



Description

- Surface mount temperature compensated voltage controlled crystal oscillator.

Model	CFPT-9301-A
Model Issue number	7

Frequency Parameters

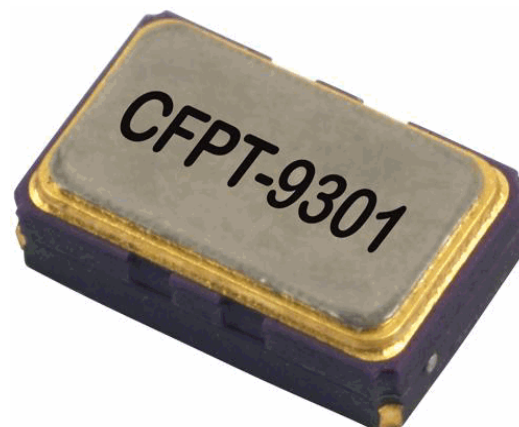
- Frequency: 20.0MHz
- Frequency Stability: $\pm 1.00\text{ppm}$
- Operating Temperature Range: -40.00 to 85.00°C
- Ageing $\pm 1\text{ppm}$ max in 1st year (see Note 1)
- Supply Voltage Variation (@ $\pm 5\%$ change):
Frequency $< 20\text{MHz}$: $\pm 0.1\text{ppm}$ typ
Frequency 20MHz to $< 35\text{MHz}$: $\pm 0.3\text{ppm}$ typ
Frequency 35MHz to 52MHz : $\pm 0.5\text{ppm}$ typ
- Load Variation (@ $\pm 5\text{pF}$ change):
Frequency $< 20\text{MHz}$: $\pm 0.2\text{ppm}$ typ
Frequency 20MHz to $< 35\text{MHz}$: $\pm 0.3\text{ppm}$ typ
Frequency 35MHz to 52MHz : $\pm 0.5\text{ppm}$ typ
- Note 1 Ageing:
Frequency $\leq 20\text{MHz}$: $\pm 1\text{ppm}$ max in 1st year
Frequency $\leq 20\text{MHz}$: $\pm 3\text{ppm}$ max for 10 years (including the 1st year)
Frequency $> 20\text{MHz}$: $\pm 2\text{ppm}$ max in 1st year
Frequency $> 20\text{MHz}$: $\pm 5\text{ppm}$ max for 10 years (including the 1st year)

Electrical Parameters

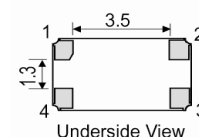
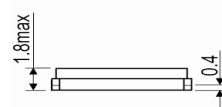
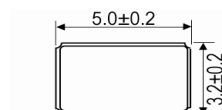
- Supply Voltage: 3.3V
- Supply Voltage Tolerance: $\pm 10\%$
- Supply Voltage Tolerance: Parts will operate correctly with $\pm 10\%$ supply voltage variation but supply coefficient is measured with $\pm 5\%$ variation
- Supply Current (typical):
HCMOS: $1 + \text{Frequency}(\text{MHz}) * \text{Supply}(\text{V}) * \{\text{Load}(\text{pF}) + 15\} * 10^{-3} \text{mA}$
e.g. 20MHz , 3.3V , $15\text{pF} \approx 3\text{mA}$
- Frequency Adjustment - option A (standard):
Ageing adjustment by means of external Control Voltage applied to pad 1
Range (frequency $\leq 20\text{MHz}$): $\geq \pm 5\text{ppm}$
Range (frequency $> 20\text{MHz}$): $\geq \pm 7\text{ppm}$
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: $\leq \pm 1.0\text{ppm}$

Output Details

- Output Compatibility: HCMOS
- Output Load: 15pF max
- Rise and Fall time (10% - 90%): 8ns max
- Duty Cycle: 45/55% max
- Output Level:
VoH $\geq 90\%$ VS
VoL $\leq 10\%$ VS



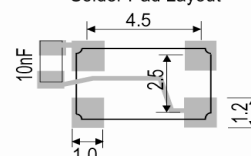
Outline (mm)



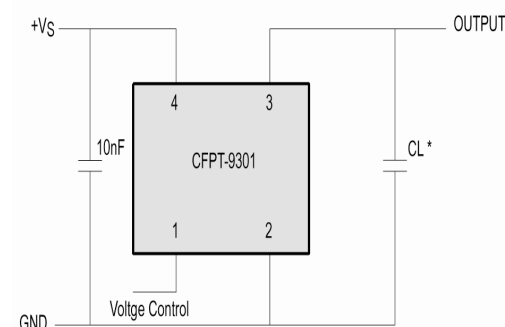
Low profile option: 1.4mm max height

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

Solder Pad Layout



Test Circuit



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

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Environmental Parameters

- 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
- Storage Temperature Range: -55 to 125°C

Compliance

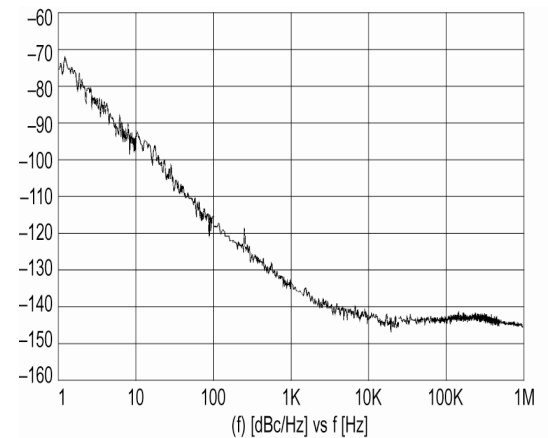
- | | |
|----------------|-----------|
| ■ RoHS Status | Compliant |
| ■ REACH Status | Compliant |

Packaging

- | | |
|--|--------------------|
| ■ Pack Type: Bulk | Loose in bulk pack |
| Pack Size | 10 |
| ■ Alternative packing option available | |

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

Typical Phase Noise at 14.4MHz



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