

## CFPO-US SERIES: Ultra Stable OCXOS

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### Description

- CFPO-US series is a range of Ultra Stable OCXOs providing ultimate frequency stability versus all operational conditions  
Main applications: Instrumentation/Precise Localisation/Positioning/Metrology and all very accurate measurements

Key performances are:

- Short term performance
- Phase noise near the carrier
- Frequency stability versus overall operating conditions

### Package Outline ( L x W X H )

- CFPO-US-1 67.0 x 60.0 x 40.0mm (67A)
- CFPO-US-2 50.8 x 50.8 x 38.0mm (50B)
- CFPO-US-3 50.8 x 50.8 x 25.0mm (50)  
Option (51B) 51.0 x 41.0 x 19.05mm
- CFPO-US-4 51.0 x 41.0 x 19.5mm (51B)  
Option (40) 40.0 x 30.0 x 20.0mm

### Supply Voltage

- Std. 12V (12)
- Option: 15V (15)

### Standard Frequencies

- 5.0, 10.0MHz

### Input Current @ 12V (Power Consumption)

- Warm up:  $\leq 700\text{mA}$  ( $\leq 8.5\text{W}$ )
- @ 25°C:  $\leq 250\text{mA}$  ( $\leq 3.0\text{W}$  (calm air))

Warm Up Time (typical @25°C)

- $\pm 1 \times 10^{-8}$  after 15 minutes (calm air)

Retrace after 24 hours off @25°C

- $\leq \pm 3 \times 10^{-9}$  after 60 minutes

Sinewave Output Signal (S) into 50W load

- Level:  $\geq 3\text{dBm}$  (standard)
- Harmonic Distortion  $< -40\text{dBc}$
- Spurious  $< -70\text{dBc}$
- Phase Noise and Short term: see phase noise table

### Frequency Stability Vs Supply Voltage Change ( $\pm 5\%$ ) and Load Change ( $50\Omega \pm 10\%$ )

- Load:  $\leq \pm 2 \times 10^{-11}$
- Supply:  $\leq \pm 2 \times 10^{-11}$

### Environmental Specification (non-operating)

- Storage Temperature Range:  $-30$  to  $85^\circ\text{C}$
- Shock: 50g for 11ms, 3 shocks in each direction of main axis
- Vibration: 10 to 500Hz 10g acceleration

### Weight/Mass

- $\leq 350\text{g}$  (67A)
- $\leq 220\text{g}$  (50B)
- $\leq 100\text{g}$  (50)
- $\leq 80\text{g}$  (40)

### Marking Includes

- Model number (including options)
- Frequency
- Serial number
- Date code (Year/Week)



**Electrical Specification @ 10MHz. Operating Temperature Range: -20 to 60°C (option up to +65°C )**

Operating Temperature Range	Short Term Stability (Allan Standard Deviation)			Long Term Stability (after frequency recovery time)			Frequency Stability Over Temperature (pk-pk)	Standard Package Type (max height)	Model Number
	1s	10s	100s	Per Day	Per Month	Per Year			
<b>-20 to 60°C</b>	$\leq 5 \times 10^{-13}$	$\leq 5 \times 10^{-13}$	$\leq 8 \times 10^{-13}$	$\leq \pm 2 \times 10^{-11}$	$\leq \pm 6 \times 10^{-10}$	$\leq \pm 5 \times 10^{-9}$	$\leq 5 \times 10^{-11}$	67A	CFPO-US-1
	$\leq 1 \times 10^{-12}$	$\leq 1 \times 10^{-12}$	$\leq 1 \times 10^{-12}$	$\leq \pm 5 \times 10^{-11}$	$\leq \pm 1.5 \times 10^{-9}$	$\leq \pm 1.2 \times 10^{-8}$	$\leq 1 \times 10^{-10}$	50B	CFPO-US-2
	$\leq 2 \times 10^{-12}$	$\leq 2 \times 10^{-12}$	$\leq 2 \times 10^{-12}$	$\leq \pm 7 \times 10^{-11}$	$\leq \pm 2 \times 10^{-9}$	$\leq \pm 1.5 \times 10^{-8}$	$\leq 2 \times 10^{-10}$	50	CFPO-US-3
	$\leq 3 \times 10^{-12}$	$\leq 3 \times 10^{-12}$	$\leq 5 \times 10^{-12}$	$\leq \pm 1 \times 10^{-10}$	$\leq \pm 3 \times 10^{-9}$	$\leq \pm 2 \times 10^{-8}$	$\leq 1 \times 10^{-9}$	51B	CFPO-US-4

**Ordering Example** CFPO-US1 67A S 12 A 8 10MHz

Model \_\_\_\_\_

Package Outline 67A, 50B, 50, 51B (40) \_\_\_\_\_

Output Signal (S) \_\_\_\_\_

Supply Voltage (12) (15) \_\_\_\_\_

Oven Alarm Option (A) \_\_\_\_\_

Reference Voltage (8V standard, optional 5V or 6.2V) \_\_\_\_\_

Frequency (MHz) \_\_\_\_\_

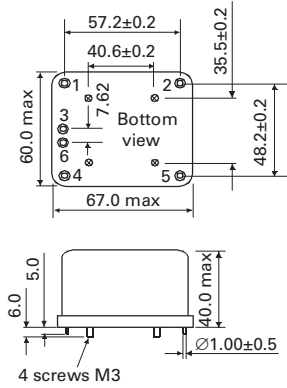
**For non standard options such as different temperature ranges, negative slope EFC, cold start-up etc, please contact our sales office.**

Phase Noise (typical figures @ 10MHz )		
Model Number	Offset from the carrier	
	@ 1Hz	@ 10Hz
CFPO-US-1	-115dBc/Hz	-135dBc/Hz
CFPO-US-2	-105dBc/Hz	-130dBc/Hz
CFPO-US-3	-100dBc/Hz	-130dBc/Hz
CFPO-US-4	-95dBc/Hz	-125dBc/Hz

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## CFPO-US Series - Standard Packages

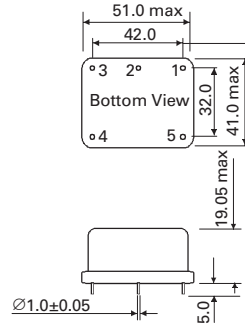
CFPO-US1 - Package 67A



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

All tolerances ±0.2mm

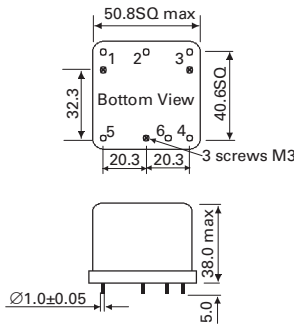
CFPO-US 4 - Package 51B



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

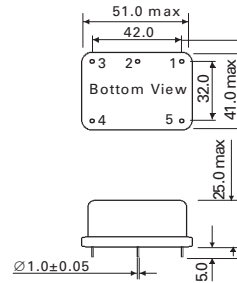
CFPO-US2 - Package 50B



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

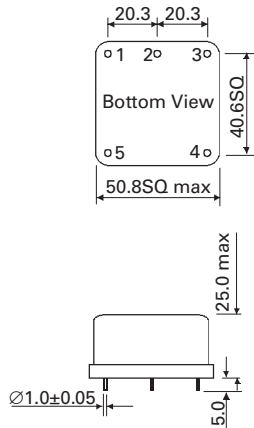
CFPO-US 3 - Package 51



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

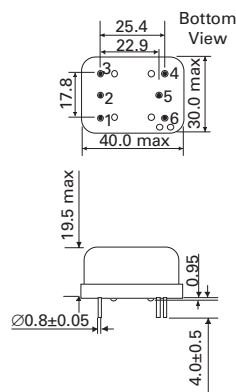
CFPO-US3 - Package 50



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

CFPO-US 4 - 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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