

ISSUE 2; February 2020

Description

- A low noise and low power OCVCSO (Oven Controlled, Voltage controlled, SAW Oscillator) at 800MHz, powered by a low voltage 5V power supply. The 800MHz signal is generated from a 400MHz 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: 800.0MHz
- Frequency Tolerance Max: $\pm 0.50\text{ppm}$
- Tolerance Condition: @ 25°C
- Frequency Stability: $\pm 3.00\text{ppm}$ to $\pm 4.00\text{ppm}$
- 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: 2.0W typ, 2.5W max; Steady State (@ 25°C): 1.0W typ, 1.5W max
- Warm Up Time ($\pm 1\text{ppm}$ with reference to frequency reached after 1hr of continuous operation at -25°C): 3 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 Ω min
- Slope (Positive): 5ppm/V typ, 3ppm/V min

Operating Temperature Ranges

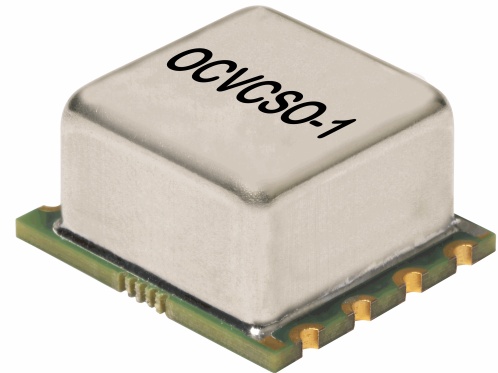
- 0 to 50°C
- 25 to 60°C

Output Details

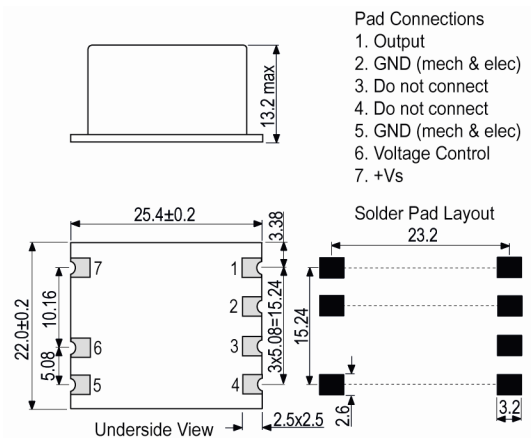
- Output Compatibility: Sinewave
- Drive Capability: 50 Ω (@ <1.3:1 VSWR)
- Output level: 8dBm $\pm 2\text{dBm}$
- Output impedance (@ 800MHz $\pm 1\text{MHz}$): <2.0:1 VSWR

Noise Parameters

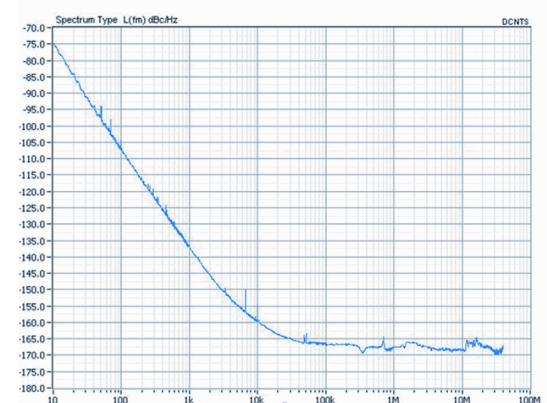
- Phase Noise (static condition at 25°C, guaranteed values over full temperature range):
 (@ 1kHz): -137dBc/Hz typ, -130dBc/Hz max guaranteed
 (@ 10kHz): -160dBc/Hz typ, -155dBc/Hz max guaranteed
 (@ 1MHz): -167dBc/Hz typ, -165dBc/Hz max guaranteed
- Harmonic Distortion (all sub-harmonics, 2nd and 3rd harmonics): -40dBc typ, -30dBc max
- Spurious (Non Harmonic): -80dBc max
- Jitter:
 Full offset range from 10Hz to 100MHz: 100fs typ, 200fs max
 Broadband: from 10kHz to 100MHz: 10fs max



Outline (mm)



Example Phase Noise



Sales Office Contact Details:

UK: +44 (0)1460 270200
Germany: 0800 1808 443

France: 0800 901 383
USA: +1.760.318.2824

Email: info@iqdfrequencyproducts.com
Web: www.iqdfrequencyproducts.com

Environmental Parameters

- Start-up temperature range (with reduced performance): -40 to 60°C
- 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/10⁹ hours typ
 MTBF: 19 years typ
- RoHS Reflow 240°C max for 30secs max

Compliance

- RoHS Status (2011/65/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	%
800.0MHz	-25 to 60	±4.00	-	-	-
	0 to 50	±3.00	-	-	-

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