

ISSUE 1; May 2017

Description

- Temperature compensated crystal oscillator available with or without voltage control function.
- 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.

Frequency Parameters

- Frequency: 10.0MHz to 40.0MHz
- Frequency Tolerance: $\pm 1.00\text{ppm}$
- Frequency Stability: $\pm 0.28\text{ppm}$
- Ageing: $\pm 0.02\text{ppm max/day, } \pm 1\text{ppm max/year}$
- Frequency Tolerance: Measurement referenced to frequency observed with $T_A=25^\circ\text{C}$, $V_s=3.3\text{V}$, $V_C=1.5\text{V}$ and load= $10\text{k}\Omega//10\text{pF}$, within 30 days after ex-works.
- Frequency Stability: TA varied across the operating temperature range, measurement referenced to frequency observed with $f_{\text{ref}}=(f_{\text{max}}+f_{\text{min}})/2$, $V_s=3.3\text{V}$, $V_C=1.5\text{V}$, load= $10\text{k}\Omega//10\text{pF}$ and temperature variable speed less than 2°C/min .
- Ageing: V_s , V_C , TA and load constant, measurement referenced to frequency observed with $T_A=25^\circ\text{C}$, $V_s=3.3\text{V}$, $V_C=1.5\text{V}$, load= $10\text{k}\Omega//10\text{pF}$ and after 1hr of operation.
- Supply Voltage Variation (measurement referenced to frequency observed $T_A=25^\circ\text{C}$, V_s varied from 3.13V to 3.47V, $V_C=1.5\text{V}$ and load= $10\text{k}\Omega//10\text{pF}$): $\pm 0.1\text{ppm max}$
- Load Variation (measurement referenced to frequency observed with $T_A=25^\circ\text{C}$, $V_s=3.3\text{V}$, $V_C=1.5\text{V}$ and load change= $10\text{k}\Omega//10\text{pF } \pm 5\%$): $\pm 0.1\text{ppm max}$
- Developed Frequencies: 10.0MHz, 12.80MHz, 16.320MHz, 16.3840MHz, 19.20MHz, 20.0MHz, 30.720MHz, 32.7680MHz, 38.880MHz, 40.0MHz.

Electrical Parameters

- Supply Voltage: $3.3\text{V } \pm 5\%$
- Current Consumption (@ $T_A=25^\circ\text{C}$, $V_s=3.3\text{V}$, $V_C=1.5\text{V}$ and load= $10\text{k}\Omega//10\text{pF}$): 5mA max

Frequency Adjustment

- For devices with Voltage Control:
 - Pulling: $\pm 10\text{ppm min to } \pm 15\text{ppm max}$
 - Control Voltage: $1.5\text{V } \pm 1.0\text{V}$
 - Input Impedance: $100\text{k}\Omega \text{ min}$
 - Linearity: 10% max
 - Slope: Positive

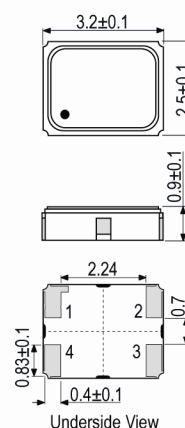
Operating Temperature Ranges

- 40 to 85°C

Output Details

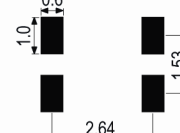
- Output Compatibility: Clipped Sine
- Drive Capability: $10\text{k}\Omega//10\text{pF}$
- Output Voltage Level: 0.8V pk-pk min

Outline (mm) None =



Pad Connections
 1. N/C or Voltage Control
 2. GND
 3. Output
 4. +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

Noise Parameters

- Phase Noise @ 25°C (F=10.0MHz, typ):
 - 90dBc/Hz @ 10Hz
 - 120dBc/Hz @ 100Hz
 - 140dBc/Hz @ 1kHz
 - 145dBc/Hz @ 10kHz
 - 148dBc/Hz @ 100kHz

Environmental Parameters

- Operable Temperature Range: -40 to 85°C
- Storage Temperature Range: -55 to 105°C
- ESD Levels: ANSI/ESDA/JEDEC JS-001-2010:
 - Human Body Model, Class 2: 2000V to 4000V
 - Machine Model, Class B: 200V to 400V
- Shock: IEC 60068-2-27, Test Ea, Severity 50A: 100G acceleration for 6ms, half sine wave, 3 times in 3 mutually perpendicular planes.
- Vibration: IEC 60068-2-06, Test Fc: 10Hz-2000Hz, 0.75mm amplitude, 10G acceleration, 30mins per cycle, 3 times in 3 mutually perpendicular planes, test duration 2hrs.

Manufacturing Details

- Storage Conditions:
 - Temperature: -10 to 35°C
 - Humidity: 20 to 70% RH
- Maximum Process Temperature: 260°C (30secs max)

Compliance

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

Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 1,000
- Pack Style: Cutt Cut tape
Pack Size: 100

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	ppm	mA	ns	%
10.0MHz	40.0MHz	-40 to 85	±0.28	5	-	-

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.](#)

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