



# High Performance (VC)OCXO

## DESCRIPTION:

**O-30CXXXXXXXX-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.

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



## FEATURES:

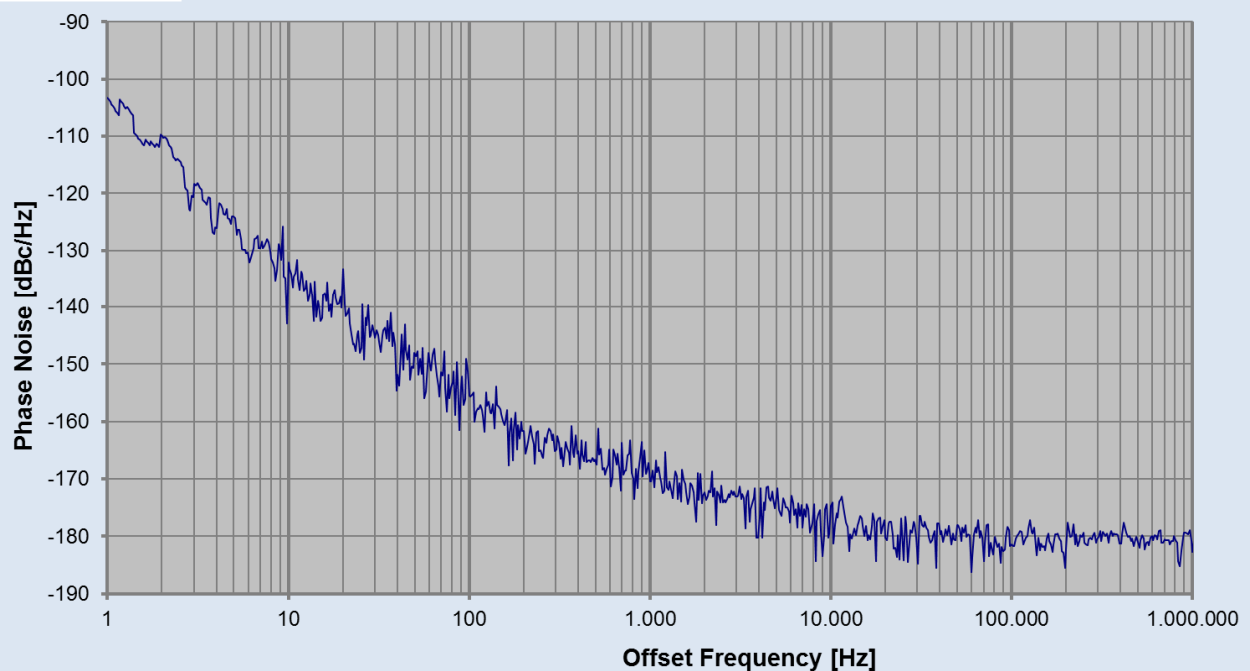
- Fast Warm-up Time
- Low Power Consumption
- Tight Frequency Stability
- Excellent Long-Term Stability
- Low Phase Noise
- Frequency Tuning Input
- Reference Voltage Output

## 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-30CXXX-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:<br>(after 30 min power ON)   | $\leq \pm 0.1\text{ ppm}$   |   |                                       |
| Frequency stability vs. temperature range<br>-20 °C to +70 °C:   | <u>Class D</u><br>$\pm 10\text{ ppb}$   | <u>Class C</u><br>$\pm 5\text{ ppb}$  | <u>Class B</u><br>$\pm 3\text{ ppb}$  |
| Frequency stability vs. temperature range<br>-40 °C to +85 °C:   | <u>Class G</u><br>$\pm 50\text{ ppb}$   | <u>Class E</u><br>$\pm 20\text{ ppb}$   | <u>Class D</u><br>$\pm 10\text{ ppb}$ |
| Frequency stability<br>vs. supply voltage changes $V_S \pm 5\%$ :<br>vs. load changes 50 Ohm $\pm 5\%$ :   | $\leq \pm 1.0\text{ ppb}$<br>$\leq \pm 1.0\text{ ppb}$  |   |                                       |
| Aging (after 30 days of continuous operation):<br>per day:<br>1st year:<br>10 years:   | <u>Option X</u><br>$\leq \pm 0.5\text{ ppb}$<br>$\leq \pm 50\text{ ppb}$<br>$\leq \pm 0.3\text{ ppm}$ | <u>Option Y</u><br>$\leq \pm 0.2\text{ ppb}$<br>$\leq \pm 30\text{ ppb}$<br>$\leq \pm 0.2\text{ ppm}$ |                                       |
| 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 $V_{ref}$ :<br>Source resistance of $V_{ref}$ :<br>Recommended load impedance:   | +9.5 V<br>$\leq 100\text{ Ohm}$<br>$\geq 10\text{ kOhm}$  |   |                                       |
| Supply voltage $V_S$ :   | +12.0 V $\pm 5\%$   |   |                                       |
| Supply current $I_S$ :<br>steady state @ $T_A = +25\text{ °C}$ :<br>during warm-up:  | <u>-20/+70 °C</u><br>$\leq 120\text{ mA}$<br>$\leq 300\text{ mA}$                                     | <u>-40/+85 °C</u><br>$\leq 150\text{ mA}$<br>$\leq 400\text{ mA}$                                     |                                       |
| Warm up time @ $T_A = +25\text{ °C}$<br>to $dF/F < \pm 5 \times 10^{-8}$ referred to final frequency after 1 hour:                                       | $\leq 5\text{ min}$   |   |                                       |
| Output voltage :<br>level:<br>load :   | sine wave<br>$\geq +8\text{ dBm}$<br>50 Ohm   |   |                                       |
| Harmonics:<br>Spurious (10 Hz to 1 MHz from carrier):  | $\leq -30\text{ dBc}$<br>$\leq -80\text{ dBc}$  |   |                                       |

|    |                      |            |             |   |
|----|----------------------|------------|-------------|---|
| 4  |                      |            |             | <b>KVG Quartz Crystal Technology GmbH</b><br>P.O. Box 61<br>D-74924 Neckarbischofsheim<br>Tel. +49 (0) 7263 / 648-0<br>Fax. +49 (0) 7263 / 6196 |
| 3  |                      |            |             |   |
| 2  | Short Term Stability | 18.11.2015 | Schweickert |   |
| 1  |                      | 18.07.2014 | Rudolph     |   |
| ED | Description          | Date       | Name        |   |



ROHS-Compliant Product

O-30CXXX-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]<br>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**

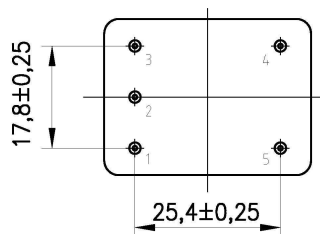
| Type Code | Package Code | Supp. Volt. | Temp. Range | Freq. Stab. f(T) | AGING f(t) | Phase Noise Option | Low G-Sens. | RoHS compl. | Nominal Frequency |
|-----------|--------------|-------------|-------------|------------------|------------|--------------------|-------------|-------------|-------------------|
| OCX<br>O  | 36 x 27      | 12 V        | LOW /HIGH   | A to F           | X or Y     | A to G             | NO = 0      |             | XXX.YYY MHz       |
| O-        | 30           | C           | 4085        | D                | X          | B                  | 0           | -LF         | -10.000 MHz       |

Example: O-30C4085DXB0-LF-10.000 MHz

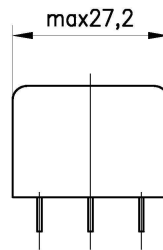
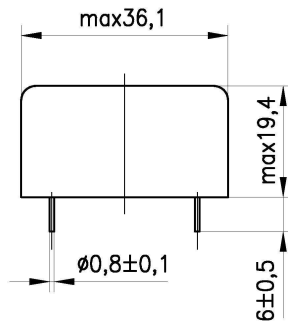
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## 5. Case

Case style: BF9-19.4



IEC49(CO)188  
DIN IEC49(CO)188:CO-08



max. height incl. stand-offs: 20.5 mm

### Pin configuration

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

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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