

LOW PHASE NOISE QUARTZ OSCILLATORS

Series FE-103A

The FEI Series FE-103A features operation from 5 MHz to 20 MHz with low phase noise and excellent stability.

Typical phase noise is -142 dBc at 10 Hz from the carrier, -148 dBc at 100 Hz from the carrier, -155 dBc at 1 kHz from the carrier and -158 dBc at 10 kHz and at 100 kHz from the carrier.

This oscillator is a double oven design using a 5th overtone SC cut crystal to insure both excellent long term stability and temperature stability.

Aging is 3×10^{-7} /Year and 1×10^{-6} /10 Years.
Temperature stability is 1×10^{-10} over -10° to 60°C .

The FE-103A was designed for applications such as a reference for Communication Systems and Wireless applications such as cellular phone base stations.



FEATURES

- Operation @ 5 to 20 MHz
- Low Phase Noise: -155 dBc
- Short Term Stability: 1×10^{-11} /sec.
- Aging: 3×10^{-7} /year



FEI Communications, Inc.
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SPECIFICATIONS

MODEL FE-103A OSCILLATOR

FREQUENCY:

10 MHz

STABILITY:

Short Term 1×10^{-11} / Second
 3×10^{-10} / Day
Long Term 3×10^{-7} / Year
 1×10^{-6} / 10 Year

TEMPERATURE STABILITY:

$\pm 1 \times 10^{-10}$ over - 10°C to +60°C

POWER SUPPLY VOLTAGE:

$\pm 1 \times 10^{-10}$ 13.5V to 24VDC

PHASE NOISE:

10 Hz -138 dBc/Hz
100 Hz -145 dBc/Hz
1 kHz -150 dBc/Hz
10 kHz -155 dBc/Hz
100 kHz -155 dBc/Hz

WARM UP TIME:

5 minutes to 1×10^{-7} @ -10°C

48 hours to 3×10^{-10} /day

D.C. POWER:

5.5W Peak @ 15VDC

3.5 W @ 10°C after stabilization

SIZE:

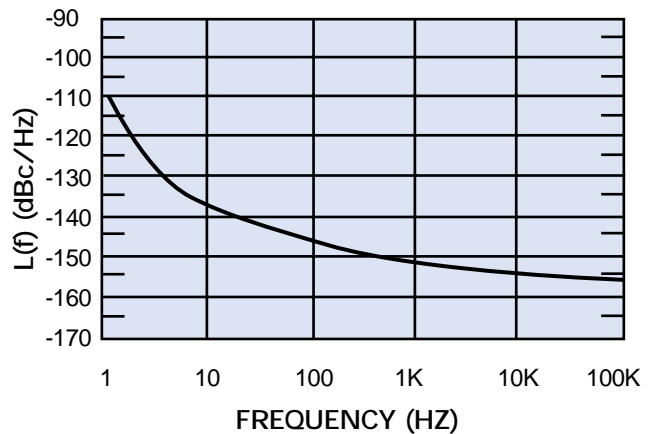
2"x 2"x 3" high

CONNECTORS:

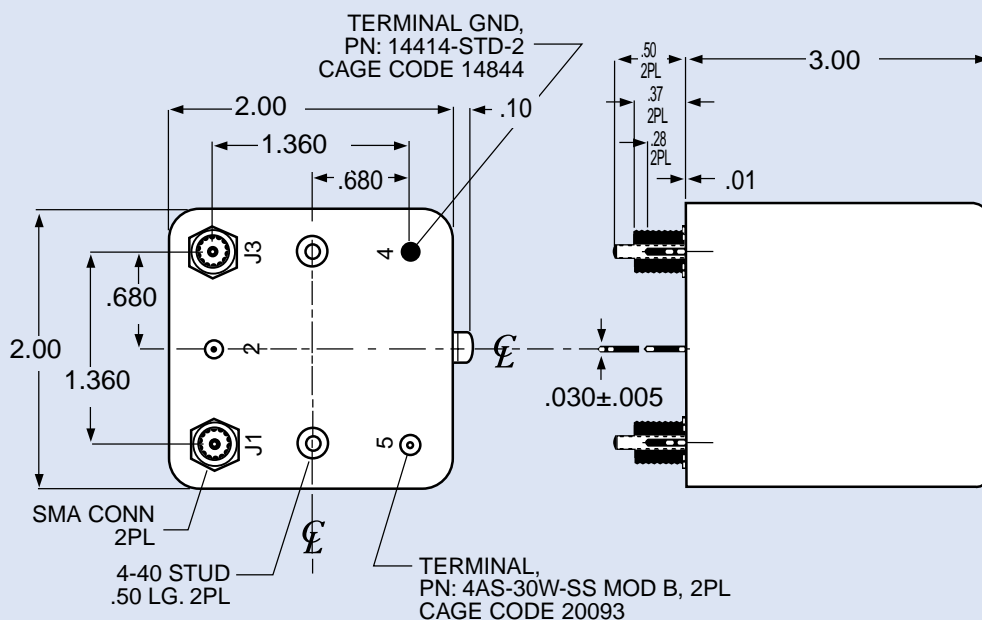
RF - SMA

Voltage Tune - SMA

Typical Phase Noise vs. Frequency @ 10 MHz



OUTLINE DRAWING



PIN	FUNCTION
J1	VCC IN
2	+5V (IF REQUIRED)
J3	RF OUTPUT
4	GROUND
5	+15V

OVEN CONTROLLED
CRYSTAL OSCILLATOR
FREQUENCY ELECTRONICS INC.
PN: FE-103A-10



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