CFPO-SC Series

(Hi-Reliable OCXO - Up to "Stratum 2" performance - No re-calibration over time)

ISSUE 1; 19 OCTOBER 2004

Description
- The CFPO-SC series are a range of OCXO's removing the need for customers to re-calibrate their equipment over the lifetime of operation

Main performances are:-
- Free-run stability range over lifetime operation from: $\pm 1.6 \times 10^{-8}$ (CFPO-SC1 for replacing Rubidium clocks) to $\pm 1 \times 10^{-7}$ (CFPO-SC4)
- Holdover range over 24 hours operation: From 7µs over -20 to 70°C (CFPO-SC2) to 10µs with ±15°C ambient change

Package Options (metal leaded package, hermetically sealed)
- CFPO-SC-1 50.8 x 50.8 x 38.0mm (50B)
- CFPO-SC-2 50.8 x 50.8 x 25.0mm (50)
- CFPO-SC-3 51.0 X 41.0 X 25.0mm (51)
- CFPO-SC-4 40.0 X 30.0 X 20.0mm (40)

Supply Options
- Standard: 12V ±5% (12)
- Optional: 15V (15)

Standard Frequencies
- 5.0, 8.192, 10.0, 10.24MHz

Frequency Range
- 5.0 to 15.0MHz
- Higher frequencies may be available upon request
- Initial tolerance @ 25°C Fo $\pm 1 \times 10^{-8}$

Power Consumption (CFPO-SC1 / others)
- Warm-up: ≤7.0W / 6.0W
- @25°C: ≤2.5W / 1.8W (calm air)

Warm Up Time @ 25°C (typical)
- $\pm 1 \times 10^{-8}$ after 15 mins (for CFPO-SC1)
- $\pm 1 \times 10^{-8}$ after 10 mins (for others)

Retrace after 24 Hours on / 24 Hours off @25°C
- $\pm 2 \times 10^{-9}$ after 60 minutes

Frequency Adjustment
- > $\pm 5.0 \times 10^{-8}$ from 0V to reference voltage
- EFC monotonic and positive slope (negative optional)

Oven Alarm "logic level" signal (optional) (A)
- Logic "0" during warm-up time and if oven is not operating
- Logic "1" when temperature regulation is operating

Reference Voltage Ouput (optional no reference voltage)
- CFPO-SC-1 pkg 50B 8.0V±0.3V
- CFPO-SC-2 pkg 50 8.2V±0.3V (options = 5V / 6.2V)
- CFPO-SC-3 pkg 51 8.2V±0.3V (options = 5V / 6.2V)
- CFPO-SC-4 pkg 40 8.0V±0.3V

Output Compatibility
- Sinewave +7dBm ±2dBm into 50Ω load (S)
- Squarewave optional (C)

Harmonic Distortion
- Harmonics ≤ -40dBc
- Spurious ≤ -80dBc

Phase Noise 10.0MHz typical (sinewave)
- 1Hz -100dBc/Hz
- 10Hz -130dBc/Hz
- 100Hz -145dBc/Hz
- 1kHz -155dBc/Hz
- 10kHz -158dBc/Hz

Environmental Specification (non-operating)
- Storage temperature range -55 to 85°C
- Shock - half-sine 50g 11ms / 3 per direction IEC 68-2-27 Test Ea / Severity 50A
- Vibration - 10g / 10-500Hz IEC 68-2-06 Test Fc / Severity 500/10

Marking (printed label on top of can)
- C-MAC or Customer's Logo
- Nominal Frequency (Fo) in MHz
- Serial Number (1 letter & 5 numbers)
- Date Code (4 digits for year and week)

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Electrical Specification

Operating Temperature Range	Stability within Temperature Range pk to pk	Long Term Stability (after frequency recovery)				Frequency Stability Vs Supply Voltage Change (±5%) and Load Change (50Ω±10%)	Cumulated Over Lifetime (all causes)	Reference Voltages	Standard Package type (max height)	Model Number
		Per Day	Per Month	Per Year	Over 15 Years					
-20 to 70°C	$\leq 1x10^{-10}$	$\leq \pm 2x10^{-11}$	$\leq \pm 6x10^{-10}$	$\leq \pm 5x10^{-9}$	$\leq \pm 1.5x10^{-8}$	$\leq \pm 5x10^{-11}$	$\leq \pm 1.6x10^{-8}$	8.0V±0.3V	(50B) 38mm	CFPO-SC-1
	$\leq 2x10^{-10}$	$\leq \pm 5x10^{-11}$	$\leq \pm 1.5x10^{-9}$	$\leq \pm 1.2x10^{-8}$	$\leq \pm 3.5x10^{-8}$	$\leq \pm 1x10^{-10}$	$\leq \pm 5.0x10^{-8}$	8.2V±0.3V Option 5 or 6.2V	(50) 25mm	CFPO-SC-2
	$\leq 5x10^{-10}$	$\leq \pm 1x10^{-10}$	$\leq 3x10^{-9}$	$\leq \pm 1.5x10^{-8}$	$\leq \pm 5x10^{-8}$	$\leq \pm 2x10^{-10}$	$\leq \pm 7.0x10^{-8}$	8.2V±0.3V Option 5 or 6.2V	(51) 25mm	CFPO-SC-3
	$\leq 1x10^{-9}$	$\leq \pm 2x10^{-10}$	$\leq 5x10^{-9}$	$\leq \pm 3x10^{-8}$	$\leq \pm 9x10^{-8}$	$\leq \pm 5x10^{-10}$	$\leq \pm 1.0x10^{-7}$	8.0V±0.3V	(40) 20mm	CFPO-SC-4

Ordering Example CFPO-SC-1 50B S 12 A 8.0 10.0MHz

Model Number

Package Outline 50B : 50 : 51 : 40 (see above table)

Output Signal (S) (Sine is standard) (C) (Optional HCMOS)

Supply Voltage (12) (15) (12V is standard)

Oven Alarm Option (A)

Reference Voltage 8.0, 8.2, 5.0, 6.2 (+ Optional: N = No reference voltage)

Frequency (MHz)

For non standard options such as different temperature ranges, negative slope EFC, cold start-up then please contact our sales office.

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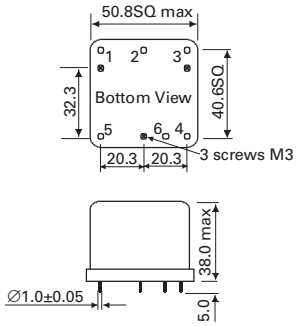
Packages without Oven Alarm

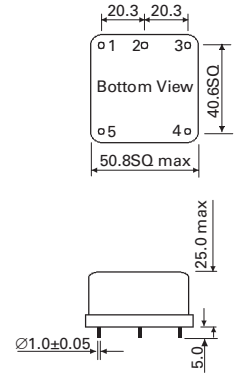
Outline in mm - Package 50B



Pin	Function
1.	Input frequency control
2.	Output reference voltage
3.	Output signal
4.	Mechanical GND and (-) supply
5.	Input supply (+)

All tolerances ±0.2mm

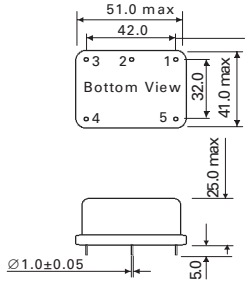
Outline mm - Package 50



Pin	Function
1.	Input frequency control
2.	Output ref. voltage
3.	Output signal
4.	Mechanical GND and (–) supply
5.	Input supply (+)

All tolerances ±0.2mm

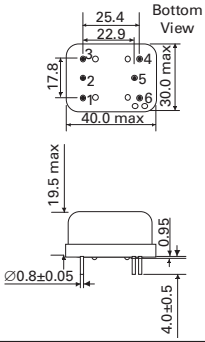
Outline in mm - Package 51



Pin	Function
1.	Mechanical GND and supply
2.	Frequency control input
3.	Ref.voltage output
4.	Supply input
5.	Signal output

All tolerances ±0.2mm

Outline in mm - Package 40

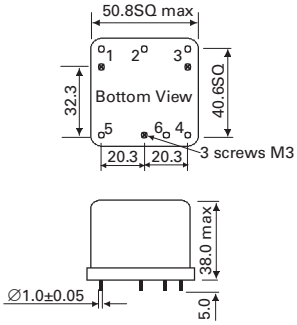


Pin	Function
1.	Input frequency control
2.	Output reference voltage
3.	Input supply (+)
4.	Output signal
5.	Mechanical GND and (-) supply

All tolerances ±0.2mm

Packages with Oven Alarm

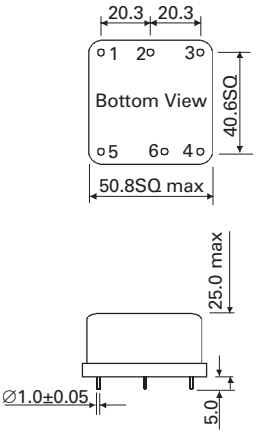
Outline in mm - Package 50B



Pin	Function
1.	Input frequency control
2.	Output reference voltage
3.	Output signal
4.	Mechanical GND and (-) supply
5.	Input supply (+)
6.	Oven alarm

All tolerances ±0.2mm

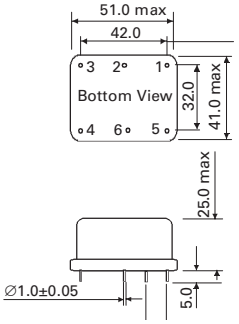
Outline in mm - Package 50



Pin	Function
1.	Input frequency control
2.	Output ref. voltage
3.	Output signal
4.	Mechanical GND and (–) supply
5.	Input supply (+)
6.	Oven alarm

All tolerances ±0.2mm

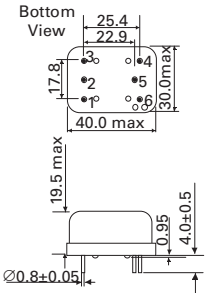
Outline in mm - Package 51



Pin	Function
1.	Mechanical GND and supply
2 .	Frequency control input
3 .	Ref. voltage output
4 .	Supply Input
5 .	Signal output
6.	Oven alarm

All tolerances ±0.2mm

Outline in mm - Package 40



Pin	Function
1.	Input frequency control
2.	Output reference voltage
3.	Input supply (+)
4.	Output signal
5.	Mechanical GND and (-) supply

All tolerances ±0.2mm

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