

## ROX5050S

The ROX5050S is a low power consumption Space OCXO with excellent phase noise performance. The OCXO delivers superior short term stability better than  $8 \times 10^{-13}$ . This OCXO is designed for scenarios where short stability is key requirement. Standard frequencies are available with a short lead-time.

The ROX5050S is 100% screened following the guidance of MIL-PRF-55310 (Class 1, Type 6, Level S). This high reliability 3.5 Watts low power oscillator is an ideal solution for Telecommunications payload applications such as Atomic clocks, signal generation, transponders, GNSS receivers, digital cards, down and up converters and synthesizers.

### Features

- Frequencies: 10, 10.23 MHz
- Low power consumption: 3.5 W
- Overall frequency stability vs. temperature:  $\pm 10$  ppb
- 15 years over mission life plus 2 years ground storage:  $\pm 0.25$  ppm
- Sinewave output
- Frequency adjustment option
- Manufactured in accordance with: MIL-PRF-55310 Class 1, Level S

### Applications

- Atomic clocks
- Transponders
- GNSS receivers
- Converters
- Synthesizers
- Frequency generator unit (FGU)

50 x 50 mm



### Environmental Conditions

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Operating temperature		-20		70	°C
Switch-on temperature	TS <sub>0</sub>	-40		70	°C
Non-operating temperature	TNO <sub>p</sub>	-55		125	°C

### Frequency Characteristics

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Nominal frequency			10, 10.23		MHz
Initial frequency accuracy	@25°C			$\pm 50$	ppb
Frequency stability over temperature (FvT)	-20 to 70°C			$\pm 10$	ppb
Frequency short term stability (Allan variance)	1 second			$8 \times 10^{-13}$	
Supply voltage stability (FvT) <sup>1</sup>				$\pm 4$	ppb
Ageing	Per day			$\pm 1$	ppb
	Per year			$\pm 30$	
	Over life			$\pm 250$	

### Electrical Interface

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Power supply (Vcc)	$\pm 0.1V$		15		V
Power consumption	During warm-up			9	W
	Nominal power consumption			3.5	
	Power consumption in operation			4.5	

### Control Voltage (Vc)

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Pulling range		1.2		2.0	Hz
Control voltage (Vc)	Positive slope	0		10	V

<sup>1</sup> Over temperature range

## Output Characteristics-Sinewave

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Output level <sup>1</sup>	50 Ω nominal load		7		dBm
Harmonics <sup>1</sup>			-30		dBc
Spurious <sup>1</sup>			-60		dBc
Phase noise	1 Hz offset		-110		dBc/Hz
	10 Hz offset		-140		
	100 Hz offset		-150		
	1 kHz offset		-155		
	10 kHz offset		-155		

## Screening Options (100%)

### Screening Operation

### Requirements and Condition

Random vibration	MIL-STD-202-214, condition I-B, duration 5 minutes per axis
Thermal shock	MIL-STD-202-107, condition B-1
Particle impact noise detection (PIND)	Not applicable for Non hermetic package
Electrical test	Nominal and extreme supply voltages, specified load, 23°C and temperature extremes, record all test parameters by serial number
Burn-in (load)	Maximum specified operating temperature, nominal supply voltage and burn-in load, 240 hours minimum
Electrical test	Nominal and extreme supply voltages, specified load, 23°C and temperature extremes, record all test parameters by serial number
Seal test	Not applicable for Non hermetic package
Radiographic	MIL-STD-202-209

## Model Outline, Pin Connections

The technical drawings show the package outline and pin connections. The top view shows a square package with a side length of 50 mm and an inner square of 44.2 mm. There are four Ø2.7 mm through-holes. The bottom view shows the pin layout with dimensions: 14.65 mm between pins 1 and 2, 5.35 mm between pins 2 and 3, 14.65 mm between pins 3 and 4, 16.38 mm between pins 1 and 7, 17.65 mm between pins 7 and 6, 5.75 mm between pins 6 and 5, 27.0 mm between pins 1 and 4, 40.8 mm between pins 1 and 7, and 4.6 mm between pins 7 and 6. The side view shows a maximum width of 31 mm and a 'MARKING' area.

Pin	Connections
1, 5	No connection
2, 6	GND
3	Fout (Frequency output)
4	Vc (Voltage control)
7	Vcc (Supply voltage)

**NOTE:**

- Dimensions are in millimetres.
- Tolerance is ±0.25 mm if it has not been indicated.