

ROX5050S

The ROX5050S is a low power consumption Space OCXO with excellent phase noise performance. The OCXO devliers superior short term stability. 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 W 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: ± 10 ppb
- 15 years over mission life plus 2 years ground storage: ± 0.25 ppm
- Radiation 100 krad
- 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 x 31 mm



Environmental Conditions

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Operating temperature (To)		-20		70	°C
Switch-on temperature (Tso)		-40		70	°C
Storage temperature (Ts)		-55		125	°C

Frequency Characteristics

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Nominal frequency (Fn)			10, 10.23		MHz
Initial frequency accuracy	@25°C			± 50	ppb
Frequency stability over temperature (FvT)	-20 to 70°C			± 10	ppb
Frequency short term stability (Allan deviation, ADEV)	Tau = 1 s			8×10^{-13}	
Supply voltage stability (FvT) ¹				± 4	ppb
Ageing	Per day Per year Over life			± 1 ± 30 ± 250	ppb

Electrical Interface

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

¹ Over temperature range.

Control Voltage

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

Output Characteristics – Sinewave

Parameter	Condition / Remarks	Min.	Typ.	Max.	Unit
Output level ¹	50 Ω nominal load	7			dBm
Harmonics ¹			-30		dBc
Spurious ¹			-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		

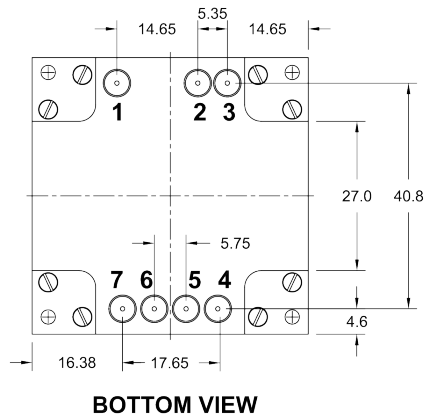
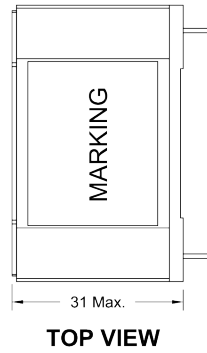
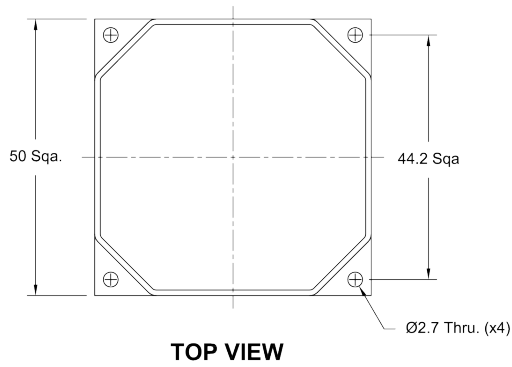
Environmental Specifications

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

Manufacturer Information

Parameter	Condition / Remarks
Package size	50 x 50 x 31 mm. nom. Non-hermetic (i.e. Metal package) PCB mountable. Outer finish electroless nickel plating
Net weight	150 g max.
Mounting for PCB	Mounting holes with M2.7 at the four corners of the main housing to mount on the module
RF connections	Pins for PCB mounting, or side wall mountable. RF Output Control voltage input
Power, RF, control voltage interface	Solderable pins

Model Outline and Pin Connections



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.