



O-9000 Series



| 1. Specification | | |
|---|--|--|
| Test conditions: $T_A = +25\text{ °C}$; $V_C = 2.5\text{ V}$ resp. $+1.65\text{ V}$ unless otherwise identified | | |
| Frequency Range: | 10 MHz to 40 MHz | |
| Standard Frequencies: | 10.0, 12.8, 13.0, 19.2, 20.0, 25.0 MHz | |
| Type: | O-9500 | O-9300 |
| Supply voltage V_S : | +5.0 V \pm 5 % | +3.3 V \pm 5 % |
| Frequency stability vs. temperature options: | | |
| $\leq \pm 5 \times 10^{-8}$ vs. -20 °C to $+70\text{ °C}$: | 950x | 930x |
| $\leq \pm 3 \times 10^{-8}$ vs. -20 °C to $+70\text{ °C}$: | 951x | 931x |
| $\leq \pm 2 \times 10^{-8}$ vs. -20 °C to $+70\text{ °C}$: | 952x | 932x |
| $\leq \pm 1 \times 10^{-7}$ vs. -40 °C to $+85\text{ °C}$: | 953x | 933x |
| $\leq \pm 5 \times 10^{-8}$ vs. -40 °C to $+85\text{ °C}$: | 954x | 934x |
| $\leq \pm 3 \times 10^{-8}$ vs. -40 °C to $+85\text{ °C}$: | 955x | 935x |
| Long term stability (aging) options (after 30 days of continuous operation) | | |
| $\leq \pm 1 \times 10^{-6}$ / 1 st year; $\leq \pm 4 \times 10^{-6}$ / 15 years: | 95x1 | 93x1 |
| $\leq \pm 5 \times 10^{-7}$ / 1 st year; $\leq \pm 3 \times 10^{-6}$ / 15 years: | 95x2 | 93x2 |
| Frequency stability vs. supply voltage changes $V_S \pm 5\%$: vs. load changes $\pm 5\%$: | $\leq +1.0 \times 10^{-8}$ $\leq +5.0 \times 10^{-9}$ | |
| Frequency control by external tuning voltage : | $\geq \pm 5\text{ ppm}$ | |
| Tuning voltage range: | +0.5 V to +4.5 V | +0.3 V to 3.0 V |
| Transfer function / Linearity: | Positive / $\leq 10\%$ | |
| Supply current steady state @ $+25\text{ °C}$: during warm-up: | $\leq 120\text{ mA}$ $\leq 400\text{ mA}$ | $\leq 180\text{ mA}$ $\leq 600\text{ mA}$ |
| Warm-up time: (for a typical accuracy of $< \pm 1 \times 10^{-7}$ @ $+25\text{ °C}$ referred to final frequency after 1 hour) | $\leq 5\text{ min}$ | |
| Output signal type: Level: Load: Duty cycle: Rise & fall time | (LV)HCMOS $V_{OL} \leq 0.1 \times V_S$; $V_{OH} \geq +0.9 \times V_S$ 1 kOhm // 15 pF 45% to 55% $\leq 5\text{ ns}$ | |

| | | | | |
|----|--|------------|---------|---|
| 4 | Aging | 18.09.2017 | Balzer | KVG Quartz Crystal Technology GmbH P.O. Box 61 D-74924 Neckarbischofsheim Tel. +49 (0) 7263 / 648-0 Fax. +49 (0) 7263 / 6196 |
| 3 | Overall stability removed | 30.05.2017 | Rudolph | |
| 2 | Part numbering, stabilities, phase noise, height | 09.09.2015 | Rudolph | |
| 1 | | 11.08.2014 | Rudolph | |
| ED | Description | Date | Name | |



ROHS-Compliant Product

O-9000 Series



| | |
|--|--|
| Phase noise (typical for 10 MHz): 10 Hz: ≤ -102 dBc / Hz 100 Hz: ≤ -132 dBc / Hz 1 kHz: ≤ -148 dBc / Hz 10 kHz: ≤ -153 dBc / Hz 100 kHz: ≤ -155 dBc / Hz 1 MHz: ≤ -155 dBc / Hz | ≤ -102 dBc / Hz ≤ -132 dBc / Hz ≤ -148 dBc / Hz ≤ -153 dBc / Hz ≤ -155 dBc / Hz ≤ -155 dBc / Hz |
| Storage temperature range: | -45 °C to +90 °C |

2. Environmental conditions

According to KVG Product Qualification Procedure AA-QM-200

3. Marking

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

4. Case

BF157-6.5-SMD

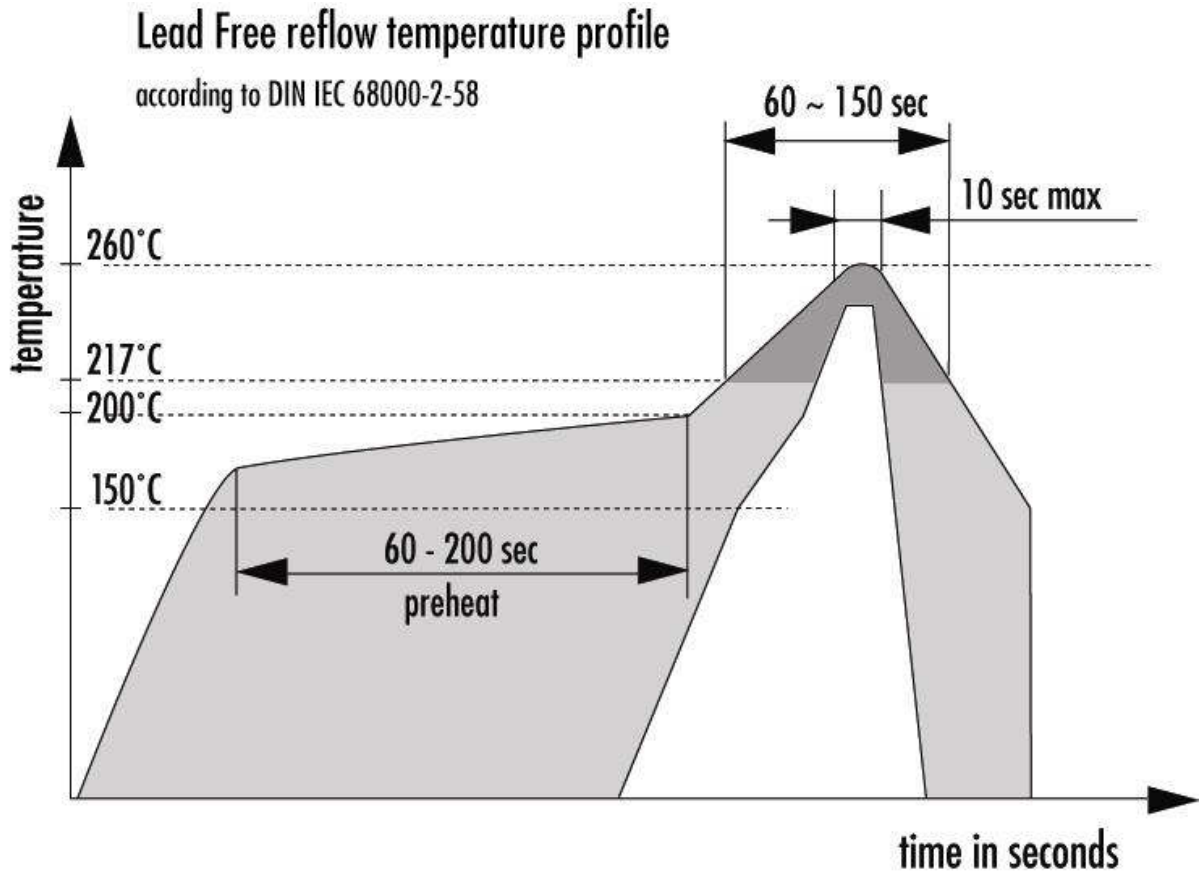
H = 6.5 mm max.

Pin configuration

1. V_C or NC
2. do not connect
3. GND and Case
4. RF output
5. do not connect
6. Supply voltage +V_S

| | | | | |
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5. Recommended soldering profile



6. Ordering Information

| Type Code | Package Code | Supply Voltage | Temp. Range | Frequ. Stability | Aging | RoHS compl. | Nominal Frequency |
|-----------|---------------|----------------|-------------|------------------|--------|-------------|-------------------|
| OCXO | 14.4 x 9.5 mm | 3.3 V | -40/+85 °C | ±30 ppb | ±2 ppm | | 20.000 |
| O- | 9 | 3 | | 5 | 2 | -LF | - XX.YYY MHz |

Example: O-9352-LF-20.000 MHz

| | | | | |
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