intended for OEM applications, the RFS2 provides a very accurate 10 MHz output signal.

A special feature of the RFS2 is its small size and low power consumption. Its size is 2 x 2 x 1 inches or 51 x 51 x 25 mm and operates from 12V with a typical power consumption of 6 watts.

Many options are available for the RFS2.

Specifications

Output

- Output frequency 10 MHz sine wave (optional HCMOS)
- Amplitude: + 7 dBm
- Phase noise (SSB) < -67 dBc/Hz (1 Hz offset), -95 dBc/Hz (10 Hz), < -127 dBc/Hz (100 Hz), < -140 dBc/Hz (1 kHz), < -140 dBc/Hz (10 kHz)
- Harmonics: -25 dBc. Sub-Harmonics - 60 dBc.
- Accuracy at shipment $\pm 5 \times 10^{-11}$
- Aging (after 30 days) < $5 \times 10E^{-12}$ (24 hours), < $5 \times 10E^{-11}$ (monthly), < $2 \times 10E^{-9}$ (yearly)
- Short-term stability < $3 \times 10E^{-11}$ (1 s), < $1 \times 10E^{-11}$ (10 s), < $3 \times 10E^{-12}$ (100 s)
- Holdover 72 hour Stratum 1 level
- Frequency retrace $\pm 1 \times 10E^{-10}$
- Settability < $1 \times 10E^{-11}$
- Trim range 0 – 5V > $5 \times 10E^{-9}$
- Warm-up time 5 minutes to lock.

Electrical

- Input voltage +12 VDC to +18 VDC
- Current 1.2 A (warm-up), 0.5 A @ 25 °C
- Tune Line Input: 0 – 5V
- Lock Monitor output

Environmental

- Operating temperature -20 °C to +50 °C (-30 to +65 °C optional)
- Temperature stability $\pm 5 \times 10E^{-10}$
- Storage temperature -55 °C to +85 °C
- Magnetic field < $2 \times 10E^{-11}$ for 1 Gauss field reversal

- Shock / Vibration: GR-CORE-63 , 4.5.2/4 locked to 1.0 g
- EMI Compliant to FCC Part 15. Class B

Miscellaneous

- Size : 51 mm (depth) x 51 mm (wide) x 25 mm (high)
- MTBF: > 100000 hours
- RoHs: Compliant

Options

- Option 01: D sub connector.
- Option 01B: SMA connector for 10 MHz output.
- Option 02: Built in GPS receiver (case size increases to 150 x 76.2 x 50.8)
- Option 03A: External 1 pps locking input. TTL levels.
- Option 03B: External 10 MHz locking input.
- Option 04: 12 - 18 V DC power input @ 5Amps (warm-up) and 1.5 A (srteady)
- Option 05: Ultra low phase noise (-110 dBc @ 1 Hz offset with a -168 dBc noise floor)
- Option 06: 1 pps output (rising edge is aligned to rising edge of input 1 pps, if option 03A is also fitted).
- Option 07: Higher output for 10 MHz sinewave with improved harmonics (state level)

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- Full specifications available from www.ptsyst.com. Specifications and features subject to change without notice 091023)