

ISSUE 1; April 2016

Description

- Oven controlled crystal oscillator (OCXO) available with or without voltage control.
- Please note: This document is intended to illustrate the general capability and versatility of IQD's design. For specific enquiries please contact one of IQD's Sales Offices where we can tailor a unique specification to meet your needs.

Model Options:

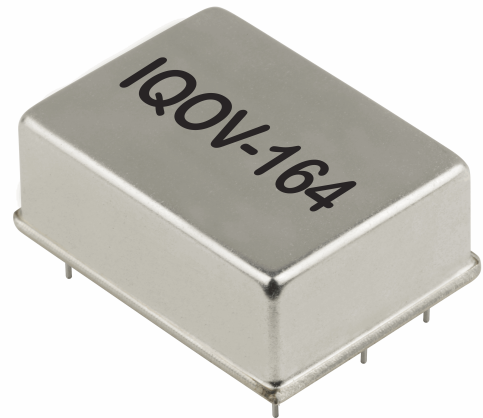
- IQOV-164-1 HCMOS output, no pulling
- IQOV-164-2 Sinewave output, no pulling
- IQOV-164-3 HCMOS output, ± 0.3 to ± 1 ppm pulling
- IQOV-164-4 Sinewave output, ± 0.3 to ± 1 ppm pulling

Frequency Parameters

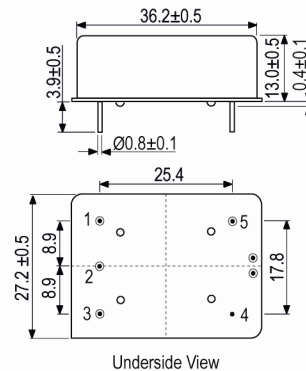
- Frequency 5.0MHz to 100.0MHz
- Frequency Tolerance ± 100.00 ppb
- Frequency Stability ± 0.20 ppb to ± 50.00 ppb
- Ageing: ± 0.2 ppb max per day @ 10MHz, ± 100 ppb max per year @ 10MHz (ageing figures subject to frequency and device specification)
- Frequency Tolerance (freq \leq 50MHz): Measurement referenced to frequency observed with TA=25°C, Vs=3.3V, VC=1.65V/NC and after 15 minutes of operation, within 30 days after ex-works.
- Frequency Stability: TA varied across the operating temperature range, measurement referenced to frequency observed with $f_{ref} = (f_{max} + f_{min}) / 2$, Vs=3.3V, VC=1.65V/NC, load=50 Ω /15pF and temperature variable speed less than 2°C per minute.
- Ageing: Vs, VC, TA constant, measurement referenced to frequency observed with TA=25°C, Vs=3.3V, VC=1.65V/NC, load=50 Ω /15pF and after 30 days of operation.
- Supply Voltage Variation (measurement referenced to frequency observed with TA=25°C, Vs varied from 3.13V to 3.47V, VC=1.65V/NC and load=50 Ω /15pF): $\pm 50\%$ of frequency stability
- Load Variation (measurement referenced to frequency observed with TA=25°C, Vs=3.3V, VC=1.65V/NC and load change=50 Ω /15pF $\pm 5\%$): $\pm 50\%$ of frequency stability
- Short Term Stability - Allan Variance (temperature stable, no EMI/EMC or other interference \square test after power for 1hr ref. to 25°C; 1s, using PN9000 equipment): 1E-11/s typ @ 10MHz
- Developed Frequencies: 5.0MHz, 10.0MHz, 12.80MHz, 13.0MHz, 16.3840MHz, 20.0MHz, 25.60MHz, 26.0MHz, 50.0MHz

Electrical Parameters

- Supply Voltage 3.3V $\pm 5\%$
- Current Consumption:
Warm up (3mins max): 5W max (6W max \leq 10MHz over -30 to 75°C, 7W max \leq 10MHz over 40 to 85°C)
Steady state (@ 25°C): 2W max
- Note: For developed frequencies above 50MHz, the supply voltage would be 5.0V or 12.0V depending upon the specification required.



Outline (mm)



Pin Connections

1. +Vs
2. N/C
3. Voltage Control or N/C
4. GND
5. Output

Sales Office Contact Details:

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Germany: 0800 1808 443

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USA: +1.760.318.2824

Email: info@iqdfrequencyproducts.com

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Frequency Adjustment

- Control Voltage 1.65V \pm 1.65V
- Input Impedence 100k Ω min
- Pulling Options (subject to frequency and specification):
 - \pm 0.3ppm to \pm 0.5ppm
 - \pm 0.5ppm to \pm 0.8ppm
 - \pm 0.7ppm to \pm 1ppm
- Linearity: \pm 10% max
- Slope: Positive

Operating Temperature Ranges

- -10 to 60°C
- -20 to 70°C
- -30 to 75°C
- -40 to 85°C

Output Details

- Output Compatability HCMOS/Sinewave
- Duty Cycle (HCMOS): 45/55%
- Rise/Fall Time (HCMOS): 8ns max
- Output Levels (HCMOS):
 - Low (@ Vs=3.3V, load=15pF): 0.4V max
 - High (@ Vs=3.3V, load=15pF): 2.4V min
- Output Levels (Sinewave): 0dBm min, 10dBm max

Noise Parameters

- Phase Noise (@ 10MHz typ):
 - 125dBc/Hz @ 10Hz
 - 145dBc/Hz @ 100Hz
 - 150dBc/Hz @ 1kHz
 - 155dBc/Hz @ 10kHz
 - 155dBc/Hz @ 100kHz
 - 155dBc/Hz @ 1MHz
- Harmonic Suppression (Sinewave): -40dBc max
- Spurious Suppression (Sinewave): -75dBc max

Environmental Parameters

- Operable Temperature Range: -40 to 85°C
- Storage Temperature Range: -55 to 105°C
- ESD Levels: JEDEC JS-001-2010:
 - HBM, Class 2: 2000V to 4000V
 - Machine Model, Class B: 200V to 400V
- Shock: IEC 60068-2-27, Test Ea: 50G, 11ms duration, 1/2 sine wave, 3 times in each of 3 mutually perpendicular planes
- Vibration: IEC 60068-2-06, Test Fc: 10Hz-500Hz, 0.75mm displacement, 10G acceleration, one cycle per 30mins, 3 times in each of 3 mutually perpendicular planes, test 2hrs

Manufacturing Details

- Maximum Reflow Temperature: 260°C (30secs max)

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Ordering Information

- Frequency*
Model Option*
Output Type*
Frequency Stability (over operating temperature range)*
Operating Temperature Range*
Supply Voltage*
Pulling*
(*minimum required)
- Example
10.0MHz IQOV-164-4
Sine ±1ppb -30 to 75C 3.3V ±0.7ppm to ±1ppm

Compliance

- RoHS Status (2011/65/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

Packaging Details

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

Electrical Specification - maximum limiting values 3.3V ±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	-10 to 60	±0.2	-	-	-
		-20 to 70	±0.2	-	-	-
		-30 to 75	±0.5	-	-	-
		-40 to 85	±1.0	-	-	-
50.0MHz	100.0MHz	-10 to 60	±50.0	-	-	-
		-20 to 70	±50.0	-	-	-
		-30 to 75	±50.0	-	-	-
		-40 to 85	±50.0	-	-	-

*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.](#)*

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