



High Performance (VC)OCXO

DESCRIPTION:

O-40CXXXX-LPN-LGS-LF is a high performance 'Oven Controlled Crystal Oscillator' **(VC)OCXO** offering exceptional combination of Low Phase Noise **(LPN)**, Low G-Sensitivity **(LGS)** and tight frequency stability.

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

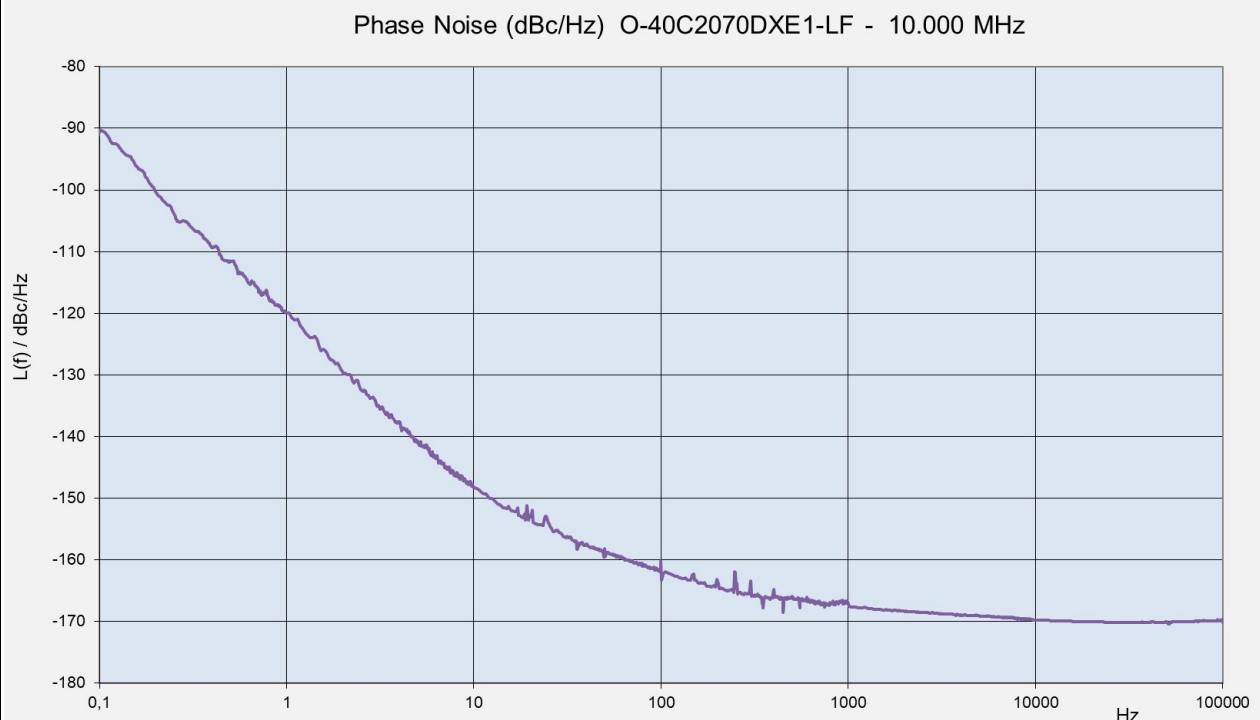


FEATURES:

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

APPLICATIONS:

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



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ROHS-Compliant Product

O-40CXXXXXX-LF



1. Specification			
Test conditions: $V_S = +12\text{ V}$, $V_C = +5.0\text{ V}$; $T_A = +25\text{ °C}$ except when stated otherwise			
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> $\leq \pm 0.3\text{ ppb}$ $\leq \pm 30\text{ ppb}$ $\leq \pm 0.2\text{ ppm}$	
Frequency control range (referred to F_N):	Always larger than overall frequency stability; at least $\pm 0.4\text{ ppm}$		
Frequency control voltage range V_C :	+0.5 V ... +9.5 V		
Tuning slope dF/dV_C / Linearity:	Positive / 10%		
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:	$\leq 5\text{ min}$		

4	Phase Noise	21.11.2017	Schweickert	KVG Quartz Crystal Technology GmbH P.O. Box 61 D-74924 Neckarbischofsheim Tel. +49 (0) 7263 / 648-0 Fax. +49 (0) 7263 / 6196
3	Temperature Stability improved	12.02.2016	Schweickert	
2	Short term stability; Phase Noise options	15.12.2015	Rudolph	
5	Phase Noise	29.11.2018	Schweickert	
ED	Description	Date	Name	



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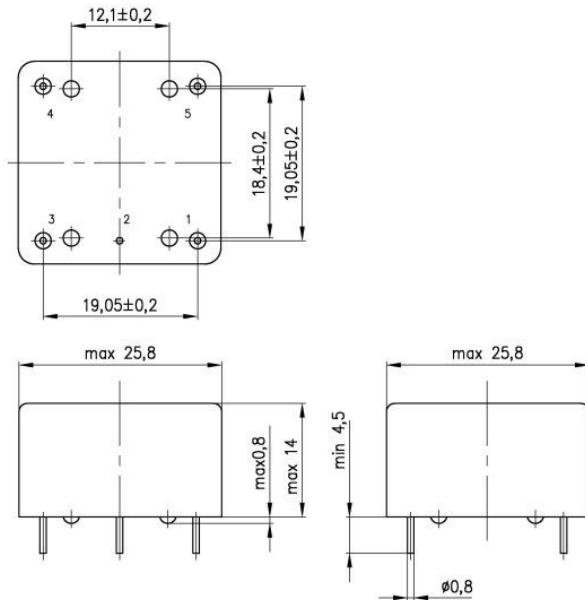


1. Specification (cont.)									
Output voltage : level: load :				Sine wave $\geq +8$ dBm 50 Ohm					
Harmonics: Spurious (10 Hz to 1 MHz from carrier):				≤ -30 dBc ≤ -80 dBc					
Short term stability (Allan Deviation) @ tau = 1 sec:					$\leq 2 \times 10^{-12}$ (typical)				
G-Sensitivity (each axis):					≤ 1 ppb/g				
Phase noise max. values [dBc/Hz] at offset frequency:				Option A	Option B	Option C	Option D	Option E	
1 Hz:				-105	-110	-115	-118	-120	
10 Hz:				-135	-140	-142	-146	-148	
100 Hz:				-155	-155	-155	-160	-162	
1 kHz:				-165	-165	-165	-166	-167	
10 kHz:				-170	-170	-170	-169	-168	
100 kHz:				-170	-170	-170	-170	-168	
1 MHz:				-170	-170	-170	-170	-168	
Temperature ranges Operable: Storage:				-45 °C ... +90 °C -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	Low G-Sens. LGS	RoHS compl.	Nominal Frequency
OCXO	25.8 x 25.8	12 V	LOW / HIGH	C to G	X or Y	A to E	YES = 1		XXX.YYY MHz
O-	40	C	2070	G	X	B	1	-LF	-10.000 MHz
Example: O-40C2070GXB1-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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