

# IQXO-415 CLOCK OSCILLATORS

ISSUE 8; 3 APRIL 2009 - RoHS 2002/95/EC

## Description

- 14-pin DIL compatible resistance welded enclosure, hermetically sealed with glass to metal seal

## Package Outline

- 14-pin DIL

## Frequency Range

- 250kHz to 80MHz

## Output Compatibility & Load

- Tri-state HCMOS/TTL
- Drive Capability: 50pF max or 10TTL

## Frequency Tolerance @ 25°C

- ±5ppm or ±10ppm

## Frequency Stabilities

- ±15ppm, ±25ppm, ±50ppm (over operating temperature range)

## Frequency Stability Inclusive of:

- Frequency Tolerance (as above)
- Voltage Variation: < ±0.5ppm
- Load Variation: < ±0.5ppm (< 60.0MHz)
- Load Variation: < ±1.0ppm (> 60.0MHz)
- Ageing for 5 years: < ±5ppm

## Operating Temperature Ranges

- 0 to 70°C (IQXO-415)
- 40 to 85°C (IQXO-415I)

## Storage Temperature Range

- 55 to 125°C

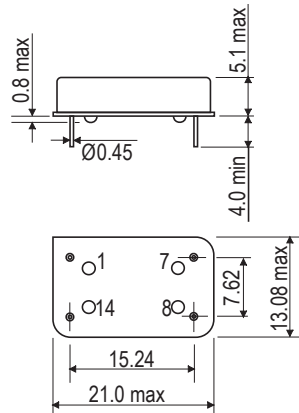
## Tri-state Operation

- No connection or Logic '1' to pin 1 enables oscillator output
- Logic '0' to pin 1 disables oscillator output; when disabled the oscillator output goes to the high impedance state
- Disable current 50µA typical

## Environmental

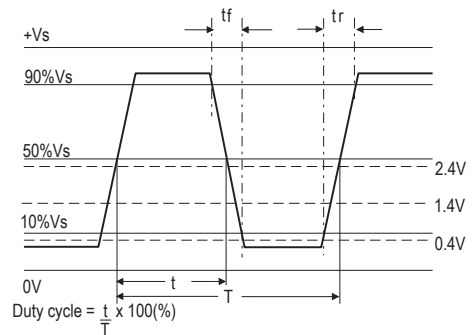
- Acceleration: 490m/s<sup>2</sup> for 1 minute in the 'Y1' plane
- Bump: 4000 bumps at 390m/s<sup>2</sup> in each of the three mutually perpendicular planes
- Hermetic Seal: not to exceed 1 x 10<sup>-8</sup> mBar litres of Helium leakage
- Humidity: steady state: in accordance with test Ca of IEC 60068-2-3, for 56 days at 40°C at a relative humidity of 93%, cyclic: in accordance with test Db variant 1 of IEC 60068-2-30, at severity (b), 55°C for six cycles
- Shock: 981m/s<sup>2</sup> for 6ms, three shocks in each direction along the three mutually perpendicular planes
- Solderability: BS2011 test TA
- Thermal Shock: 10 cycles from -55 to 125°C
- Vibration: 10 to 60Hz 0.75mm displacement, 60 to 2000Hz 98.1m/s<sup>2</sup> acceleration, 30 minutes in each of three mutually perpendicular planes

## Outline (mm)



Pin connections  
 1. Enable/Disable  
 7. GND  
 8. Output  
 14. +Vs

## Output Waveform



## Marking Includes

- IQD + Model Number + Frequency Stability Code + Frequency Tolerance Code (Optional) + Frequency + Date Code

## Packaging

- Bulk

## Minimum Order Information Required

- Frequency + Model Number + Operating Temperature (if applicable) + Frequency Stability

### Electrical Specifications - maximum limiting values

Frequency Range	Frequency Stability	Supply Voltage	Supply Current	Rise Time (tr)	Fall Time (tf)	Duty Cycle	Model Number
250.0kHz to <8.0MHz	±15ppm, ±25ppm, ±50ppm	5V ±0.5V	5mA	10ns	10ns	45/55%	IQXO-415, -415I
8.0MHz to <23.0MHz			10mA	5ns	5ns		
23.0MHz to 80.0MHz			65mA	3ns	3ns		

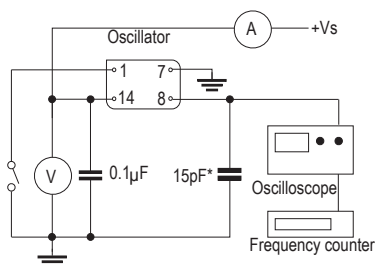
Ordering Example

Frequency 35.0MHz | Model number: IQXO-415 | Operating Temperature Code: I = -40 to 85°C Not applicable for 0 to 70°C | Frequency Stability: A = ±25ppm, B = ±50ppm, N = ±15ppm (only available for 0 to 70°C) | Frequency Tolerance @ 25°C: D = ±5ppm, E = ±10ppm

Please note: Code combination N E is not available

CLOCK OSCILLATORS

### Test Circuit



\*Inclusive of jigging and equipment capacitance

Note: Pin 1 = No connection on non tri-state models