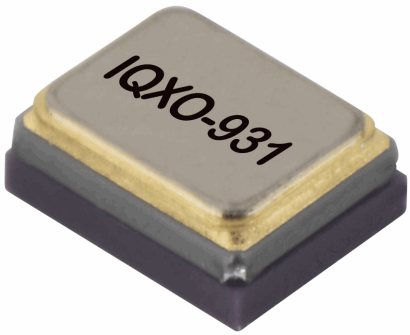
# Crystal Clock Oscillator Specification

# *IQXO-931*

**ISSUE 1; October 2018**

## Description

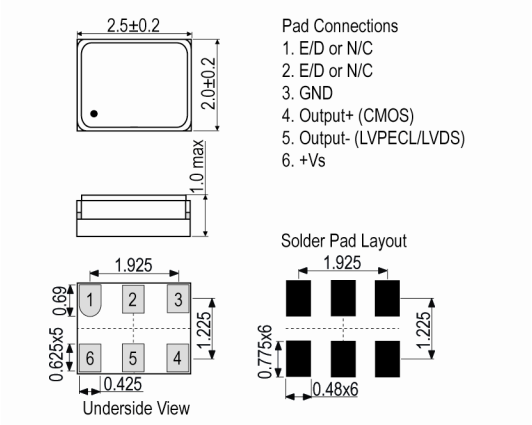
- The IQXO-931 combines very low rms phase jitter and tight frequency stability in an industry standard 2.5 x 2.0mm SMD package. Available in industry standard frequencies from 8MHz to 1.5GHz for fast delivery and reduced inventory levels.
- Applications:
  Ethernet (10G/40G/100G)
  Communications
  Base stations
  DSL/ADSL
  Wi-Fi
  Consumer
  WiMAX / W-LAN
- Features:
  Fast sample turnaround
  CMOS, LVPECL, or LVDS output options
  0.5 ps integrated RMS phase jitter (12kHz to 20MHz)
  Low power differential outputs
  Wide frequency range




## Frequency Parameters

- Frequency 8.0MHz to 1.5GHz
- Frequency Stability ±10.00ppm to ±20.00ppm
- Frequency Stability (including temperature range, supply voltage variation, load variation and 10 years ageing at 25°C): ±35ppm to ±100ppm

**Outline (mm)**




## Electrical Parameters

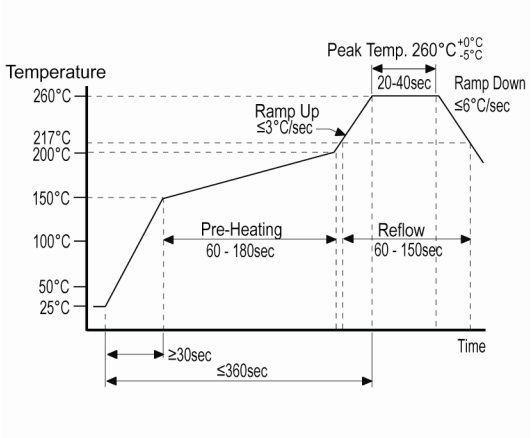
- Supply Voltage Options:
  3.3V ±10%
  2.5V ±5%
- Supply Current:
  CMOS 30 mA max
  LVPECL 65mA max
  LVDS 40mA max

## Operating Temperature Ranges

- -40 to 85°C

## Output Details

- Output Compatibility CMOS/LVPECL/LVDS
- CMOS output (up to 200MHz):
  Load 15pF max
  Output Voltage Low (Vol): 10%Vs max
  Output Voltage High (Voh): 90%Vs min
  Duty Cycle: 48/52% max
  R/F time (90%-10%): 3ns max
- LVPECL output:
  Output Voltage High (Voh) 50Ω (Vs-1.62V) max
  Output Voltage Low (Vol) 50Ω (Vs-1.025V) min
  Duty Cycle (@ Vs-1.3V): 45/55% max
  R/F time (80%-20%): 0.6ns max
- LVDS output:
  Load 100Ω
  Differential Output Voltage Swing (Vod): 350mV
  Duty Cycle (@ 1.25V): 45/55% max over 150MHz
  R/F time (100Ω / 10pF): 0.6ns max

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## Output Control

- Output Control Options: Pad 1 or pad 2: E/D or N/C
  ≥70%Vs to E/D or open-circuit (internal puul-up resistor): Output Enabled
  ≤30%Vs to E/D: Output Disabled

## Noise Parameters

- RMS phase Jitter (12kHz to 20MHz):
  1.0ps typical, 2.0ps max
  Note 0.5ps typical, 1.0ps max available for specific frequencies Please contact our Application Support team for details

## Environmental Parameters

- Shock: MIL-STD-883, Method 2002
- Storage Temperature Range: -55 to 125°C
- Thermal Shock: MIL-STD-883, Method 1011
- Vibration: MIL-STD-883, Method 2007

## Manufacturing Details

- Reflow Soldering Temperature: 260°C max for 20-40sec max
- RoHS Reflow 260°C max for 40sec max

## Ordering Information

- *minimum information required
  Frequency*
  Model*
  Supply Voltage*
  Output type*
  Pad 1 & 2 function*
  Frequency Stability*
  Operating Temperature Range*

## Compliance

- RoHS Status (2015/863/EU) Compliant
- REACh Status Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

## Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
  Pack Size: 3,000
- Pack Style: Cutt In tape, cut from a reel.
  Pack Size: 100

**Electrical Specification - maximum limiting values**

| Frequency Min | Frequency Max | Temperature Range | Stability (Min) | Current Draw | Rise and Fall Time | Duty Cycle |
|---|---|---|---|---|---|---|
| | | °C | ppm | mA | ns | % |
| 8.0MHz | 1.5GHz | -40 to 85 | ±10.0 | - | - | - |

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