

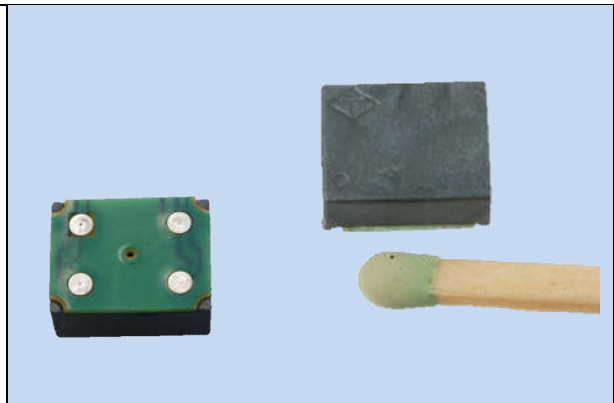


# Miniature SMD (VC)OCXO

## DESCRIPTION:

**O-9700-LF** is a very small sized SMD 'Oven Controlled Crystal Oscillator' **(VC)OCXO** offering exceptional tight frequency stability of  $\pm 0.02$  ppm ( $\pm 20$  ppb) over a wide temperature range of up to  $-40/+85$  °C.

The part comes in a **tiny 9.7 x 7.5 x 4.1 mm SMD package** taped on reel what makes it also suitable for automatic pick & place machine assembly.



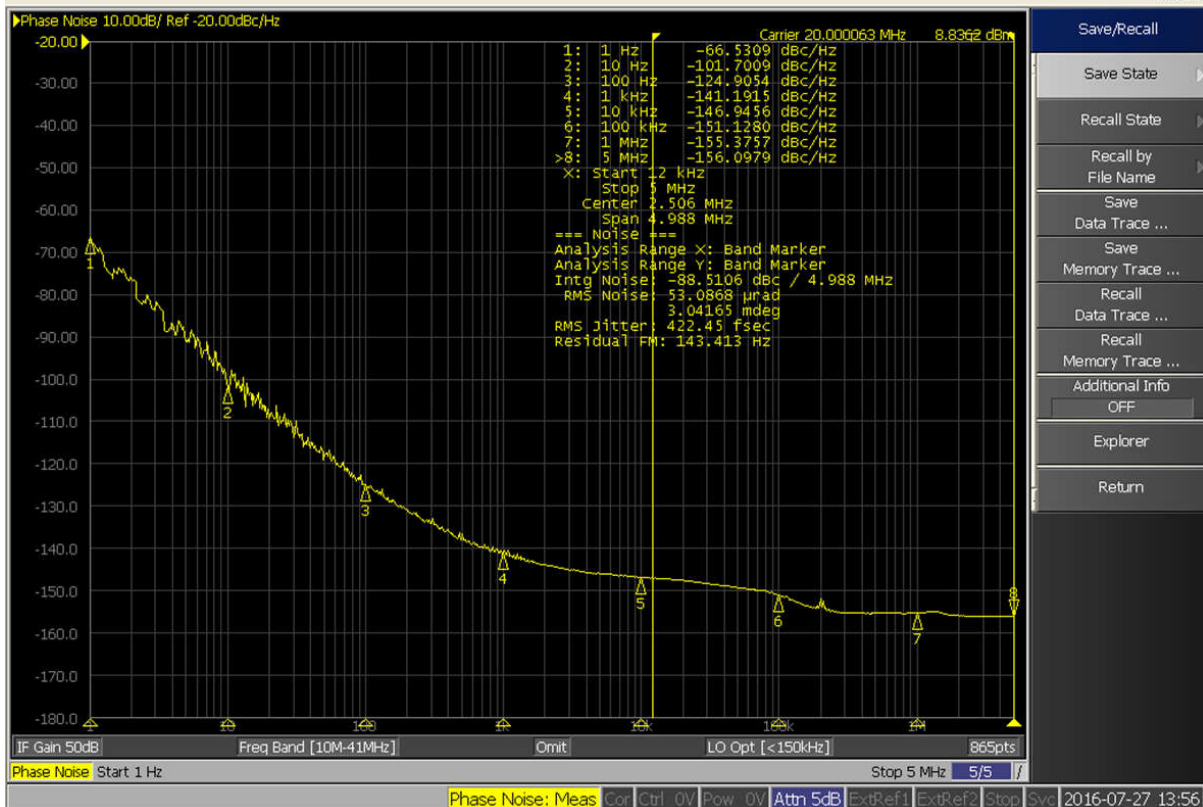
## FEATURES:

- Very Small SMD package
- Fast Warm-up Time
- Low Power Consumption
- Tight Frequency Stability
- Good Long-Term Stability
- Frequency Tuning Input option

## APPLICATIONS:

- Instrument Reference
- Microwave Communication
- Test & Measurement
- Telecom Systems

## Agilent E5052B Signal Source Analyzer



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ROHS-Compliant Product

# O-9700-LF Series



1. Specification (preliminary)	
Test conditions: $T_A = +25\text{ °C}$ ; $V_C = 2.5\text{ V}$ resp. $+1.65\text{ V}$ unless otherwise identified	
Frequency Range:	10.000 to 40.000 MHz
Standard Frequencies:	10.0, 19.2, 20.0 MHz
Supply voltage $V_S$ :	<b>+3.3 V <math>\pm</math> 5 %</b>
<b>Frequency stability vs. temperature options:</b> $\leq \pm 3 \times 10^{-8}$ vs. $-20\text{ °C}$ to $+70\text{ °C}$ : <b>9730</b> $\leq \pm 2 \times 10^{-8}$ vs. $-20\text{ °C}$ to $+70\text{ °C}$ : <b>9731</b> $\leq \pm 1 \times 10^{-8}$ vs. $-20\text{ °C}$ to $+70\text{ °C}$ : <b>9732</b> $\leq \pm 5 \times 10^{-8}$ vs. $-40\text{ °C}$ to $+85\text{ °C}$ : <b>9733</b> $\leq \pm 3 \times 10^{-8}$ vs. $-40\text{ °C}$ to $+85\text{ °C}$ : <b>9734</b> $\leq \pm 2 \times 10^{-8}$ vs. $-40\text{ °C}$ to $+85\text{ °C}$ : <b>9735</b>	
<b>Long term stability (aging) options</b> (after 30 days of continuous operation) 1 <sup>st</sup> year: $\leq \pm 0.5\text{ ppm}$ 10 years: $\leq \pm 2.0\text{ ppm}$	
<b>Frequency stability</b> vs. supply voltage changes $V_S \pm 5\%$ : $\leq \pm 5.0 \times 10^{-9}$ vs. load changes $\pm 10\%$ : $\leq \pm 5.0 \times 10^{-9}$	
Frequency control by external tuning voltage :	$\geq \pm 5\text{ ppm}$
Tuning voltage range:	+0.3 V to 3.0 V
Transfer function / Linearity:	Positive / $\leq 10\%$
<b>Supply power/current</b> steady state @ $+25\text{ °C}$ : $\leq 0.4\text{ W}$ during warm-up: $\leq 350\text{ mA}$	
<b>Warm-up time:</b> (for a typical accuracy of $< \pm 1 \times 10^{-7}$ @ $+25\text{ °C}$ referred to final frequency after 1 hour)	$\leq 5\text{ min}$
<b>Output signal type:</b> 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% $\leq 5\text{ ns}$

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ED	Description	Date	Name	



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# O-9700-LF Series



Phase noise (typical for 20 MHz):		<u>Typ.</u>	<u>Max.</u>
	10 Hz:	≤ -98 dBc / Hz	≤ -92 dBc / Hz
	100 Hz:	≤ -126 dBc / Hz	≤ -120 dBc / Hz
	1 kHz:	≤ -146 dBc / Hz	≤ -140 dBc / Hz
	10 kHz:	≤ -152 dBc / Hz	≤ -150 dBc / Hz
	100 kHz:	≤ -152 dBc / Hz	≤ -150 dBc / Hz
	1 MHz:	≤ -155 dBc / Hz	≤ -153 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

**BF97-4.1-SMD**

**Pin Configuration:**

1.  $V_C$  or do not connect
2. GND and Case
3. RF Output
4. Supply voltage  $+V_S$

**Notes:**

1. Provided the data sheet does not specify any parameters for Pin 1 then that respective Pin must remain unconnected.

**RECOMMENDED SOLDER PAD LAYOUT**

Dimensions: 0.382 MAX (9.7), 0.295 MAX (7.5), 0.16 (4.1), 0.236 (6.0), 0.157 (4.0), 0.059 DIA. (4 PLACES) (1.5).

Marking: PIN 1 SYMBOL, MARKING THIS SURFACE, (VIEW FROM TOP)

Height: H = 4.2 mm max.

Bottom view: Numbers for reference only. (Not stamped on unit). (VIEW FROM BOTTOM)

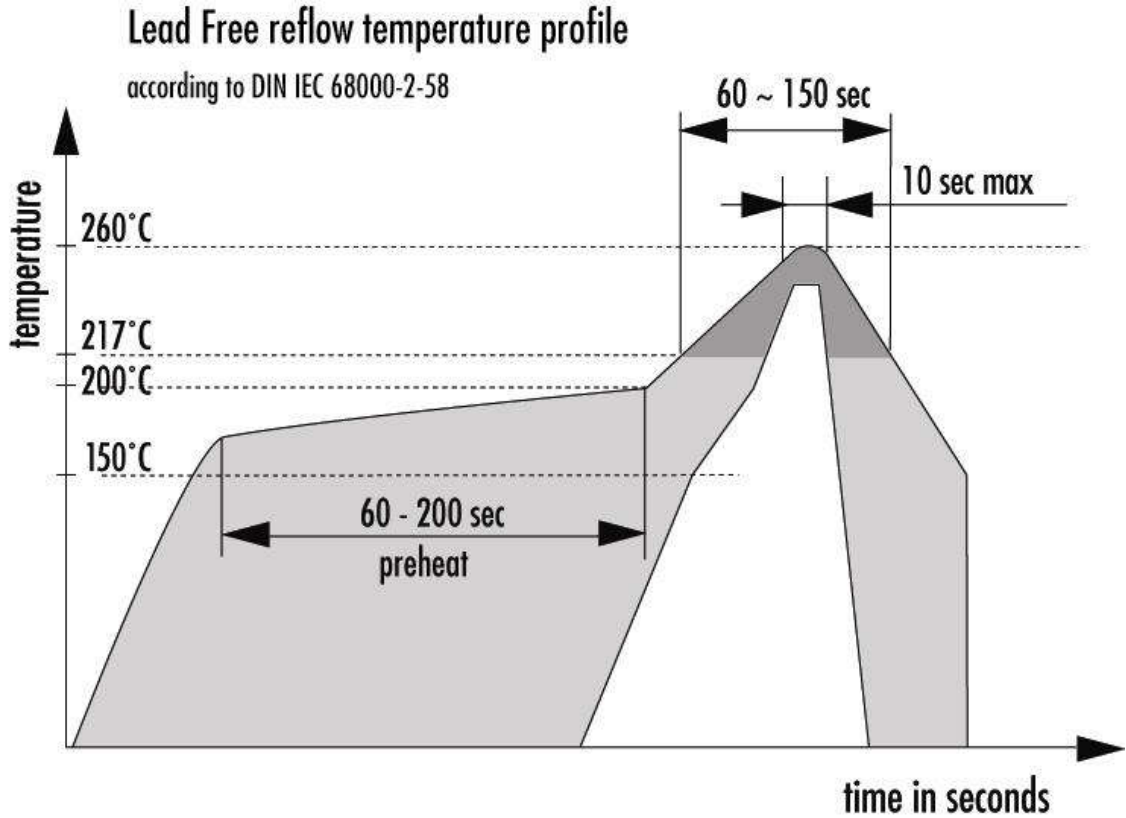
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# O-9700-LF Series



## 5. Recommended soldering profile



## 6. Ordering Information

Type Code	Package Code	Supply Voltage	Temp. Range	Frequ. Stability	RoHS Compliant	Nominal Frequency
OCXO	9.7 x 7.5 x 4.1 mm	3.3 V	-40/+85 °C	±20 ppb		20.000
O-	97	3		5	-LF	- XX.YYY MHz

Example: O-9735-LF-20.000 MHz

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