

ISSUE 1; March 2016

Description

- A miniature, highly integrated oven controlled crystal oscillator providing comparable stability to traditional OCXOs but in a small SMD package. Manufactured for us by Rakon.
- Features:
Small form factor
Frequency stability over temperature as low as $\pm 10\text{ppb}$ over -20 to 70°C
Low power consumption
High reliability
- Applications:
Base Stations
Broadcasting
Instrumentation
Time & Frequency Reference

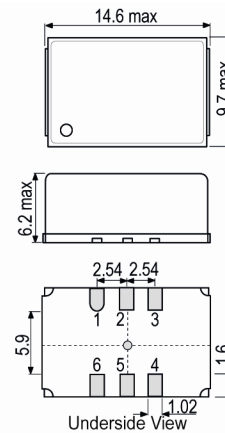
Frequency Parameters

- Frequency: 5.0MHz to 50.0MHz
- Frequency Tolerance: $\pm 500.00\text{ppb}$
- Tolerance Condition: at $25^\circ\text{C} \pm 2^\circ\text{C}$
- Frequency Stability: $\pm 10.00\text{ppb}$ to $\pm 100.00\text{ppb}$
- Reflow Shift: Pre to post reflow ΔF (measured ≥ 60 minutes after reflow): $\pm 1\text{ppm}$
- Frequency stability over temperature in still air reference to $(F_{\text{max}} + F_{\text{min}})/2$
- Frequency Voltage Variation:
 $\pm 10\text{ppb}$ for a 5% change ($F_n \leq 26\text{MHz}$)
- Ageing (After 30 days of continuous operation):
 $\pm 2\text{ppb}$ max per day
 $\pm 1\text{ppm}$ max in 1st year
 $\pm 3\text{ppm}$ max over 10 years

Electrical Parameters

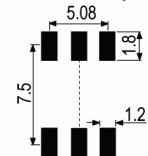
- Frequency Slope: (temperature ramp $1^\circ\text{C}/\text{min}$ max): $\pm 2\text{ppb}/^\circ\text{C}$ max
- Supply Voltage Operable Range: 2.7 to 5.5V
The oscillator will continue to function over this range but may not meet specified performance.
Standard available nominal supply voltages are 3.3 and 5.0V, other nominal supply voltages may be available upon request, please contact our sales offices.
- Load Variation: $\pm 10\text{ppb}$ for a $\pm 5\text{pF}/\pm 10\%$ change ($\leq 26\text{MHz}$)
- Warm Up Time @ 25°C (Time needed for frequency to be within $\pm 20\text{ppb}$ reference to frequency after 1 hour at 25°C . Parameter is frequency, assembly and operating history dependent): < 3 minutes
- Power Consumption:
Warm up: $\leq 0.8\text{W}$ (ref -20 to 70°C devices)
Warm up: $\leq 1.0\text{W}$ (ref -40 to 85°C devices)
Steady State @ 25°C : $\leq 0.35\text{W}$ (still air) (ref -20 to 70°C devices)
Steady State @ 25°C : $\leq 0.4\text{W}$ (still air) (ref -40 to 85°C devices)

Outline (mm)



- Pad Connections
1. VC / Do not connect
 2. N/C
 3. GND
 4. Output
 5. N/C
 6. +Vs

Solder Pad Layout



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

Frequency Adjustment

- Frequency Adjustment (option):
Control Voltage: 1.5V \pm 1.0V
Frequency Tuning Range: \pm 5ppm typ (ref VC = 1.5V)
Linearity: 1% max (ref MIL-PRF-55310)
Slope: Positive +8ppm/V typ
Input Impedance: 80k Ω min
Modulation Bandwidth: 3.5kHz typ
No Control Voltage: Fixed frequency
Note: The GND of the control voltage needs to be connected directly to pad 2 as ground lead impedance may cause performance degradation.

Operating Temperature Ranges

- -20 to 70°C
- -40 to 85°C

Output Details

- Output Compatibility HCMOS/Clipped Sine
- Clipped Sine Output (at minimum supply voltage): 0.8V pk-pk min, 1.1V typ
- HCMOS Output Details:
Output Low (Vol): 10% max
Output High (Hoh): 90% min
Duty Cycle (@ 50% level): 45/55% max
R/F Time (10-90%): 4ns max
Load: 15pF typ, 30pF max

Noise Parameters

- Root Allan Variance: (@ 20MHz and tau=1.0s): 70x10⁻¹¹

Environmental Parameters

- Acceleration sensitivity (Gamma vector of all 3 axes, 30 to 1500Hz): <2ppb/g

Ordering Information

- Frequency*
Model Number*
Output
Frequency Stability*
Operating Temperature Range*
Supply Voltage
Frequency Adjustment*
- Example:
10.0MHz IQOV-72-1
HCMOS \pm 10ppb -20+70°C 3.3V \pm 5ppm
- Note: Stability / temperature range options other than listed may be available upon request, please contact our sales offices.
- Note: For stability/temperature combinations of \pm 10ppb over -20 to 70°C and \pm 20ppb over -40 to 85°C, please consult sales offices for availability.

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): 1

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Packaging Details

- Pack Style: Bulk Loose in bulk pack
Pack Size: 10
- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 100

Electrical Specification - maximum limiting values ±5%

Frequency Min	Frequency Max	Temperature Range	Stability (Min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppb	mA	ns	%
5.0MHz	50.0MHz	-20 to 70	±10.0	-	-	-
		-40 to 85	±20.0	-	-	-

This document was correct at the time of printing; please contact your local sales office for the latest version.

[Click to view latest version on our website.](#)

Chipset Approval Table

IQD Model	Ref No.	Frequency	Chipset Type	IC Supplier	
IQOV-72-3	M6153LF	12.8MHz	IDT8V97051	IDT	

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