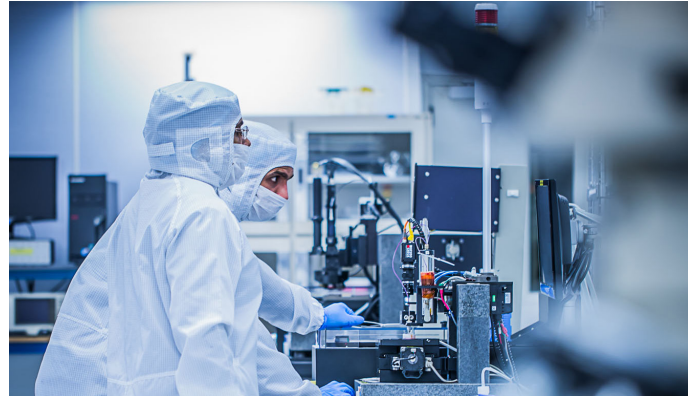


Introduction

Rakon is one of the world's largest solution providers of high reliability frequency control products. Through Rakon India (formally Centum Rakon India), Rakon offers a wide variety of high reliability solutions into the Indian defense market. Rakon continuously develops state of the art frequency control products at the leading edge of innovative technology, supporting the "Make in India" initiative directed by the Indian government.

Rakon India Defense Product Range, Heritage and Capabilities

- ◆ Rakon India has a proven record of supplying XO, VCOs, TCXOs and OCXOs into the Indian market for more than 15 years, and has helped to build India's domestic heritage in defense programmes.
- ◆ The majority of our defense products are qualified and being deployed with major customers, whether they are Tier 1-2, private or government-based.
- ◆ As your strategic frequency control partner, Rakon can provide standard products or modified solutions, ranging from high performance crystals and ovenised oscillators through to complex sub-systems.



Rakon is Qualified in MIL and India Programmes

Many government and commercial programmes in India use Rakon products in systems where high performance is required under the most complex and demanding conditions (such as airborne, sea and land applications). Specific applications include: STABLE Local Oscillators (STALOs), ground/air radar Tx/Rx modules, Coherent Oscillators (CO), master oscillators for radar Rx, Master Reference Oscillators (MRO), Identification of Friend or Foe (IFF) radars, military switching equipment, avionics (commercial and military), Air Route Surveillance Radar (ARSR), airborne Software-Defined p (SDR) and synthesizer references.



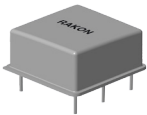
Hi-Reliability Solutions for Defense – Rakon India Products

◆ Defense Solutions

Rakon has an extensive portfolio of products with extreme capabilities. We have frequency control solutions for all types of defense applications.

XO – MIL Level B

RXO3434D



High RF power XO for Identification of Friend and Foe (IFF) radar systems and ground radar Tx/Rx.

- Frequency: 0.1 to 1.15 GHz
- Size: 34 x 34 x 12.7 mm
- Power: 1 W in pulsed mode

RXO2520D

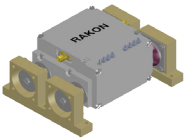


High shock resistance XO for launch vehicles.

- Frequency: 67 to 455 MHz
- Size: 25 x 20 x 10 mm
- Wide temperature range

VCO – High stability

RVC7670D



VCO for STABLE Local Oscillators (STALO) and radar receiver modules.

- Frequency: 1.4 to 1.6 GHz
- Size: 76 x 70 x 45 mm
- High stability reference
- DDS/PLL-based, fast switching time

RVC1414D



VCO for high speed data communication, Identification of Friend and Foe (IFF) radar systems.

- Frequency: 0.97 to 1.45 GHz
- Size: 14 x 14 x 4.7 mm
- High stability reference
- Phase noise: -120 dBc/Hz

TCXO – MIL Level B, high performance

RTX2520D



High shock resistance TCXO for launch vehicles.

- Frequency: 67 to 455 MHz
- Size: 25 x 20 x 10 mm
- 16 pin, hermetically sealed
- Wide temperature range: -55 to 125°C

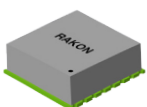
RCT3627D



Dual frequency output high stability gated TCXO for Identification of Friend, Foe (IFF) radar systems and military switching equipment.

- Frequency: 1.03 and 1.09 GHz
- Size: 36 x 27 x 11 mm
- Stability: ± 1 ppm over -40 to 85°C
- Digital frequency switching
- Fast switching time: $< 10 \mu\text{s}$
- RF body radiation: -60 dBm

RHT2020D

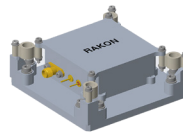


High frequency TCXO for VHF band Software Defined Radio (SDR), Combat Net Radio (CNR) / manpack radio.

- Frequency: 0.2 to 3.3 GHz
- Size: 20 x 20 x 11 mm
- PLL-based
- Surface mount package

OCXO – Vibration resilient solutions

ROX7878D



Vibration hardened OCXO for radar and airborne applications. Certified by CEMILAC (Center for Military Airworthiness and Certification).

- Frequency: 60 to 120 MHz
- Size: 78 x 78 x 27 mm
- Dynamic phase noise:
100 Hz offset: -115 dBc/Hz max.
500 Hz offset: -120 dBc/Hz max.

ROX5151D



Vibration compensated OCXO for commercial avionics equipment.

- Frequency: 10 to 120 MHz
- Size: 51 x 51 x 37 mm
- Withstands 20 g 10 – 2000 Hz vibration in 3 axes for 4 hours
- Compliant with altitude up to 50,000 ft

◆ Coming Soon Products

Voltage Controlled SAW Oscillator (VCSO)



- Frequency: 0.84 to 1.09 GHz
- Size: 14.3 x 9.3 x 5.6 mm
- Frequency pulling: 200 ppm/V
- Phase noise: -125 dBc/Hz @ 10 kHz

Voltage Tunable Filter (VTF)



- Frequency: 135 to 175 MHz
- Size: 29.7 x 14.5 x 6.0 mm
- Attenuation @ $F_c \pm 42.8$ MHz: 60 dB
- Bandwidth: 5% \pm 1%

High Frequency (HF) SMD OCXO



- Frequency: 500 MHz
- Size: 41 x 30 x 14.5 mm
- Frequency pulling: $> \pm 3$ ppm
- Phase noise: -140 dBc @ 100 kHz

Phase Locked Dielectric Resonator Oscillator (PLDRO)



- Frequency: 3.0 to 8.0 GHz
- Size: 51 x 51 x 17 mm
- Spurious level: < -70 dBc
- Phase noise specifications for both static and dynamic conditions
- Warm-up time: < 5 min

