

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:
 - ±1.6x10⁻⁸ (CFPO-SC1 for replacing Rubidium clocks)
 - to ±1x10⁻⁷ (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 ±1x10⁻⁸

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)

- ±1x10⁻⁸ after 15 mins (for CFPO-SC1)
- ±1x10⁻⁸ after 10 mins (for others)

Retrace after 24 Hours on / 24 Hours off @25°C

- ±2x10⁻⁹ after 60 minutes

Frequency Adjustment

- > ±5.0x10⁻⁸ 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 Output (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

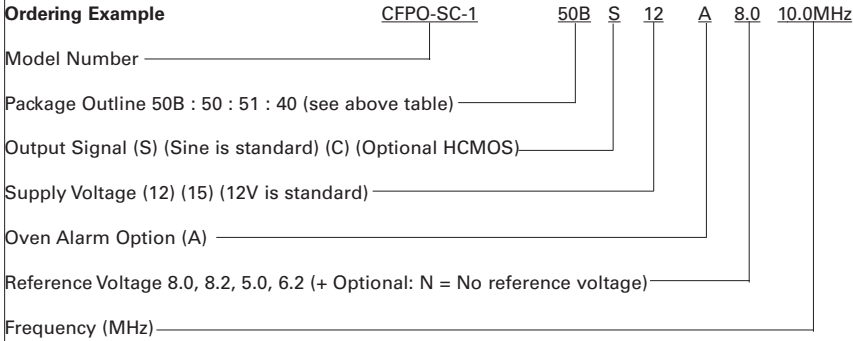
Marking (printed label on top of can)

- 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)

Electrical Specification

Operating Temperature Range	Stability within Temperature Range pk to pk	Long Term Stability (after frequency recovery)				Frequency Stability Vs Supply Voltage Change ($\pm 5\%$) and Load Change ($50\Omega \pm 10\%$)	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	$\leq 1 \times 10^{-10}$	$\leq \pm 2 \times 10^{-11}$	$\leq \pm 6 \times 10^{-10}$	$\leq \pm 5 \times 10^{-9}$	$\leq \pm 1.5 \times 10^{-8}$	$\leq \pm 5 \times 10^{-11}$	$\leq \pm 1.6 \times 10^{-8}$	8.0V \pm 0.3V	(50B) 38mm	CFPO-SC-1
	$\leq 2 \times 10^{-10}$	$\leq \pm 5 \times 10^{-11}$	$\leq \pm 1.5 \times 10^{-9}$	$\leq \pm 1.2 \times 10^{-8}$	$\leq \pm 3.5 \times 10^{-8}$	$\leq \pm 1 \times 10^{-10}$	$\leq \pm 5.0 \times 10^{-8}$	8.2V \pm 0.3V Option 5 or 6.2V	(50) 25mm	CFPO-SC-2
	$\leq 5 \times 10^{-10}$	$\leq \pm 1 \times 10^{-10}$	$\leq 3 \times 10^{-9}$	$\leq \pm 1.5 \times 10^{-8}$	$\leq \pm 5 \times 10^{-8}$	$\leq \pm 2 \times 10^{-10}$	$\leq \pm 7.0 \times 10^{-8}$	8.2V \pm 0.3V Option 5 or 6.2V	(51) 25mm	CFPO-SC-3
	$\leq 1 \times 10^{-9}$	$\leq \pm 2 \times 10^{-10}$	$\leq 5 \times 10^{-9}$	$\leq \pm 3 \times 10^{-8}$	$\leq \pm 9 \times 10^{-8}$	$\leq \pm 5 \times 10^{-10}$	$\leq \pm 1.0 \times 10^{-7}$	8.0V \pm 0.3V	(40) 20mm	CFPO-SC-4

Ordering Example

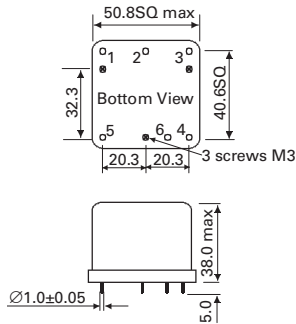


For non standard options such as different temperature ranges, negative slope EFC, cold start-up then please contact our sales office.



Packages without Oven Alarm

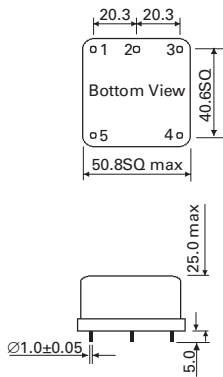
Outline in mm - Package 50B



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

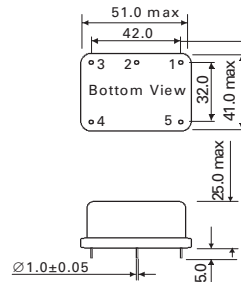
Outline in mm - Package 50



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

All tolerances ±0.2mm

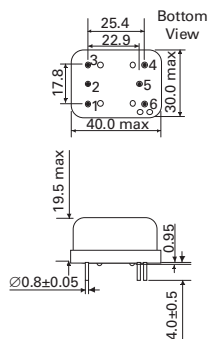
Outline in mm - Package 51



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

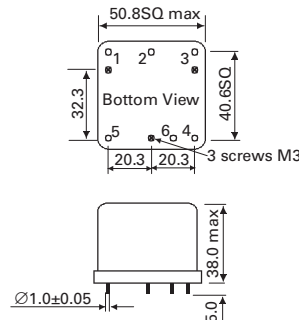


Pin	Function
1.	Input frequency control
2.	Output reference voltage
3.	Input supply (+)
4.	Output signal
5.	Mechanical GND and (-) supply

All tolerances ±0.2mm

Packages with Oven Alarm

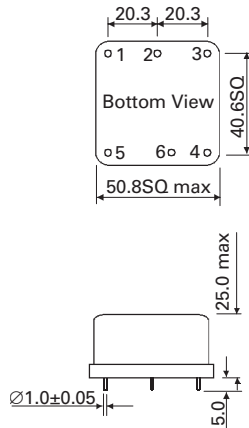
Outline in mm - Package 50B



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

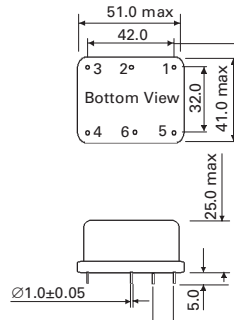
Outline in mm - Package 50



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

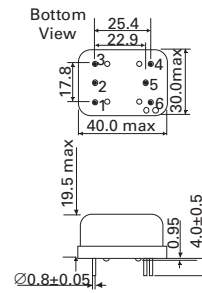
Outline in mm - Package 51



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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