

# CFPO-2S Ultra Low Phase Noise & High Stability OCXO

ISSUE 6; 1 NOVEMBER 2008 - RoHS 2002/95/EC

## Description

- Ultra low phase noise and high stability Oven Controlled Oscillator (OCXO) manufactured for us by Rakon

## Package Outlines

- 50.8 x 50.8 x 25.4mm (50)
- 51 x 41 x 25mm (51)
- 67 x 60 x 40mm (67)

## Standard Frequencies

- 5, 10, 13MHz

## Output Compatibility & Load

- Sine 4 dBm typical into 50Ω (S)

## Operating Temperature Range

- 10 to 70°C

## Storage Temperature Range

- 55 to 90°C

## Supply Voltage

- Standard: 12V (12)
- Optional: 15V (15), 24V (24)

## Input Current @ 12V (Power Consumption)

- Warm up: ≤700mA (< 8.5W)
- @ 25°C: ≤200mA (< 2.4W) (calm air)

## Warm Up Time @ 25°C (typical)

- ≤±1 x 10<sup>-8</sup> after 10 minutes (calm air)

## Retrace after 24 hours off @ 25°C

- ≤±5 x 10<sup>-9</sup> after 60 minutes

## Harmonic Distortion

- ≤30dBc

## Phase Noise @ 10.0MHz (sine output)

- 10Hz ≤ -120 dBc/Hz
- 100Hz ≤ -150 dBc/Hz
- 1kHz ≤ -160 dBc/Hz
- 10kHz ≤ -165 dBc/Hz

## Environmental (non-operating)

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

## Weight/Mass

- ≤ 80g (51)
- ≤ 100g (50)

## Marking Includes

- Model Number + Frequency + Serial Number + Date Code

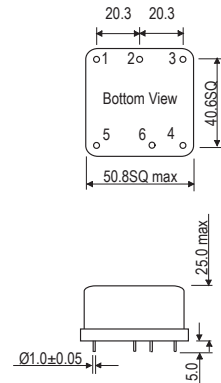
## Packaging

- Bulk

## Minimum Order Information Required

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

## Outline (mm) - Package 50

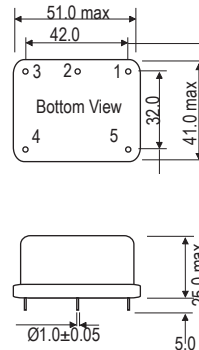


### Pin Function

- Frequency Control Input
- Output ref. voltage
- Output signal
- Mechanical GND and (-) supply
- Input supply (+)

All tolerances ±0.2mm

## Outline (mm) - Package 51

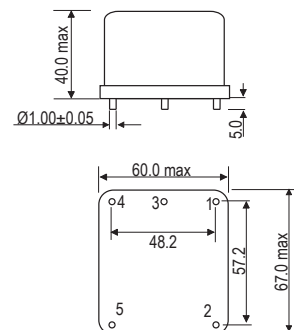


### Pin Function

- Mechanical GND and supply
- Frequency Control Input
- Ref. voltage output
- Supply Input
- Signal output

All tolerances ±0.2mm

## Outline (mm) - Package 67



### Pin Function

- Output Signal
- Output reference voltage
- Mechanical GND and (-) supply
- Frequency Control Input
- Input supply (+)

All tolerances ±0.2mm

### Electrical Specification - maximum limiting values

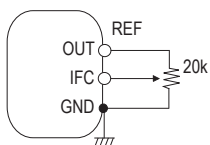
Operating Temperature Range	Stability within Temperature Range pk to pk	Long Term Stability @ 25°C after 30 days operation			Frequency Adjustment from 0V to V Ref* (pk-pk)	Frequency Stability Vs Supply Voltage Change (±5%) and Load Change (50Ω ±10%)	Model Number
		Per Day	Per Month	Per Year			
-10 to 70°C	≤1x10 <sup>-9</sup>	≤±5x10 <sup>-11</sup>	≤±1.5x10 <sup>-9</sup>	≤±1.2x10 <sup>-8</sup>	≥5x10 <sup>-7</sup>	≤±2x10 <sup>-10</sup>	CFPO-2 S1
		≤±1x10 <sup>-10</sup>	≤±3x10 <sup>-9</sup>	≤±1.5x10 <sup>-8</sup>	≥7x10 <sup>-7</sup>		CFPO-2 S2
	≤2x10 <sup>-9</sup>	≤±2x10 <sup>-10</sup>	≤±6x10 <sup>-9</sup>	≤±3x10 <sup>-8</sup>			CFPO-2 S3
		≤±3x10 <sup>-10</sup>	≤±1x10 <sup>-8</sup>	≤±5x10 <sup>-8</sup>			CFPO-2 S4

Ordering Example	CFPO-2-S1 50 S 12 A 10.MHz
Model	
Package outline (50) (51) (67)	
Output Signal (S)	
Supply Voltage (12) (15) (24)	
Oven Alarm Option (A)	
Frequency (MHz)	

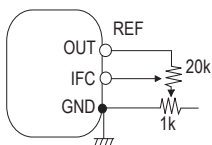
\*Voltage Reference: +8.0V ±0.2V

### External Frequency Adjustment

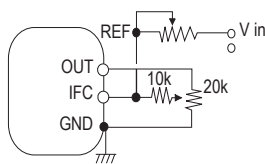
Manual freq. adjust.  
Settability ≤ 1 x 10<sup>-8</sup>



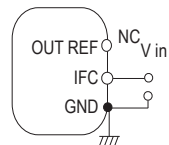
Fine manual freq. adjust.  
Settability ≤ 1 x 10<sup>-10</sup>



Freq. control voltage and manual adjust



Ext. freq. control voltage



All potentiometers must be 10 turns type with temperature coefficient 50ppm/°C

OCX05