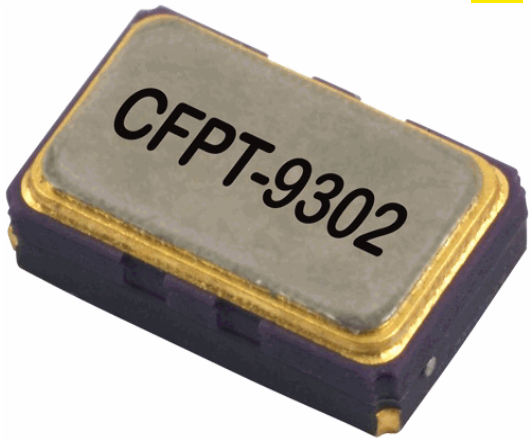
IQD Frequency Products

# TCXO Specification
# CFPT-9302

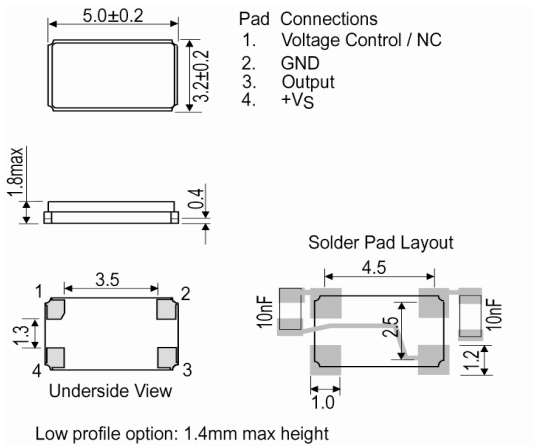
**ISSUE 7; September 2014 - RoHS 2011/65/EU**

## Description

- Surface mount temperature compensated voltage controlled crystal oscillators for medium to high volume applications where small size and high performance are prerequisites. Manufactured for us by Rakon utilising their Pluto™ ASIC technology and capable of sub 0.3ppm performance over an extended temperature range. Its ability to function down to a supply voltage of 2.4V and low power consumption makes it particularly suitable for mobile applications.
- -A Freq Adj option
- Option A (standard):
  Ageing adjustment by means of external Control Voltage applied to pad 1
  Range (frequency ≤ 20MHz) ≥ ±5ppm
  Range (frequency > 20MHz) ≥ ±7ppm
  Linearity ≤2%
  Slope Positive
  Input resistance ≥100kΩ
  Modulation bandwidth ≥2kHz
  Standard control voltage range 1.5V±1V
- -B No Freq Adj
- Option B: No frequency adjustment
  Initial Calibration ≤ ±1.0ppm




**Outline (mm)**




Low profile option: 1.4mm max height

## Frequency Parameters

- Frequency 12.0MHz to 52.0MHz
- Frequency Tolerance ±0.00ppm to ±1.00ppm
- Frequency Stability ±0.20ppm to ±2.00ppm
- Ageing ±2ppm max in 1st year (see Note 1)
- Supply Voltage Variation (@ ±5% change): ±0.05ppm typ
- Load Variation (@ ±10% change): ±0.05ppm typ
- Note 1 Ageing:
  Frequency ≤20MHz: ±1ppm max in 1st year
  Frequency ≤20MHz: ±3ppm max for 10 years (including the 1st year)
  Frequency >20MHz: ±2ppm max in 1st year
  Frequency >20MHz: ±5ppm max for 10 years (including the 1st year)

## Electrical Parameters

- Supply Voltage 3.0V ±10%
- Supply Current (typical):
  Clipped Sinewave: 1+Frequency(MHz)*1.2*{Load(pF) +30}*10-3mA
  e.g. 20MHz, 10pF ≈ 2mA
- Supply Voltage Tolerance: Parts will operate correctly with ±10% supply voltage variation but supply coefficient is measured with ±5% variation

## Frequency Adjustment

- Pulling ±5ppm min (see Note 1)

## Operating Temperature Ranges

- -20 to 70°C
- -40 to 85°C

**Sales Office Contact Details:**

UK: +44 (0)1460 270200 France: +33 (0)5 34 50 91 18 Email: info@iqdfrequencyproducts.com
Germany: +49 (0) 30 408 192 300 USA: +1 408.273.4530 Web: www.iqdfrequencyproducts.com

## Output Details

- Output Compatability: Clipped Sinewave
- Drive Capability: 10kΩ//10pF, DC coupled
- Output Level: 0.8Vpk-pk min

## Environmental Parameters

- Storage Temperature Range: -55 to 125°C
- Shock: IEC 60068-2-27, Test Ea: 1500G acceleration for 0.5ms, 3 shocks in each of 3 mutually perpendicular planes
- Vibration: IEC 60068-2-6, Test Fc: 10-60Hz 1.5mm displacement, 60-2000Hz at 20G, 4 hours in each of three mutually perpendicular axes at 1 oct/min

## Ordering Information

- Frequency*
  Model*
  Frequency Adjustment Option*
  Output
  Frequency Stability (over operating temperature range)*
  Operating Temperature Range*
  Supply Voltage
  (*minimum required)
- Example
  20.0MHz CFPT-9302-A
  Clipped Sine ±1ppm-20 to 70C 3.0V
- Stability/Temperature Range combinations may not be available for all frequencies, please contact our sales offices
- Supply Voltages in the range 2.4V to 6.0V are available to order, please contact our sales offices
- Low profile option (1.4mm max height) is available, please contact our sales offices
- Non standard requirements may be available upon request, please contact our sales offices

## Compliance

- RoHS Status: Compliant
- REACh Status: Compliant
- MSL Rating (JDEC-STD-033): Not Applicable

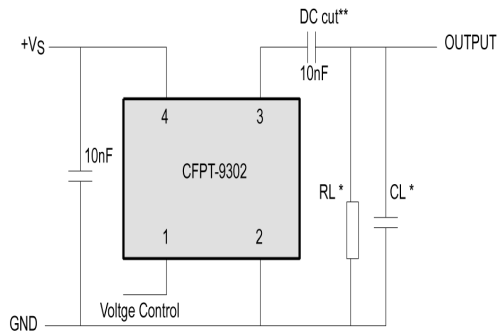
## Packaging Details

- Pack Style: Bulk — Loose in bulk pack
  Pack Size: 10
- Pack Style: Reel — Tape & reel in accordance with EIA-481-D
  Pack Size: 100

**Sales Office Contact Details:**

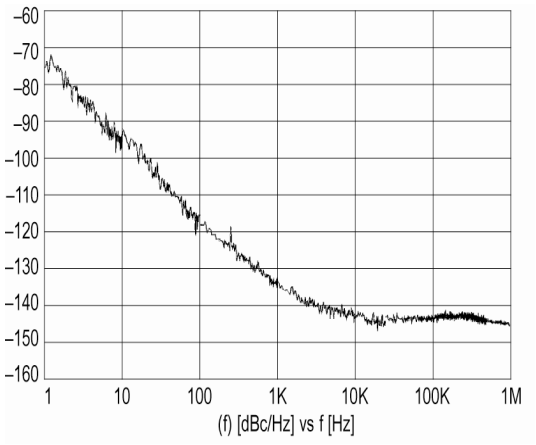
UK: +44 (0)1460 270200
France: +33 (0)5 34 50 91 18
Email: info@iqdfrequencyproducts.com
Germany: +49 (0) 30 408 192 300
USA: +1 408.273.4530
Web: www.iqdfrequencyproducts.com

**Test Circuit**




* Load 10kΩ // 10pF (clipped sinewave), inclusive of probe and jig capacitance
** DC cut capacitor required for AC coupled clipped sinewave

**Typical Phase Noise at 14.4MHz**




**Electrical Specification - maximum limiting values 3.0V ±10%**

| Frequency Min | Frequency Max | Temperature Range | Stability (min) | Current Draw | Rise and Fall Time | Duty Cycle |
|---|---|---|---|---|---|---|
| | | °C | ppm | mA | ns | % |
| 12.0MHz | 52.0MHz | -20 to 70 | ±0.2 | - | - | - |
| | | -40 to 85 | ±0.3 | - | - | - |

*This document was correct at the time of printing; please contact your local sales office for the latest version.*
*Click to view latest version on our website.*

**Sales Office Contact Details:**
UK: +44 (0)1460 270200
France: +33 (0)5 34 50 91 18
Email: info@iqdfrequencyproducts.com
Germany: +49 (0) 30 408 192 300
USA: +1 408.273.4530
Web: www.iqdfrequencyproducts.com