ISSUE 1; July 2017

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 ±10ppb over -20 to 70°C
  Low power consumption
  High reliability
- Applications:
  Base Stations
  Broadcasting
  Instrumentation
  Time & Frequency Reference

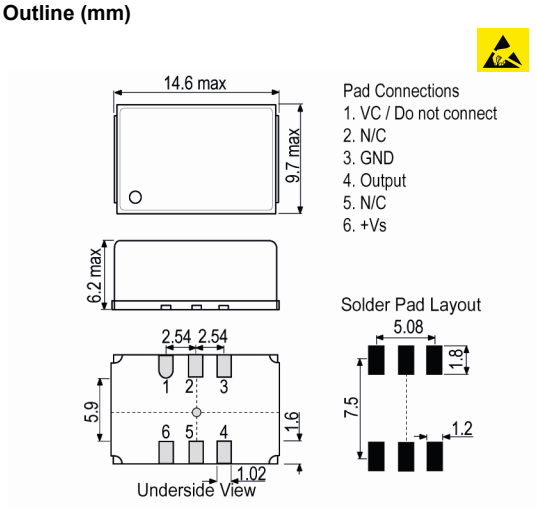
Frequency Parameters

- Frequency 5.0MHz to 50.0MHz
- Frequency Tolerance ±500.00ppb
- Tolerance Condition @ 25°C ±2°C
- Frequency Stability ±10.00ppb to ±100.00ppb
- Ageing (after 30 days of continuous operation):
  Typically ±2ppb max per day
  ±1ppm max in 1st year
  ±3ppm max over 10yrs
- Frequency Stability: TA varied over operating temperature range in still air, measurement referenced to frequency observed with Fref=(Fmax+Fmin)/2.
- Frequency Slope (TA varied over operating temperature range @ 1°C/min): ±2ppb/°C max
- Root Allan Variance (@ 20MHz, tau=1sec): 0.07ppb typ
- Acceleration Sensitivity (gamma vector of all 3 axes from 30 to 1500Hz): Typically 2ppb/G max
- Supply Voltage Variation (@ 26MHz max, ±5% change): ±10ppb typ
- Load Variation (@ 26MHz max, ±5pF/±10% change): ±10ppb typ
- Reflow Variation (pre to post reflow ΔF, measured after 1hr recovery @ 25°C): ±1ppm max

Electrical Parameters

- Supply Voltage Operable Range: 2.7V to 5.5V
  The oscillator will continue to function over this range but may not meet specified performance.
  Standard available nominal supply voltages are 3.3V and 5.0V, other nominal supply voltages may be available upon request, please contact an IQD Sales Office.
- Power Consumption (-20 to 70°C device):
  Warm Up (@ 25°C): 0.8W typ
  Steady State (in still air @ 25°C): 0.35W max
- Power Consumption (-40 to 85°C device):
  Warm Up (@ 25°C): 1.0W typ
  Steady State (in still air @ 25°C): 0.4W max

Outline (mm)



Sales Office Contact Details:
UK: +44 (0)1460 270200
USA: +1.760.318.2824
Email: info@iqdfrequencyproducts.com
Web: www.iqdfrequencyproducts.com

Frequency Adjustment

- Frequency Adjustment (optional):
  Pulling: ±5ppm typ (referenced to frequency @ VC = 1.5V)
  Control Voltage: 1.5V ±1.0V
  Input Impedance: 80kΩ min
  Linearity (deviation from straight line curve fit): 1% max
  Frequency Tuning Slope: +8ppm/V typ
  Modulation Bandwidth: 3.5kHz typ
  Note: The GND of the control voltage needs to be connected directly to pad 2 as ground lead impedance may cause performance degradation.
- No Control Voltage: Fixed frequency

Operating Temperature Ranges

- -20 to 70°C
- -40 to 85°C

Output Details

- Output Compatibility HCMOS/Clipped Sine
- HCMOS Output Details:
  Output Voltage Levels:
  Output Low (VoL): 10%Vs max
  Output High (VoH): 90%Vs min
  Load: 15pF typ, 30pF max
  Rise/Fall Time (10-90%): 4ns max
  Duty Cycle (@ 50% level): 45/55% max
- Clipped Sine Output Details:
  Output Voltage Level (@ TA=25°C, Vs min and load=10kΩ//10pF): 0.8V pk-pk min, 1.1V pk-pk typ
- Warm Up Time @ 25°C (time needed for frequency to be within ±20ppb reference to frequency after 1hr @ 25°C – this parameter is frequency, assembly and operating history dependent): Typically 3mins max

Noise Parameters

- Phase Noise @ 25°C (F=12.8MHz, typ):
  -70dBc/Hz @ 1Hz
  -95dBc/Hz @ 10Hz
  -120dBc/Hz @ 100Hz
  -145dBc/Hz @ 1kHz
  -157dBc/Hz @ 10kHz
  -163dBc/Hz @ 100kHz
  -165dBc/Hz @ 1MHz

Ordering Information

- Frequency*
  Model*
  Output*
  Frequency Stability*
  Operating Temperature Range*
  Supply Voltage*
  Frequency Adjustment*
  (*minimum required)
- Example
  10.0MHz IQOV-72-1
  HCMOS ±10ppb -20+70°C 3.3V ±5ppm
- Note: Stability / Temperature Range options other than those listed may be available upon request, please contact an IQD Sales Office.
- Note: For stability/temperature combinations of ±10ppb over -20 to 70°C and ±20ppb over -40 to 85°C, please contact an IQD Sales Office for availability.

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Compliance

- RoHS Status (2015/863/EU) Compliant
- REACh Status Compliant
- MSL Rating (JDEC-STD-033): 1

Packaging Details

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

Electrical Specification - maximum limiting values Vs ±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	