

ISSUE 1; January 2021

## Description

- A low noise and low power OCVCSO (Oven Controlled, Voltage controlled, SAW Oscillator) at 1200MHz, powered by a low voltage 5V power supply. The 1200MHz signal is generated from a 600MHz fundamental frequency, followed by a low noise frequency doubler. It is designed for lab environment (test equipment, shelter, ground based military equipment). Manufactured for us by Rakon.



## Frequency Parameters

- Frequency: 1.2GHz
- Frequency Tolerance Max:  $\pm 1.00\text{ppm}$
- Tolerance Condition: @ 25°C
- Frequency Stability:  $\pm 2.00\text{ppm}$
- Ageing:  $\pm 1\text{ppm}$  max in 1st year,  $\pm 6\text{ppm}$  max in 10yrs
- G-sensitivity (on each axis): 1ppb/g typ, 2ppb/g max

## Electrical Parameters

- Supply Voltage: 5.0V  $\pm 0.25\text{V}$
- Power Consumption: Warm Up: 2.2W typ, 2.5W max; Steady State (@ 25°C): 1.0W typ, 1.5W max
- Warm Up Time (@ 0°C,  $\pm 1\text{ppm}$  with reference to frequency reached after 1hr of continuous operation): 2 minutes max.
- Supply Voltage, Absolute Maximum Rating: +6V

## Frequency Adjustment

- Pulling:  $\pm 6\text{ppm}$  min to  $\pm 10\text{ppm}$  typ
- Control Voltage: 2.5V  $\pm 2.0\text{V}$
- Input Impedance: 10k $\Omega$  min
- Slope (Positive): 5ppm/V typ, 3ppm/V min

## Operating Temperature Ranges

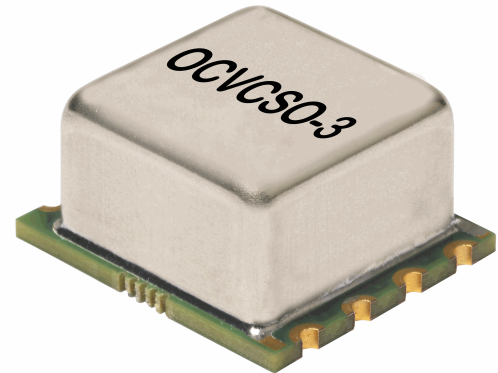
- 0 to 50°C

## Output Details

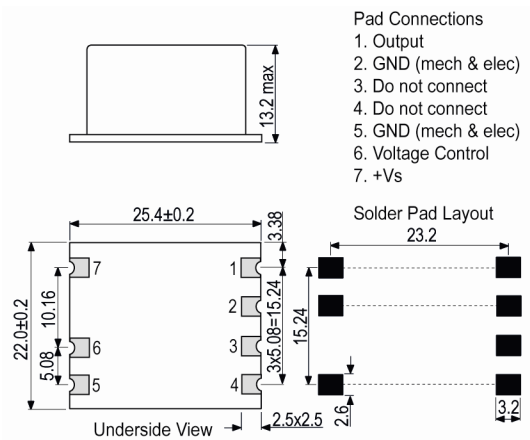
- Output Compatibility: Sinewave
- Drive Capability: 50 $\Omega$  (@ <1.3:1 VSWR)
- Output level: 8dBm  $\pm 2\text{dBm}$
- Output impedance (@ 1200MHz  $\pm 1\text{MHz}$ ): <2.0:1 VSWR

## Noise Parameters

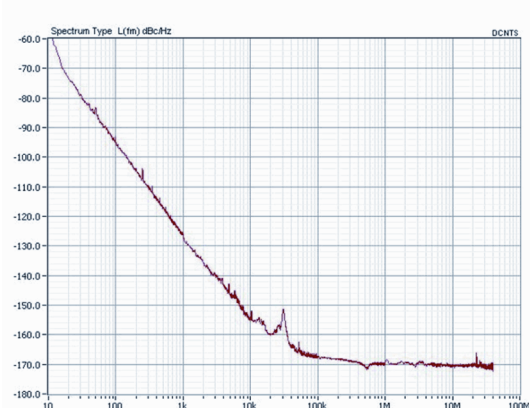
- Phase Noise (static condition at 25°C, guaranteed values over full temperature range):
  - (@ 1kHz): -124dBc/Hz typ, -120dBc/Hz max guaranteed
  - (@ 10kHz): -152dBc/Hz typ, -148dBc/Hz max guaranteed
  - (@ 1MHz): -168dBc/Hz typ, -165dBc/Hz max guaranteed
- Harmonic Distortion (all sub-harmonics, 2nd and 3rd harmonics): -35dBc typ, -25dBc max
- Spurious (Non Harmonic): -80dBc max
- Jitter:
  - Full offset range from 10Hz to 100MHz: 200fs typ, 500fs max
  - Broadband: from 10kHz to 100MHz: 10fs max



## Outline (mm)



## Example Phase Noise



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#### Environmental Parameters

- Storage Temperature Range: -40 to 85°C
- Shock: as per MIL-PRF-28800F, Class 3, test equipment.
- Random Vibration: As per MIL-PRF-28800F, Class 3, test equipment.

#### Manufacturing Details

- Reliability (ref MIL-HDBK-217F, Ground fixed, at 25°C):  
FIT: 6018 fails/10<sup>9</sup> hours typ  
MTBF: 19 years typ
- RoHS Reflow 240°C max for 30secs max

#### Compliance

- RoHS Status (2015/863/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): 3

#### Packaging Details

- Pack Style: Bulk Loose in bulk pack  
Pack Size: 1

#### Electrical Specification - maximum limiting values 5.00V ±0.25V

Frequency Min	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
	°C	ppm	mA	ns	%
1.2GHz	0 to 50	±2.00	-	-	-

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