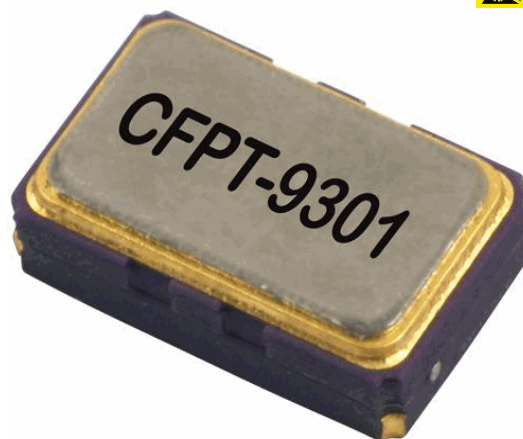




ISSUE 7; September 2014 - RoHS 2011/65/EU

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



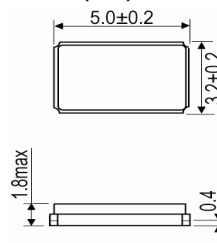
Frequency Parameters

- Frequency 1.5MHz to 52.0MHz
- Frequency Tolerance ±0.00ppm to ±1.00ppm
- Frequency Stability ±0.20ppm to ±2.00ppm
- Ageing ±1ppm max in 1st year (see Note 1)
- Supply Voltage Variation (@ ±5% change):
Frequency <20MHz: ±0.1ppm typ
Frequency 20MHz to <35MHz: ±0.3ppm typ
Frequency 35MHz to 52MHz: ±0.5ppm typ
- Load Variation (@ ±5pF change):
Frequency <20MHz: ±0.2ppm typ
Frequency 20MHz to <35MHz: ±0.3ppm typ
Frequency 35MHz to 52MHz: ±0.5ppm 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)

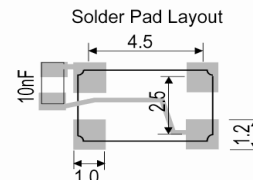
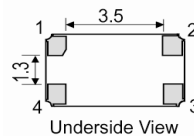
Electrical Parameters

- Supply Voltage 3.3V ±10%
- 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 ≈ 3mA
- Supply Voltage Tolerance: Parts will operate correctly with ±10% supply voltage variation but supply coefficient is measured with ±5% variation
- Frequency Adjustment - option B
No frequency adjustment
Initial calibration: ≤ ±1.0ppm

Outline (mm)



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



Low profile option: 1.4mm max height

Sales Office Contact Details:

UK: +44 (0)1460 270200

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Email: info@iqdfrequencyproducts.com

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USA: +1 408.273.4530

Web: www.iqdfrequencyproducts.com



Frequency Adjustment

- Pulling Optional
- Frequency Adjustment - 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

Operating Temperature Ranges

- -20 to 70°C
- -40 to 85°C

Output Details

- Output Compatibility HCMOS
- Drive Capability 15pF max

Output Levels

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

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 1oct/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-9301-A
HCMOS ± 1 ppm -20 to 70C 3.3V
- 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

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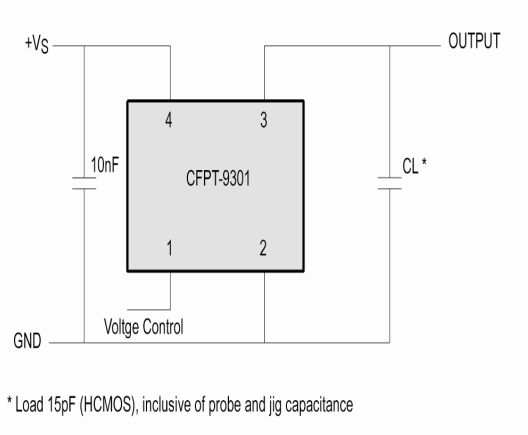
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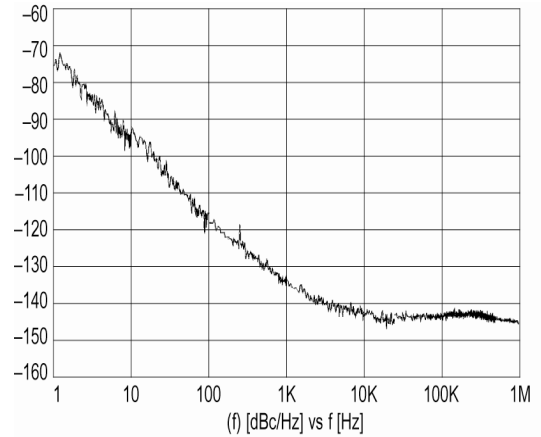
Packaging Details

- Pack Style: Reel Tape & reel in accordance with EIA-481-D
Pack Size: 1,000
- Pack Style: Bulk Loose in bulk pack
Pack Size: 10

Test Circuit



Typical Phase Noise at 14.4MHz



Electrical Specification - maximum limiting values 3.3V ±10%

Frequency Min	Frequency Max	Temperature Range	Stability (min)	Current Draw	Rise and Fall Time	Duty Cycle
		°C	ppm	mA	ns	%
1.5MHz	52.0MHz	-20 to 70	±0.2	-	8	45/55
		-40 to 85	±0.3	-	8	45/55

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.](#)

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