

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

- ±25ppm, ±50ppm, ±100ppm (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 = 20kΩ
- Disable current 50µA typical

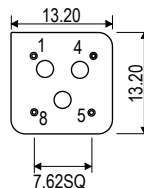
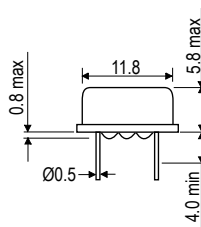
Environmental

- Terminal Strength: 0.91kg max force perpendicular to top and bottom
- Hermetic Seal: not to exceed 1×10^{-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/s² for 6ms, three shocks in each direction along the three mutually perpendicular planes

Marking Includes

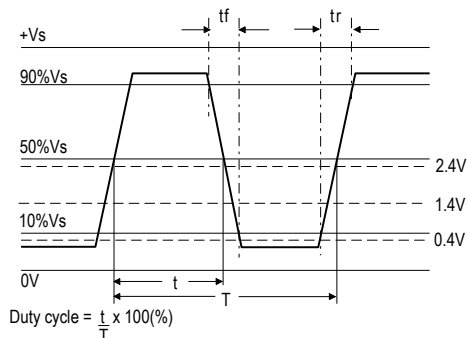
- Model Number + Operating Temperature Code + (if applicable) + Frequency Stability Code + Frequency + Date Code

Outline (mm)



- Pin Connections
- N/C or Enable/Disable.
 - GND
 - Output
 - +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	40/60%	
50.0MHz to <70.0MHz			50mA	6ns	6ns		
70.0MHz to <160.0MHz			70mA	5ns	5ns		

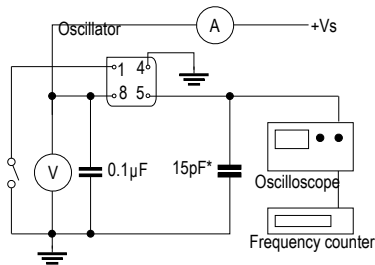
Ordering Example

Frequency 22.0MHz | IQXO-22 | B
 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 = ±25ppm, B = ±50ppm, C = ±100ppm

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.

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Test Circuit



*Inclusive of jigging and equipment capacitance

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

IQXO-350 CLOCK OSCILLATORS

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Outline (mm)

Description

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

Package Outline

- 14-pin DIL

Frequency Range

- 1kHz to 160MHz

Output Compatibility & Load

- HC MOS/TTL
- Drive Capability: 50pF max or 10TTL (<70MHz)
30pF max (>70 to 160MHz)
15pF max (1 to < 100kHz)

Standard Frequency Stabilities

- ± 25 ppm, ± 50 ppm, ± 100 ppm (over operating temperature range)

Operating Temperature Ranges

- 0 to 70°C (IQXO-350)
- 40 to 85°C (IQXO-350I)

Storage Temperature Range

- 55 to 125°C

Environmental Specification

- Terminal Strength: 0.91kg max force perpendicular to top and bottom
- Hermetic Seal: not to exceed 1×10^{-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/s² for 6ms, three shocks in each direction along the three mutually perpendicular planes

Marking Includes

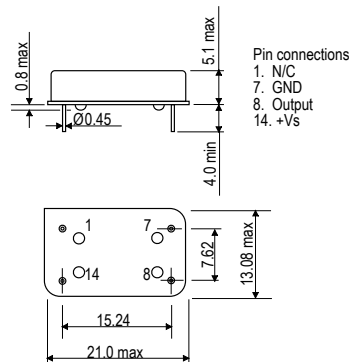
- Model Number + Operating Temperature Code (if applicable) + Frequency Stability Code + Frequency Tolerance Code (Optional) + Frequency + Date Code

Packaging

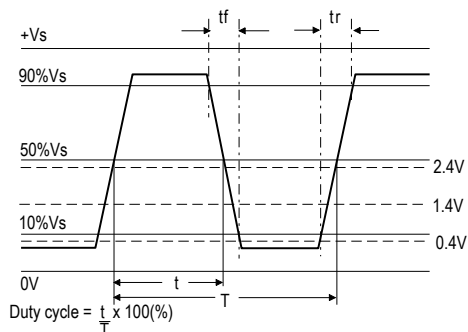
- Bulk

Minimum Order Information Required

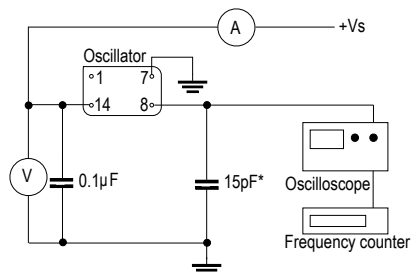
- Frequency + Model Number + Operating Temperature (if applicable) + Frequency Stability



Output Waveform



Test Circuit



*Inclusive of jiggling and equipment capacitance

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Electrical Specifications - maximum limiting values

Frequency Range	Frequency Stability	Supply Voltage	Supply Current	Rise Time (tr)	Fall Time (tf)	Duty Cycle	Model Number
1.0kHz to <100.0kHz	±25ppm, ±50ppm, ±100ppm	5V ±0.25V	10mA	10ns	10ns	45/55%	IQXO-350, 350I
100.0kHz to <250.0kHz				15ns	15ns		
250.0kHz to <5.0MHz			30mA				
5.0MHz to <16.0MHz			15mA	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 22.0MHz IQXO-350 I B

Frequency _____

Model number: -350, 350I _____

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

Frequency Stability: A = ±25ppm, B = ±50ppm, C = ±100ppm _____

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.

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