TCXO Specification

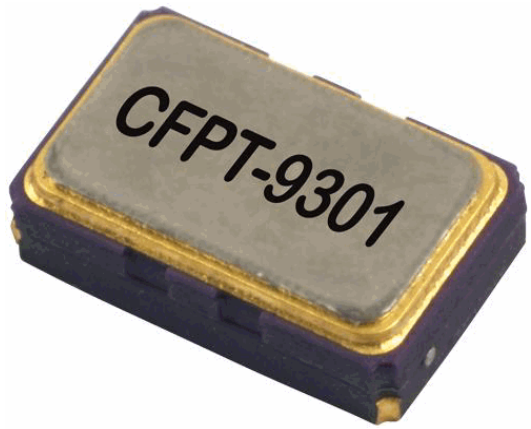
Part No. + Packaging: ***LFPTXO000244Bulk***

Customer Part:

Description

- Surface mount temperature compensated voltage controlled crystal oscillator.
- Freq Adj option

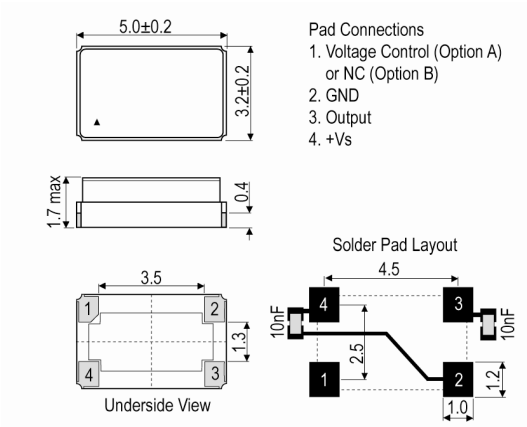
  Option A (standard):
  Ageing adjustment by means of external Control Voltage applied to pad 1
  Range (frequency ≤ 20MHz) ≥ ±5ppm
  Range (frequency > 20MHz) ≥ ±7ppm
  Linearity ≤2%
  Slope Positive
  Input resistance ≥100kΩ
  Modulation bandwidth ≥2kHz
  Standard control voltage range 1.5V±1V
- Model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



Frequency Parameters

- Frequency 20.0MHz
- 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)

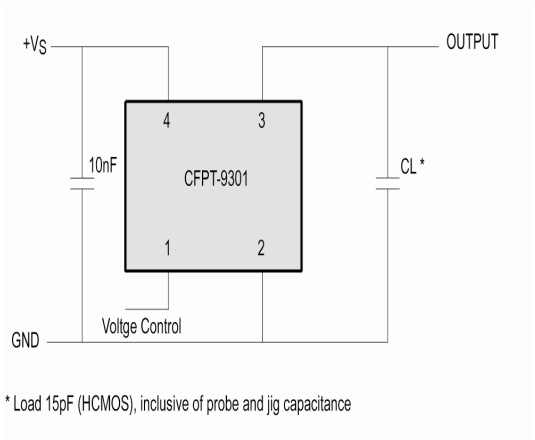
Outline (mm)



Electrical Parameters

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

Test Circuit



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

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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 ≤ 20MHz): ≥±5ppm
  Range (frequency > 20MHz): ≥±7ppm
  Linearity: ≤2%
  Slope: Positive
  Input resistance: ≥100kΩ
  Modulation bandwidth: ≥2kHz
  Standard control voltage range: 1.5V ±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 ≥ 90% VS
  VoL ≤ 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

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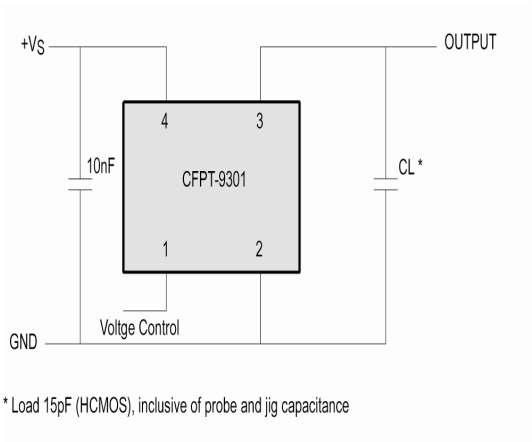

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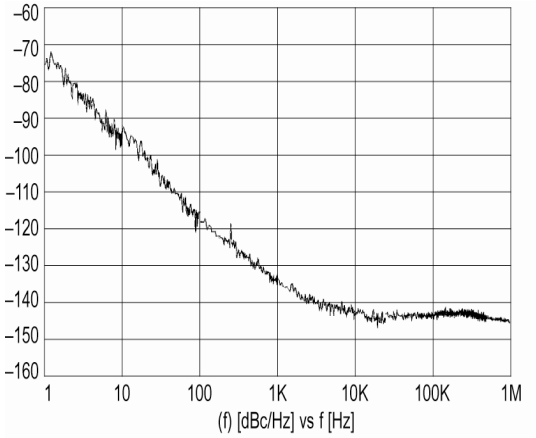

Chipset Approval Table

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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