


ISSUE 7; April 2013 - 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.
- Option A (standard):
Ageing adjustment by means of external Control Voltage applied to pad 1
Range (frequency $\leq$ 20MHz) $\geq \pm 5$ ppm
Range (frequency $>$ 20MHz) $\geq \pm 7$ ppm
Linearity $\leq 2\%$
Slope Positive
Input resistance $\geq 100k\Omega$
Modulation bandwidth $\geq 2kHz$
Standard control voltage range 1.5V $\pm$ 1V
- Option B:
No frequency adjustment
Initial Calibration $\leq \pm 1.0$ ppm

Frequency Range

- Frequency 52.00MHz

Supply Voltage

- Voltage 3.3V $\pm 10\%$

Ageing

- Ageing ± 1 ppm max in 1st year (see Note 1)

Output Compatibility & Load

- Output Compatibility HCMOS
- Drive Capability 15pF max

Frequency Stabilities

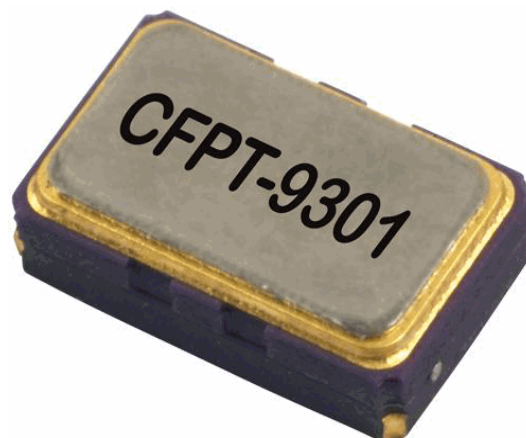
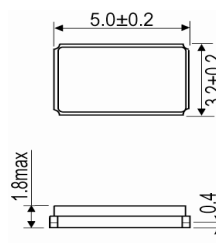
- Frequency Stability ± 0.20 ppm

Operating Temperature Ranges

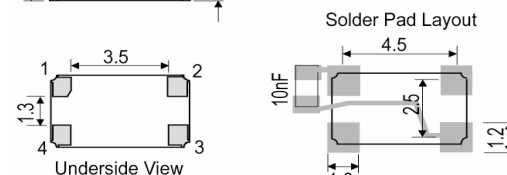
- -20 to 70°C
- -40 to 85°C

Frequency Parameters

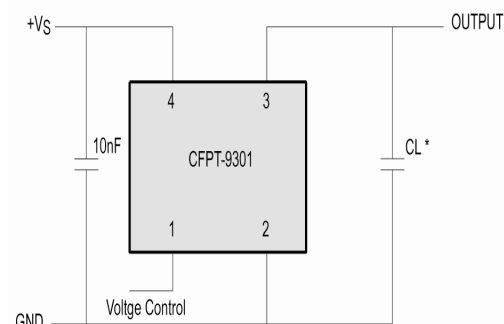
- Load Variation (@ $\pm 5pF$ change):
Frequency $< 20MHz$: ± 0.2 ppm typ
Frequency 20MHz to $< 35MHz$: ± 0.3 ppm typ
Frequency 35MHz to 52MHz: ± 0.5 ppm typ
- Note 1 Ageing:
Frequency $\leq 20MHz$: ± 1 ppm max in 1st year
Frequency $\leq 20MHz$: ± 3 ppm max for 10 years (including the 1st year)
Frequency $> 20MHz$: ± 2 ppm max in 1st year
Frequency $> 20MHz$: ± 5 ppm max for 10 years (including the 1st year)
- Supply Voltage Variation (@ $\pm 5\%$ change):
Frequency $< 20MHz$: ± 0.1 ppm typ
Frequency 20MHz to $< 35MHz$: ± 0.3 ppm typ
Frequency 35MHz to 52MHz: ± 0.5 ppm typ


Outline (mm)


- | Pad | Connections |
|-----|----------------------|
| 1. | Voltage Control / NC |
| 2. | GND |
| 3. | Output |
| 4. | +VS |



Low profile option: 1.4mm max height

Test Circuit


* Load 15pF (HCMOS), inclusive of probe and jig capacitance

Sales Office Contact Details:

UK: +44 (0)1460 270200
Germany: +49 (0)7264 9145-0

France: +33 (0)5 34 50 91 18
USA: +1 (0)408.273.4530

Email: info@iqdfrequencyproducts.com
Web: www.iqdfrequencyproducts.com

**Electrical Parameters**

- Frequency Adjustment - option A (standard):
Ageing adjustment by means of external Control Voltage applied to pad 1
Range (frequency $\leq$ 20MHz): $\geq \pm 5\text{ppm}$
Range (frequency $>$ 20MHz): $\geq \pm 7\text{ppm}$
Linearity: $\leq 2\%$
Slope: Positive
Input resistance: $\geq 100\text{k}\Omega$
Modulation bandwidth: $\geq 2\text{kHz}$
Standard control voltage range: $1.5\text{V} \pm 1\text{V}$
- Frequency Adjustment - option B
No frequency adjustment
Initial calibration: $\leq \pm 1.0\text{ppm}$
- Supply Current (typical):
HCMOS: $1 + \text{Frequency(MHz)} * \text{Supply(V)} * \{\text{Load(pF)} + 15\} * 10 - 3\text{mA}$
e.g. 20MHz, 3.3V, 15pF $\approx 3\text{mA}$
- Supply Voltage Tolerance: Parts will operate correctly with $\pm 10\%$ supply voltage variation but supply coefficient is measured with $\pm 5\%$ variation

Output Details

- Output Level:
 $\text{VoH} \geq 90\% \text{ VS}$
 $\text{VoL} \leq 10\% \text{ VS}$

Environmental Parameters

- Shock: IEC 60068-2-27, Test Ea: 1500G acceleration for 0.5ms, 3 shocks in each of 3 mutually perpendicular planes
- Storage Temperature Range: -55 to 125°C
- 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 1oct/min

Ordering Information (*minimum required)

- Example
20.0MHz CFPT-9301-A
HCMOS $\pm 1\text{ppm}$ -20 to 70°C 3.3V
- Frequency*
- Model*
- Frequency Adjustment Option*
- Output
- Frequency Stability (over operating temperature range)*
- Operating Temperature Range*
- Supply Voltage
(*minimum required)
- 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
- 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

Sales Office Contact Details:

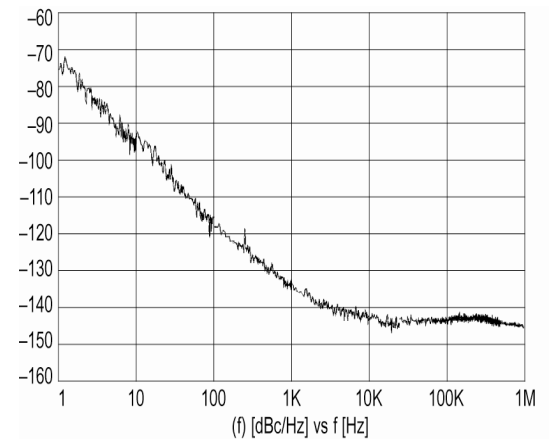
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**Packing Details**

- Pack Style: **Bulk** Loose in bulk pack
Pack Size 10
- Pack Style: **Reel** Tape and reel in accordance with EIA-481-D
Pack Size 1,000
- Alternative packing options available

Typical Phase Noise at 14.4MHz**Electrical Specification - maximum limiting values 3.3V $\pm$ 10%**

Frequency Range	Operating Temp Range	Frequency Stability	Frequency Adjustment From 0V to +Vs	Duty Cycle %
52.00MHz	-20 to 70°C -40 to 85°C	$\pm$ 0.20ppm $\pm$ 0.20ppm	Optional	45/55%

This document was correct at the time of printing; please contact your local sales office for the latest version

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