



High Performance SMD (VC)OCXO

DESCRIPTION:

O-60CXXX-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 vs. temperature and low aging.

The part comes in a small sized SMD package taped on reel what makes it also suitable for automatic pick & place machine assembly.



FEATURES:

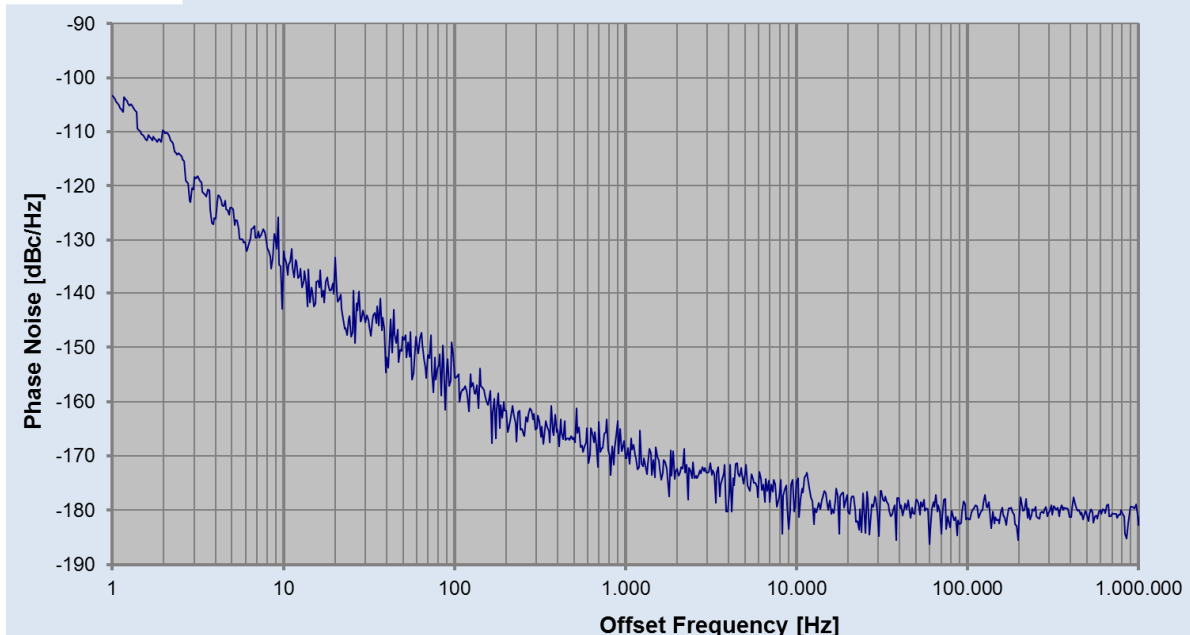
- Small SMD package
- Fast Warm-up Time
- Low Power Consumption
- Tight Frequency Stability
- Excellent Long-Term Stability
- Low Phase Noise
- Frequency Tuning Input
- Reference Voltage Output

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-60CXXX-LPN-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> $\leq \pm 0.2\text{ ppb}$ $\leq \pm 30\text{ ppb}$ $\leq \pm 0.2\text{ ppm}$	
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 :	$+12.0\text{ V} \pm 5\%$		
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):	$\leq -30\text{ dBc}$ $\leq -80\text{ dBc}$		

4	PN Options C, E, F, G	13.04.2018	Rudolph	KVG Quartz Crystal Technology GmbH P.O. Box 61 D-74924 Neckarbischofsheim Tel. +49 (0) 7263 / 648-0 Fax. +49 (0) 7263 / 6196
3	Short Term Stability	18.11.2015	Schweickert	
2	Package max. height 13.2 mm	10.02.2015	Rudolph	
1		18.07.2014	Rudolph	
ED	Description	Date	Name	



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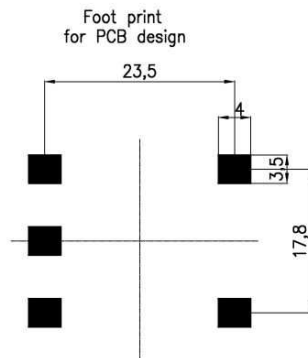
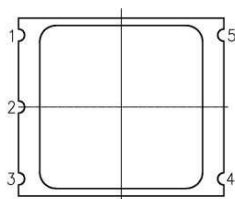
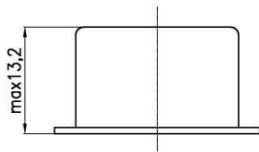
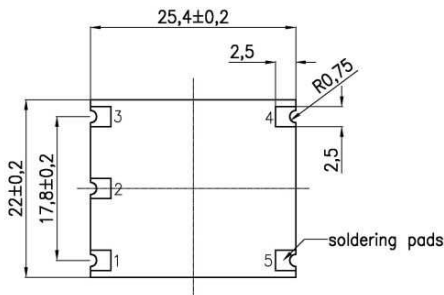


1. Specification									
Short term stability (Allan Variance):			Typical 2×10^{-12} @ tau = 1 sec						
Phase noise max. values [dBc/Hz] at offset frequency:			Option A	Option B	Option C	Option E	Option F	Option G	
1 Hz:			-105	-110	-113	-95	-100	-105	
10 Hz:			-135	-140	-143	-125	-130	-135	
100 Hz:			-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	-175	-175	-175	
1 MHz:			-170	-170	-170	-175	-175	-175	
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	Low G Sens. option	RoHS compl.	Nominal Frequency
OCXO	25.4 x 22.8	12 V	LOW /HIGH	C to G	X or Y	A to G	NO = 0		XXX.YYY MHz
O-	60	C	2070	C	X	A	0	-LF	-10.000 MHz
Example: O-60C2070CXA0-LF-10.000 MHz									

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5. Case

Case style: BF144-13.2A-SMD



Height: 13.2 mm max

Pin configuration

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

Termination finish:

NiAu (Gold 50-120 nm over Nickel 4-8 μ m)

Moisture Sensitivity Level: 2

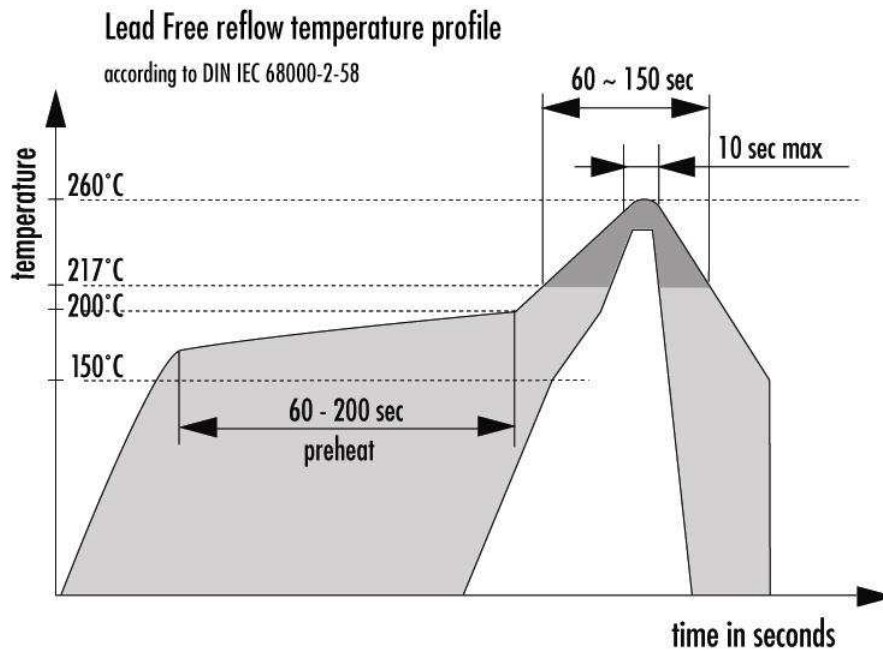
Solderability:

DIN IEC 68-2-20 (TA)

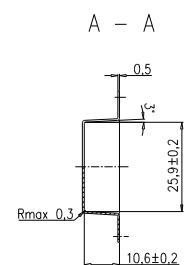
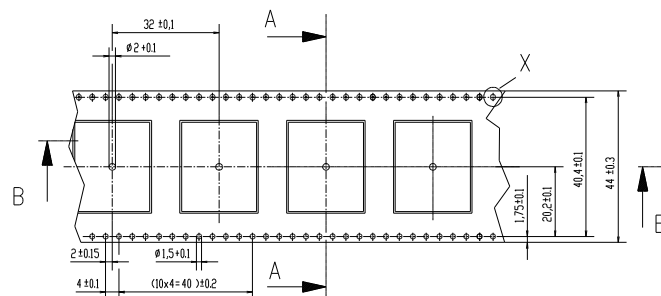
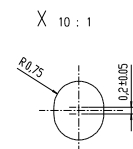
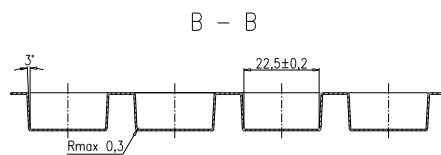
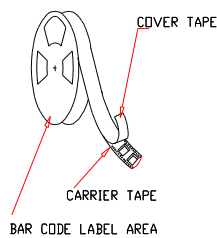
RoHS-6 compliant

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6. Recommended soldering profile



7. Tape & Reel



max. pcs per tape: 150

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