

# CFPO-DO SERIES

ISSUE 6; 27 NOVEMBER 2008 - RoHS 2002/95/EC

## Description

- Super single Oven Controlled Oscillators (OCXO's) manufactured for us by Rakon. Designed as a compact and smart frequency source/time keeping reference for all synchronization systems including global positioning system (GPS) based equipment. Key performance characteristics are:
  - Holdover better than 7ms over 24 hours
  - Frequency stability over operating temperature range (see table text)
  - Frequency stability versus change of all operating conditions (pressure, supply, load, etc)

## Package Outlines

- 50.8 x 50.8 x 25mm (50) CFPO-DO-1
- 51 x 41 x 25mm (51) CFPO-DO-2
- 51 x 41 x 19.05mm (51B) CFPO-DO-3
- 40 x 30 x 20mm (40) CFPO-DO-4

## Standard Frequencies

- 10, 12.8, 13MHz

## Frequency Range

- 8.192 to 15MHz
- Initial tolerance @ 25°C Fo  $\pm 1 \times 10^{-7}$

## Output Compatibility & Load

- Sine +7dBm  $\pm 2$ dBm into 50 $\Omega$  load (S)
- HCMOS (C)

## Operating Temperature Range

- 20 to 70°C
- Extended Operating Temperature Ranges may be available on request. Please contact our sales office

## Storage Temperature Range

- 55 to 85°C

## Supply Voltage

- Standard: 12V (12)

## Power Consumption

- Warm-up: <750mA
- @25°C: <250mA (calm air)

## Warm Up Time @ 25°C (typical)

- $\leq \pm 1 \times 10^{-8}$  after 10 mins

## Retrace after 24 hours off @25°C (typical)

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

## Frequency Adjustment

- $> \pm 3 \times 10^{-7}$  from 0V to reference voltage, monotonic and standard positive slope (negative slope optional). Sufficient to cover 10 years ageing

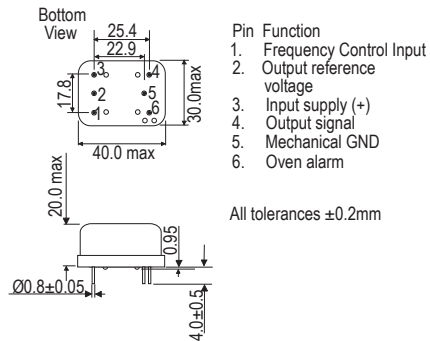
## Oven Alarm "logic level" signal (optional) (A)

- Logic "0" during warm-up time and if oven is not operating
- Logic "1" when temperature regulation is operating



Registration No. F1544229

## Outline (mm) - Package 40 (with Oven Alarm)



## Reference Voltage

- Standard reference voltage output +8V
- Optional +5.0V or +6.2V (except Package 40)
- Option: N = No Reference Voltage

## Harmonic Distortion

- Harmonics & sub-harmonics < -30dBc
- Non-Harmonics < -75dBc

## Environmental (non-operating)

- Shock: 50g for 11ms
- Vibration: 10g for 10 to 500Hz

## Packaging

- Bulk

## Marking Includes

- Frequency + Model Number + Serial Number + Date Code

## Phase Noise @10.0MHz typical (sinewave)

- 10Hz  $\leq -125$ dBc/Hz
- 100Hz  $\leq -145$ dBc/Hz
- 1kHz  $\leq -155$ dBc/Hz
- 10kHz  $\leq -158$ dBc/Hz

## Minimum Order Information Required

- Frequency + Model Number + Package Outline + Output Signal + Supply Voltage + Oven Alarm (if applicable) + Reference Voltage (if applicable)

### Electrical Specification - maximum limiting values

Operating Temperature Range *	Stability within Temperature Range pk to pk	Long Term Stability @ 25°C after 7 days operation				Frequency Stability Vs Supply Voltage Change (±5%) and Load Change (50Ω±10%)	Standard Package Type (max height)	Model Number
		Per Day	Per Month	Per Year	Over 10 Years			
-20 to 70°C	≤1x10 <sup>-10</sup>	≤±5x10 <sup>-11</sup>	≤±1.5x10 <sup>-9</sup>	≤±1.2x10 <sup>-8</sup>	≤±6x10 <sup>-8</sup>	≥5x10 <sup>-11</sup>	(50) 25mm	CFPO-DO-1
	≤2x10 <sup>-10</sup>	≤±7x10 <sup>-11</sup>	≤±2x10 <sup>-9</sup>	≤±1.5x10 <sup>-8</sup>	≤±7.5x10 <sup>-8</sup>	≥1x10 <sup>-10</sup>	(51) 25mm	CFPO-DO-2
	≤5x10 <sup>-10</sup>	≤±1x10 <sup>-10</sup>	≤±3x10 <sup>-9</sup>	≤±2x10 <sup>-8</sup>	≤±1x10 <sup>-7</sup>	≥1x10 <sup>-10</sup>	(51B) 19.05mm	CFPO-DO-3
	≤1x10 <sup>-9</sup>	≤±2x10 <sup>-10</sup>	≤±5x10 <sup>-9</sup>	≤±5x10 <sup>-8</sup>	≤±3x10 <sup>-7</sup>	≥5x10 <sup>-10</sup>	(40) 20mm	CFPO-DO-4

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

Model \_\_\_\_\_

Package outline (50) (51) (51B) (40) \_\_\_\_\_

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

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

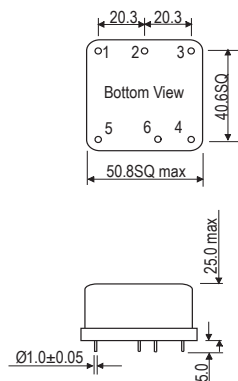
Oven Alarm Option (A) \_\_\_\_\_

Reference Voltage (8V standard, optional = 5V or 6.2V with packages 50 & 51) \_\_\_\_\_  
(Option: N = No Reference Voltage)

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

\*Please note: Extended Operating Temperature Ranges may be available on request, please contact our sales office for further details

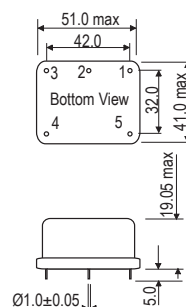
### Outline (mm) - Package 50 (without Oven Alarm)



- Pin Function
1. Frequency Control Input
  2. Output ref. voltage
  3. Output signal
  4. Mechanical GND and (-) supply
  5. Input supply (+)
- All tolerances  $\pm 0.2\text{mm}$

All tolerances  $\pm 0.2\text{mm}$

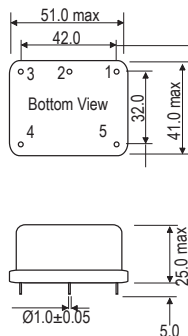
### Outline (mm) - Package 51B (without Oven Alarm)



- | Pin | Function                     |
|-----|------------------------------|
| 1.  | Mechanical<br>GND and supply |
| 2.  | Frequency Control Input      |
| 3.  | Ref. voltage output          |
| 4.  | Supply input                 |
| 5.  | Signal output                |

All tolerances  $\pm 0.2\text{mm}$

### Outline (mm) - Package 51 (with Oven Alarm)



- | 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  $\pm 0.2\text{mm}$