

# IQXO-22, -23 CLOCK OSCILLATORS

ISSUE 19; 1 NOVEMBER 2008 - RoHS 2002/95/EC

## Description

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

## Fast Make Capability

- Please see CFPP-23 series Programmable Oscillators for nearest equivalent fast make parts

## Package Outline

- 8-pin DIL

## Frequency Range

- 500kHz to 160MHz

## Output Compatibility & Load

- HC MOS/TTL
- Drive Capability: 50pF max or 10TTL (<70.0MHz)  
30pF max (70.0 to 160.0MHz)
- Non tri-state (IQXO-22, -22I)
- Tri-state (IQXO-23, -23I)

## Frequency Stabilities

- $\pm 25\text{ppm}$ ,  $\pm 50\text{ppm}$ ,  $\pm 100\text{ppm}$  (over operating temperature range)

## Operating Temperature Ranges

- 0 to 70°C (IQXO-22, -23)
- 40 to 85°C (IQXO-22I, -23I)

## Storage Temperature Range

- 55 to 125°C

## Tri-state Operation (IQXO-23, -23I)

- 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
- Maximum 'pull-down' resistance required to disable output = 20k $\Omega$
- Disable current 50 $\mu\text{A}$  typical

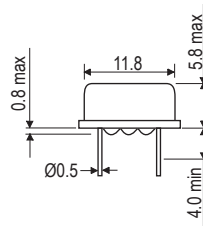
## Environmental

- Terminal Strength: 0.91kg max force perpendicular to top and bottom
- Hermetic Seal: not to exceed  $1 \times 10^{-8}$  mBar litres of Helium leakage
- Solderability: MIL-STD-202E, Method 208C
- Vibration: 10 to 55Hz 0.76mm displacement, sweep 60 seconds, duration 2 hours
- Rapid Change of Temperature over Operating
- Temperature Range: 10 cycles
- Shock: 981m/s<sup>2</sup> for 6ms, three shocks in each direction along the three mutually perpendicular planes

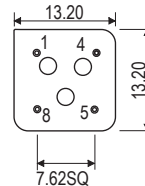
## Marking Includes

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

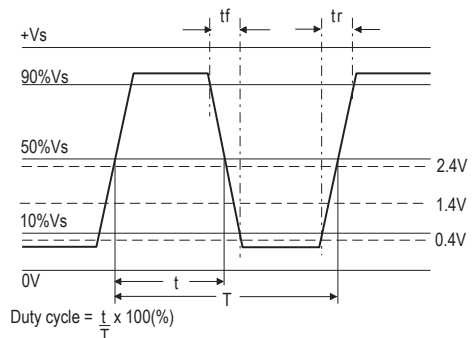
## Outline (mm)



Pin Connections  
 1. N/C or Enable/Disable.  
 4. GND  
 5. Output  
 8. +Vs



## Output Waveform



## 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           |
|----------------------|-------------------------|----------------|----------------|----------------|----------------|------------|------------------------|
| 500.0kHz to <5.0MHz  | ±25ppm, ±50ppm, ±100ppm | 5V ±0.25V      | 20mA           | 15ns           | 15ns           | 45/55%     | IQXO-22, -22I, 23, 23I |
| 5.0MHz to <16.0MHz   |                         |                |                | 10ns           | 10ns           |            |                        |
| 16.0MHz to <30.0MHz  |                         |                | 30mA           |                |                |            |                        |
| 30.0MHz to <50.0MHz  |                         |                | 40mA           | 8ns            | 8ns            |            |                        |
| 50.0MHz to <70.0MHz  |                         |                | 50mA           | 6ns            | 6ns            | 40/60%     |                        |
| 70.0MHz to <160.0MHz |                         |                | 70mA           | 5ns            | 5ns            |            |                        |

Ordering Example

Frequency

Model number: -22, -22I = Non tri-state; -23, -23I = Tri-state

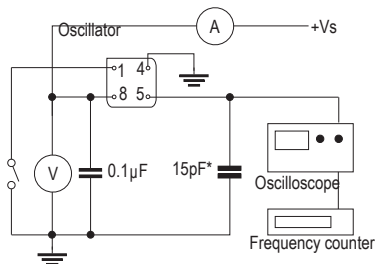
Operating Temperature Code: I = -40 to 85°C Not applicable for 0 to 70°C

Frequency Stability: A =  $\pm 25\text{ppm}$ , B =  $\pm 50\text{ppm}$ , C =  $\pm 100\text{ppm}$

22.0MHz IQXO-22 I B

Please note that the rise and fall times listed are the maximum values we specify to cover various frequency breaks. In practice the actual values are generally lower depending upon the spot frequency chosen. For typical values please contact our sales office.

## Test Circuit



\*Inclusive of jigging and equipment capacitance

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

CLOCK  
OSCILLATORS