Description

- Simple package crystal oscillator (SPXO) in a seam sealed ceramic package with a metal lid and operates over a wide supply voltage range of 1.62V to 3.63V
- Note: Operating temperature range -40 to 125°C is intended for industrial use and not for safety critical applications such as automotive. Please contact IQD for alternative options.

Frequency Parameters

- Frequency 2.0MHz to 50.0MHz
- Frequency Stability ±25.00ppm to ±100.00ppm
- Ageing ±3ppm max in 1st year @ 25°C
- Frequency Stability: inclusive of frequency tolerance at 25°C ±3°C and over the operating temperature range.

Electrical Parameters

- Supply Voltage: 1.62V min to 3.63V max

Operating Temperature Ranges

- -10 to 70°C
- -40 to 85°C
- -40 to 125°C

Output Details

- Output Compatibility CMOS
- Drive Capability 15pF max

Output Control

- Standby Operation:
  Logic ‘1’ (>70% VS) to pad 1 enables oscillator output.
  Logic ‘0’ (<30% VS) to pad 1 disables oscillator output; when disabled the oscillator output goes to the high impedance state.
  No connection to pad 1 enables oscillator output.
- Start-up Time: 10ms max
  0.3ms typ to 90% of final amplitude (under ideal conditions @ 25°C)
- Standby Current: 10µA max, 1.1µA typ @ 25°C

Noise Parameters

- RMS Phase Jitter (10kHz to 20MHz): 179fs typ @ 24MHz
- Phase Noise (typ @ 24MHz and @ 25°C):
  -67dBc/Hz @ 10Hz
  -104dBc/Hz @ 100Hz
  -138dBc/Hz @ 1kHz
  -143dBc/Hz @ 10kHz
  -160dBc/Hz @ 100kHz
  -161dBc/Hz @ 1MHz

Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Shock: 1500g, 0.5ms, 6 sides, impact each side 3 times.
- Vibration: 20Hz-2000Hz, 1.52mm peak amplitude, 20g acceleration in 3 mutually perpendicular planes, 20mins per axis (total 4hrs)
Crystal Clock Oscillator Specification

IQXO-951 2016

Manufacturing Details
- RoHS Terminations: Au
- RoHS Reflow: 260°C max

Compliance
- RoHS Status (2011/65/EU): Compliant
- REACh Status: Compliant
- MSL Rating (JDEC-STD-033): 1

Packaging Details
- Pack Style: Cutt
  Pack Size: 100
- Tape and reel in accordance with EIA-481-D
- Pack Style: Reel
  Pack Size: 3,000

Electrical Specification - maximum limiting values

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Frequency Range</th>
<th>Stability (Min)</th>
<th>Current</th>
<th>Rise and Fall Time</th>
<th>Duty Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0MHz</td>
<td>-10 to 70</td>
<td>±100.0 ppm</td>
<td>5 mA</td>
<td>6 ns</td>
<td>45/55%</td>
</tr>
<tr>
<td></td>
<td>-40 to 85</td>
<td>±25.0 ppm</td>
<td>5 mA</td>
<td>6 ns</td>
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</tr>
<tr>
<td></td>
<td>-40 to 125</td>
<td>±50.0 ppm</td>
<td>5 mA</td>
<td>6 ns</td>
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</tr>
<tr>
<td>20.0MHz</td>
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<td>±50.0 ppm</td>
<td>7 mA</td>
<td>5 ns</td>
<td>45/55%</td>
</tr>
<tr>
<td></td>
<td>-40 to 85</td>
<td>±25.0 ppm</td>
<td>7 mA</td>
<td>5 ns</td>
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<td>±50.0 ppm</td>
<td>7 mA</td>
<td>5 ns</td>
<td>45/55%</td>
</tr>
<tr>
<td>32.0MHz</td>
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<td>8 mA</td>
<td>5 ns</td>
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<td></td>
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<td>±25.0 ppm</td>
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</tr>
</tbody>
</table>

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