# RDO5757D

The RDO5757D is a high-performance Phase Locked Dielectric Resonator Oscillator (PLDRO) designed for precision microwave signal generation. The device output frequency (fo), available from 7 to 30 GHz across the C-, X-, Ku- and Ka-bands, delivers ultra-low phase noise (-130 dBc/Hz floor @7.68 GHz) and high spectral purity (-70 dBc). The RDO5757D supports both internal reference locking and optional external high-stability reference, with an integrated OCXO available where no external reference is present. This architecture makes it ideally suited for defence, military, and other high-reliability microwave systems.

Combining a high-Q dielectric resonator for low close-in phase noise with a phase-locked loop (PLL), the RDO5757D delivers accurate, stable reference-derived performance in demanding applications.

The RDO5757D is available in two package options: a standard version with a single RF output ($F_{OUT}$), and an extended version that includes a second SMA connector providing a reference output ($F_{REF}$). Both options have the same footprint, with the dual-output variant offered in a reduced height.

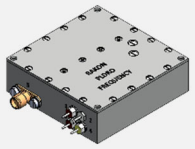
## Key Specifications

- Nominal Frequency (Fn):
  7 to 30 GHz. Supporting C-, X-, Ku- and Ka-bands
- Operating temperature: -40 to 70°C
- Reference input frequency: 80 to 125 MHz
- Voltage supply: 12V, 5% tolerance
- Harmonics: -25 dBc
- Spurious: -70 dBc
- Low phase noise:
  @ 7.68 GHz, 1 MHz offset: -130 dBc/Hz
  @ 18 GHz, 1 MHz offset: -125 dBc/Hz

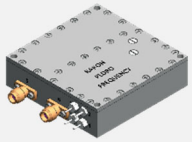
## Applications

- Radar systems
- Satellite communication terminals
- Defence
- Industrial electronic warfare systems
- Microwave transceivers
- Aerospace and space platforms
- Test and measurement equipment

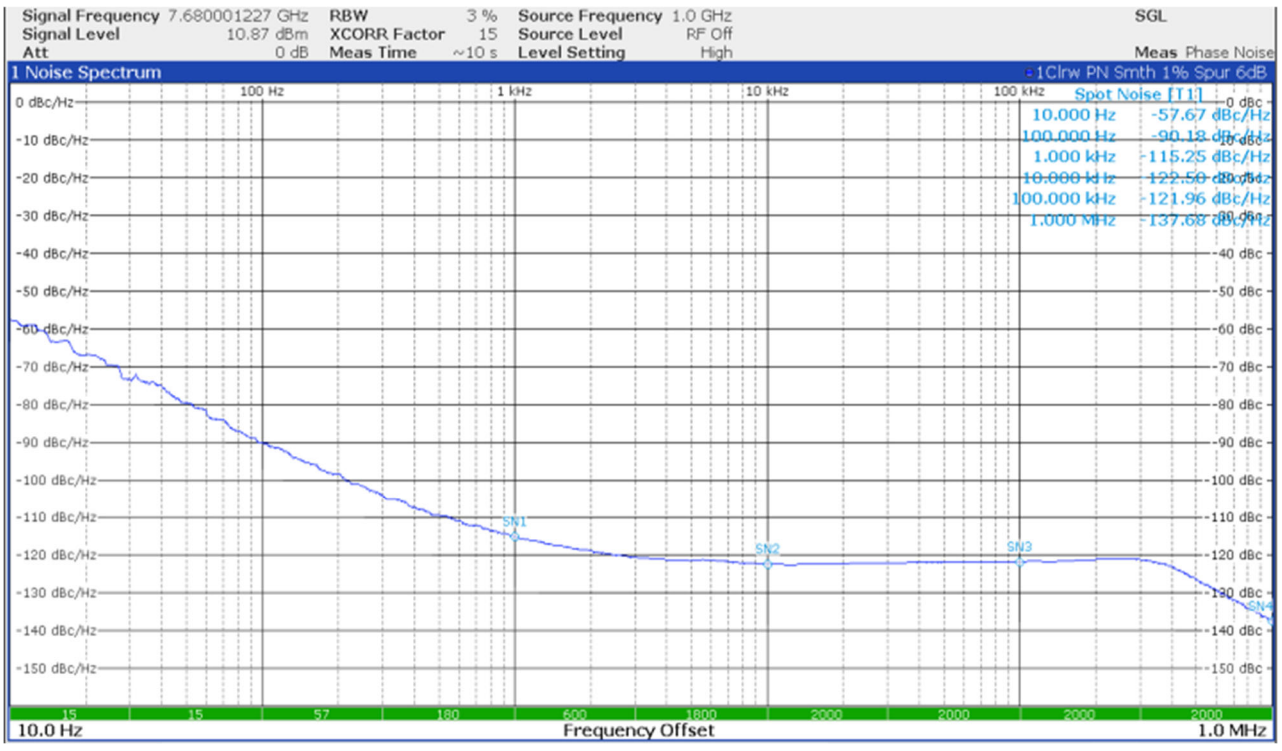
57.14 x 57.14 x 15.70 mm



57.14 x 57.14 x 15.70 mm



## Phase Noise at 7.68 GHz (supporting C-band)




Issue: A, 10 June 2026

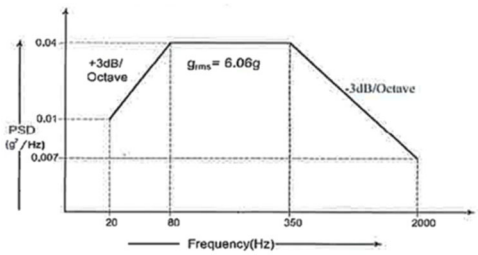
## Electrical Characteristics

| Parameter | Condition / Remarks | Min | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Nominal frequency range (Fn) | C-Band<br>X-band<br>Ku-Band<br>Ka-Band | 6<br>8<br>12<br>18 | | 8<br>12<br>18<br>30 | GHz |
| Reference input frequency ($F_{REF, IN}$) | | 80 | | 125 | MHz |
| Supply voltage ($V_{CC}$) | 5% tolerance | 11.4 | 12.0 | 12.6 | V |
| Start-up current | | | | 700 | mA |
| Steady-state current | @25°C | | | 400 | mA |
| Warm-up time | to reach <±1ppm @25°C | | | 3 | Min |

## Performances

| Parameter | Min | Typ. | Max. | Units | Condition / Remarks |
|---|---|---|---|---|---|
| Output power<br>C-band<br>X-band<br>Ku-band<br>Ka-band | | <br>13<br>10<br>7<br>3 | | dBm | |
| Power level variation | | | ±1.5 | dBm | |
| Phase noise @ 7.68 GHz:<br>10 kHz offset<br>100 kHz offset<br>1 MHz offset | | <br>-110<br>-115<br>-130 | | dBc/Hz | |
| Phase noise @ 18 GHz:<br>10 kHz offset<br>100 kHz offset<br>1 MHz offset | | <br>-105<br>-110<br>-125 | | dBc/Hz | |
| Harmonics | | | -25 | dBc | |
| Spurious | | | -70 | dBc | @Fn ±500 kHz<br>(1 MHz span centred on Fn) |
| Output VSWR | | 1.5 : 1 | | | |

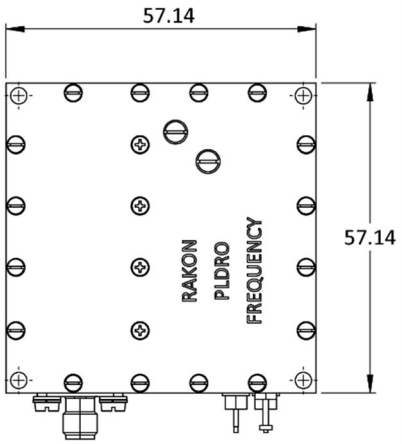
## Environmental Conditions (Ess Standard)

| Parameter | Condition / Remarks | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Storage temperature | | -55 | | 80 | °C |
| Operating temperature | | -40 | | 70 | °C |
| Random vibration level | Random vibration level (PRE-test):<br>20–80Hz: +3dB/oct; 80–350Hz: PSD = 0.04g²/Hz; 350–2000Hz: −3dB/oct; 5 min/axis, 3 axes | | | | |
| Random vibration profile |  | | | | |
| Thermal cycle | -40°C to 70°C, ramp rate ≥ 10°C/min; 60 min dwell at extremes; 10 cycles | | | | |

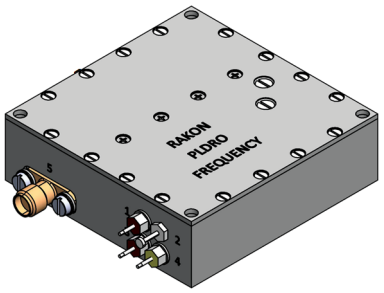
## Product Outline (1-Output), 3D Model and Pin Connections

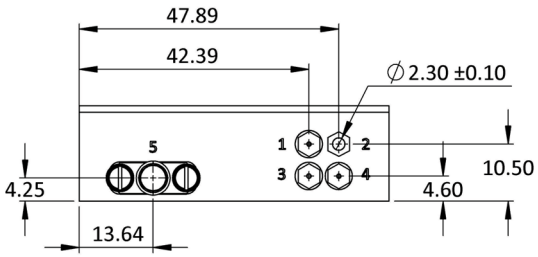
| Parameter | Package |
|---|---|
| Package | 57.14 x 57.14 x 18.54 mm.<br>Machined aluminium housing. Mounting provision with screws. |
| Mass | 120 g typ. |
| 3D STEP file | RDO5757D 1-Output 3D models<br>*To open or view the STP file, you will need to import it into one of the following software programs:*<br>*Autodesk Fusion 360, CATIA, SolidWorks, Solid Edge, TurboCAD, Kubotek KeyCreator, FreeCAD, ABViewer, ShareCAD, or eMachineShop.* |

Model outline

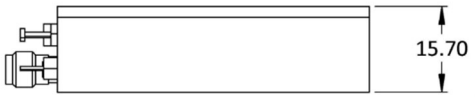



**TOP VIEW**

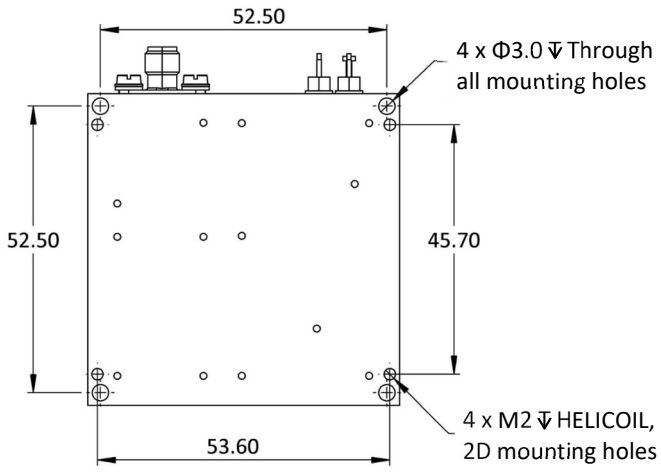



**FRONT VIEW**




**SIDE VIEW**




**BOTTOM VIEW**

**PIN CONNECTIONS**

| Pin | Diameter | Symbol | Connections |
|---|---|---|---|
| 1 | Φ0.75±0.05 | ALM | Alarm |
| 2 | Φ2.3±0.10 | GND | Ground |
| 3 | Φ0.75±0.05 | NC | Not connected |
| 4 | Φ0.75±0.05 | $V_{CC}$ | Supply voltage |
| 5 | SMA Female | $F_{OUT}$ | Radio frequency output |

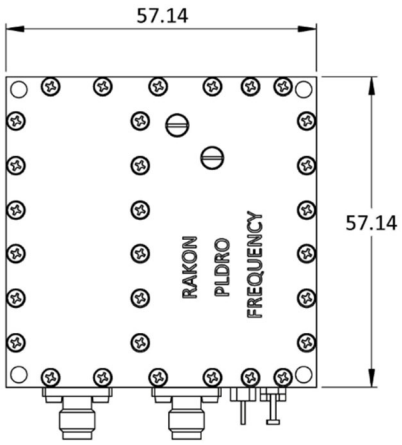
**NOTE:**

- Dimensions are in mm.
- General tolerance: ±0.20 mm unless otherwise specified.
- Parts shall be electroless nickel plated, thickness 8 –12 µm.
- Package material: Aluminium 6082 or 6061.

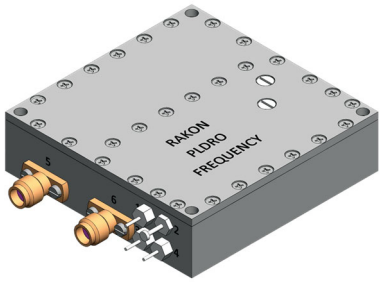
## Product Outline (2-Output), 3D Model and Pin Connections

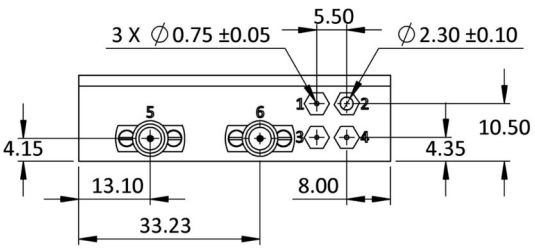
| Parameter | Package |
|---|---|
| Package | 57.14 x 57.14 x 15.70 mm.<br>Machined aluminium housing. Mounting provision with screws. |
| Mass | 120 g typ. |
| 3D STEP file | RDO5757D 2-Output 3D models<br>*To open or view the STP file, you will need to import it into one of the following software programs: Autodesk Fusion 360, CATIA, SolidWorks, Solid Edge, TurboCAD, Kubotek KeyCreator, FreeCAD, ABViewer, ShareCAD, or eMachineShop.* |

Model outline

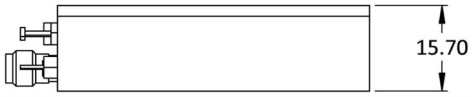



TOP VIEW

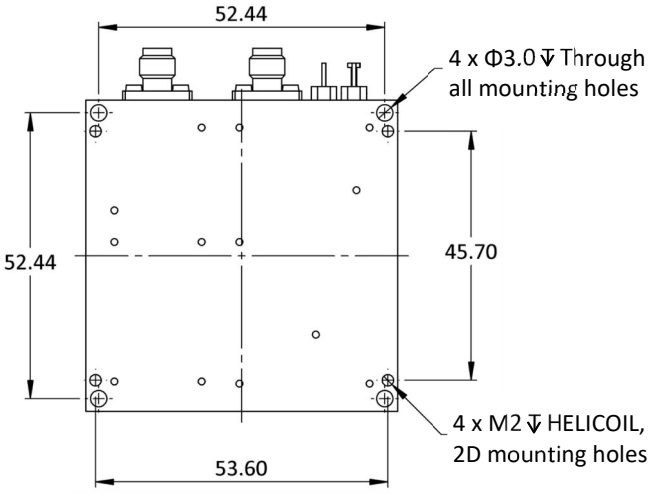



FRONT VIEW




SIDE VIEW




BOTTOM VIEW

**PIN CONNECTIONS**

| Pin | Diameter | Symbol | Connections |
|---|---|---|---|
| **1** | Φ0.75±0.05 | ALM | Alarm |
| **2** | Φ2.3±0.10 | GND | Ground |
| **3** | Φ0.75±0.05 | NC | Not connected |
| **4** | Φ0.75±0.05 | $V_{CC}$ | Supply voltage |
| **5** | SMA Female | $F_{OUT}$ | Radio frequency output |
| **6** | SMA Female | $F_{REF, OUT}$ | Reference output |

**NOTE:**

- Dimensions are in mm.
- General tolerance: ±0.20 mm unless otherwise specified.
- Parts shall be electroless nickel plated, thickness 8 –12 µm.
- Package material: Aluminium 6082 or 6061.