

Customer Part:



Description

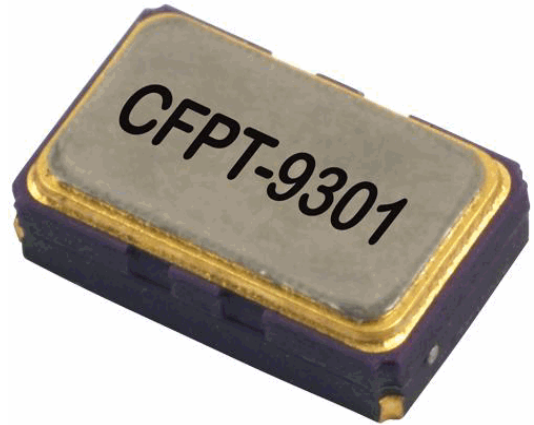
- Surface mount temperature compensated voltage controlled crystal oscillator.
- Freq Adj option
Option A (standard):
Ageing adjustment by means of external Control Voltage applied to pad 1
Range (frequency ≤ 20MHz) ≥ ±5ppm
Range (frequency > 20MHz) ≥ ±7ppm
Linearity ≤2%
Slope Positive
Input resistance ≥100kΩ
Modulation bandwidth ≥2kHz
Standard control voltage range 1.5V±1V
- Model CFPT-9301-A
- Model Issue number 7

Frequency Parameters

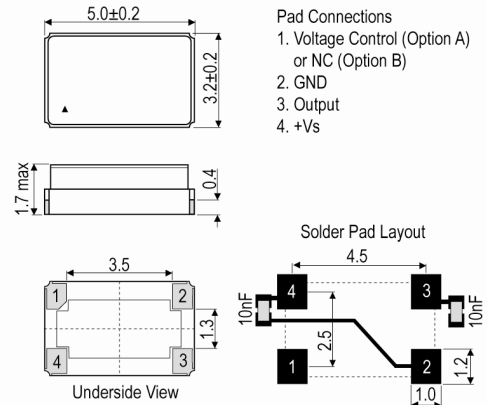
- Frequency 13.0MHz
- Frequency Tolerance ±1.00ppm
- Frequency Stability ±1.00ppm
- Operating Temperature Range -40.00 to 85.00°C
- Ageing ±1ppm max in 1st year (see Note 1)
- Supply Voltage Variation (@ ±5% change):
Frequency <20MHz: ±0.1ppm typ
Frequency 20MHz to <35MHz: ±0.3ppm typ
Frequency 35MHz 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

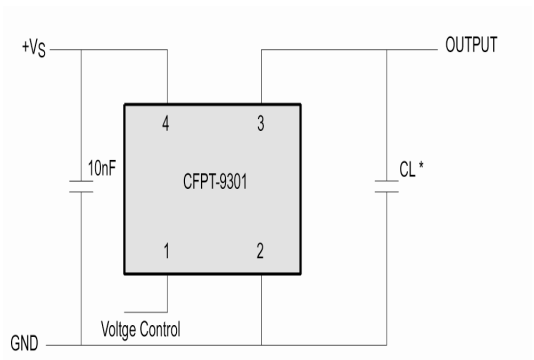
- Supply Voltage 3.3V ±10%
- Supply Current (typical):
HCMOS: $1 + \text{Frequency(MHz)} * \text{Supply(V)} * \{\text{Load(pF)} + 15\} * 1E-3\text{mA}$
i.e @ 20MHz, 3.3V, 15pF ≈ 3mA
Calculation: $1 + (20 \times 3.3 \times (15 + 15) \times 0.001) = 2.98\text{mA}$
- Supply Voltage Tolerance: Parts will 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)



Test Circuit



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

Sales Office Contact Details:

UK: +44 (0)1460 270200
Germany: 0800 1808 443

France: 0800 901 383
USA: +1.760.318.2824

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

Customer Part:**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: ≥ 2 kHz
Standard control voltage range: 1.5V \pm 1V

Output Details

- Output Compatibility HCMOS
- Drive Capability 15pF max
- Rise and Fall Time 8.0ns max
- Duty Cycle 45/55%

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

Compliance

- RoHS Status (2015/863/EU) Compliant
- REACH Status Compliant
- MSL Rating (JDEC-STD-033): 3

Packaging Details

- Pack Style: Bulk Loose in bulk pack
Pack Size: 10
- *Alternative packing option available*

Test Circuit**Typical Phase Noise at 14.4MHz****Sales Office Contact Details:**

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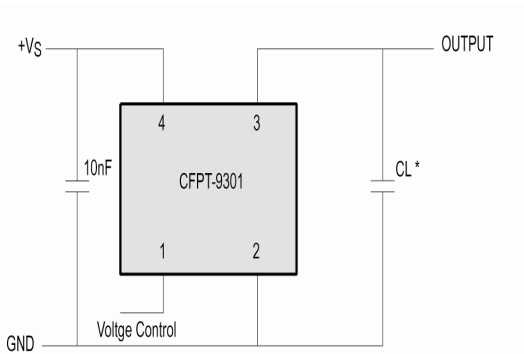
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Germany: 0800 1808 443

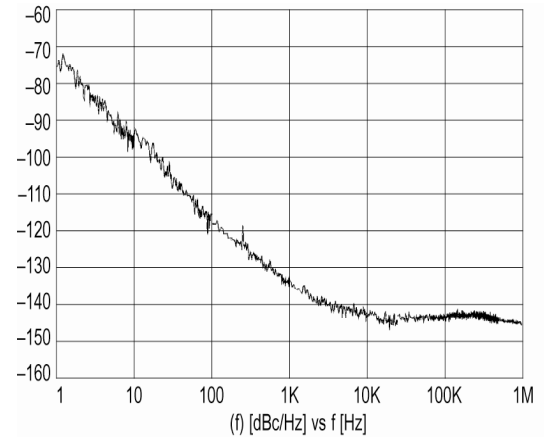
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Chipset Approval Table

| Ref No. | Frequency | Chipset Type | IC Supplier |
|---------|-----------|---|-------------|
| E4190LF | 12.8MHz | ACS1790T, ACS9510, ACS9520T, ACS9522T, ACS9550, ACS9593T, ACS8522BT, ACS8509, ACS8510, ACS8514, ACS8515, ACS8520, ACS8520A, ACS8522 | Semtech |
| E4191LF | 12.8MHz | ACS1790T, ACS9510, ACS9520T, ACS9522T, ACS9550, ACS9593T, ACS8522BT, ACS8509, ACS8510, ACS8514, ACS8515, ACS8520, ACS8520A, ACS8522 | Semtech |
| E4437LF | 12.8MHz | ACS1790T, ACS9510, ACS9520T, ACS9522T, ACS9550, ACS9593T, ACS8522BT, ACS8509, ACS8510, ACS8514, ACS8515, ACS8520, ACS8520A, ACS8522 | Semtech |
| E4438LF | 20MHz | ZL30152, ZL30155, ZL30157, ZL30159, ZL30160, ZL30165 | Microsemi |
| E4439LF | 20MHz | ZL30152, ZL30155, ZL30157, ZL30159, ZL30160, ZL30165 | Microsemi |
| E4441LF | 20MHz | ZL30152, ZL30155, ZL30157, ZL30159, ZL30160, ZL30165 | Microsemi |
| E4698LF | 12.8MHz | ACS1790T, ACS9510, ACS9520T, ACS9522T, ACS9550, ACS9593T, ACS8522BT, ACS8509, ACS8510, ACS8514, ACS8515, ACS8520, ACS8520A, ACS8522 | Semtech |

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