



# High Performance (VC)OCXO

## DESCRIPTION:

**O-40CXXX-LPN-LF** is a 10.000 MHz high performance 'Oven Controlled Crystal Oscillator' **(VC)OCXO** offering exceptional low phase noise **(LPN)**, very tight frequency stability and low aging.

The RoHS-compliant part **(LF)** comes in a small sized hermetically sealed metal can package what makes it suitable for humid climate environment.



## FEATURES:

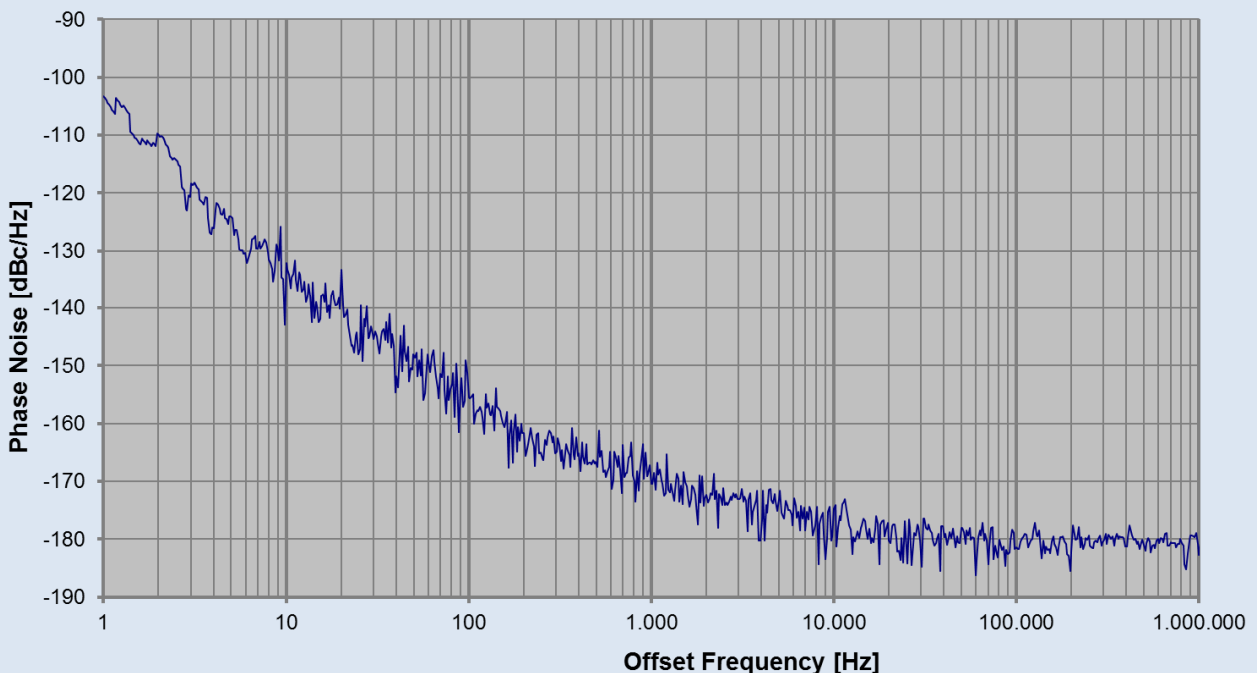
- Fast Warm-up Time
- Low Power Consumption
- Tight Frequency Stability
- Excellent Long-Term Stability
- Low Phase Noise
- Frequency Tuning Input
- Reference Voltage Output

## APPLICATIONS:

- Instrument Reference
- Microwave Communication
- Clock Reference for Microwave Signal Source
- Test & Measurement
- Telecom Systems



Phase Noise SMD OCXO 10.000 MHz



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ROHS-Compliant Product

O-40CXXX-LF



<b>1. Specification</b>			
<b>Test conditions: <math>V_S = +12\text{ V}</math>, <math>V_C = +5.0\text{ V}</math>; <math>T_A = +25\text{ °C}</math> except when stated otherwise</b>			
Nominal Frequency $F_N$ :	10.000 MHz		
Initial factory frequency adjustment tolerance: (after 30 min power ON)	$\leq \pm 0.1\text{ ppm}$		
Frequency stability vs. temperature range -20 °C to +70 °C:	<u>Class E</u> $\pm 20\text{ ppb}$	<u>Class D</u> $\pm 10\text{ ppb}$	<u>Class C</u> $\pm 5\text{ ppb}$
Frequency stability vs. temperature range -40 °C to +85 °C:	<u>Class G</u> $\pm 50\text{ ppb}$	<u>Class F</u> $\pm 30\text{ ppb}$	<u>Class E</u> $\pm 20\text{ ppb}$
Frequency stability vs. supply voltage changes $V_S \pm 5\%$ : vs. load changes 50 Ohm $\pm 5\%$ :	$\leq \pm 1.0\text{ ppb}$ $\leq \pm 1.0\text{ ppb}$		
Aging (after 30 days of continuous operation): per day: 1st year: 10 years:	<u>Option X</u> $\leq \pm 0.5\text{ ppb}$ $\leq \pm 50\text{ ppb}$ $\leq \pm 0.3\text{ ppm}$	<u>Option Y</u> $\leq \pm 0.2\text{ ppb}$ $\leq \pm 30\text{ ppb}$ $\leq \pm 0.2\text{ ppm}$	
Frequency control range (referred to $F_N$ ) :	$\geq \pm 0.4\text{ ppm}$		
Frequency control voltage range $V_C$ :	+0.5 V ... +9.5 V		
Tuning slope $dF/dV_C$ :	positive		
Reference Voltage $V_{ref}$ : Source resistance of $V_{ref}$ : Recommended load impedance:	+9.5 V $\leq 100\text{ Ohm}$ $\geq 10\text{ kOhm}$		
Supply voltage $V_S$ :	+12.0 V $\pm 5\%$		
Supply current $I_S$ : steady state @ $T_A = +25\text{ °C}$ : during warm-up:	<u>-20 to +70 °C</u> $\leq 150\text{ mA}$ $\leq 400\text{ mA}$	<u>-40 to +85 °C</u> $\leq 180\text{ mA}$ $\leq 500\text{ mA}$	
Warm up time @ $T_A = +25\text{ °C}$ to $dF/F < \pm 5 \times 10^{-8}$ referred to final frequency after 1 hour:	$\leq 5\text{ min}$		
Output voltage : level: load :	sine wave $\geq +8\text{ dBm}$ 50 Ohm		
Harmonics: Spurious (10 Hz to 1 MHz from carrier):	$\leq -30\text{ dBc}$ $\leq -80\text{ dBc}$		

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3				
2	Short Term Stability	18.11.2015	Schweickert	
1		28.05.2014	Rudolph	
ED	Description	Date	Name	



ROHS-Compliant Product

O-40CXXXX-LF



**1. Specification (cont.)**

Short term stability (Allan Variance) @ tau = 1 sec:				Typical $2 \times 10^{-12}$		
Phase noise <b>max.</b> values [dBc/Hz] at offset frequency:	Option A	Option B	Option C	Option E	Option F	Option G
1 Hz:	-105	-110	-115	-95	-100	-105
10 Hz:	-135	-140	-142	-125	-130	-135
100 Hz:	-155	-155	-155	-153	-155	-155
1 kHz:	-165	-165	-165	-165	-165	-165
10 kHz:	-170	-170	-170	-175	-175	-175
100 kHz:	-170	-170	-170	-180	-178	-176
1 MHz:	-170	-170	-170	-180	-180	-176
Temperature ranges						
Operable:						-45 °C ... +90 °C
Storage:						-50 °C ... +95 °C

**2. Environmental conditions**

According to KVG Product Qualification Procedure AA-QM-202

**3. Marking**

Manufacturer's name, date code (week/year); Specification; Nominal frequency

**4. Ordering Information**

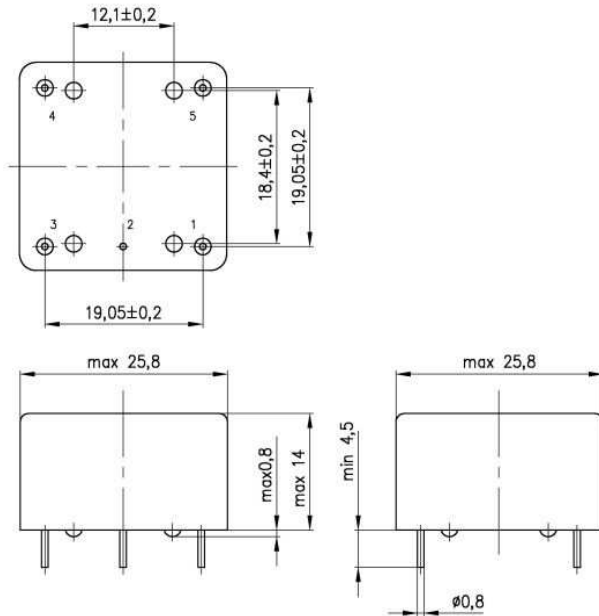
Type Code	Package Code	Supp. Volt.	Temp. Range	Freq. Stab. f(T)	AGING f(t)	Phase Noise Option	G Sens.	RoHS compl.	Nominal Frequency
OCXO	25.8 x 25.8	12 V	LOW /HIGH	B to F	X or Y	A to G	NO = 0		XXX.YYY MHz
<b>O-</b>	<b>40</b>	<b>C</b>	<b>2070</b>	<b>C</b>	<b>X</b>	<b>B</b>	<b>0</b>	<b>-LF</b>	<b>-10.000 MHz</b>

Example: O-40C2070CXB0-LF-10.000 MHz

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5. Case

Case style: BF171-14.0



Height: 14.0 mm max

Pin configuration

1. RF output
2. Ground, case
3. Control voltage  $V_C$
4. Reference voltage output  $V_{REF}$
5. Supply voltage  $V_S$

Moisture Sensitivity Level: 1

Termination finish:  
Sn95.5 Ag3.8 Cu

Solderability:

DIN IEC 68-2-20 (TA)

RoHS-6 compliant

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