

# OCXO

## Subminiature Oven Controlled Commercial Quartz Crystal Oscillator

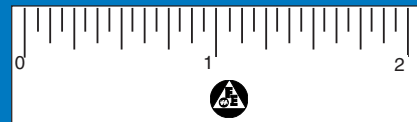
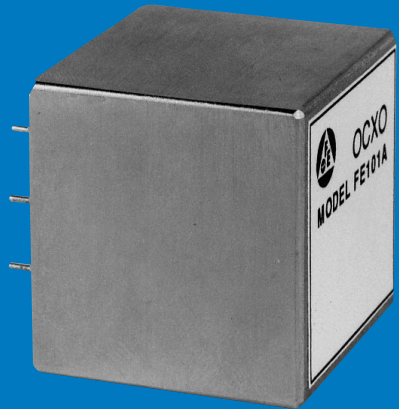
### Model FE-101A

Traditional ovenized crystal oscillators typically require long warm-up times to stabilize. Frequency Electronics' experience has led to the development of a stable oven controlled oscillator which warms up in less than 2 minutes to  $1 \times 10^{-7}$ .

### TECHNICAL HIGHLIGHTS

The FE-101A is a rugged, compact, ultra-stable, sub-miniature crystal oscillator designed to provide excellent short- and long-term stability over a wide range of environmental conditions in applications ranging from instruments and laboratory systems, to portable communication systems.

Superior crystal oscillator precision is required for both time and frequency in precision instrument applications such as synthesizers, counters and spectrum analyzers. The same high end performance characteristics are required in satellite transmissions, geophysical survey positioning systems, and standard time/time-interval generation and transfer. Using breakthrough design and packaging concepts, FEI has applied advanced technologies to create the best of both worlds... with small size and low costs. This makes the FE-101A your best choice for all applications in which it is essential to combine excellent spectral purity with short- and long-term stability.



### FEATURES

- Warm Up to stabilized frequency in less than 2 min.
- Temperature Stability:  
 $5 \times 10^{-8}$  @  $-50^{\circ}\text{C}$
- Low Steady State Power:  
1.75 W @  $25^{\circ}\text{C}$
- Small Size:  
1.27" x 1.33" x 1.33"



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# SPECIFICATIONS

## FREQUENCY

10 kHz to 5 MHz, CMOS compatible squarewave  
or 5 MHz to 20 MHz, @ +7 dBm, sinewave,  
with -30 dBc maximum harmonic distortion

## ALLAN VARIANCE

$5 \times 10^{-12}$  from 0.1 to 10 seconds

## LONG TERM STABILITY

$5 \times 10^{-10}$  /day,  $5 \times 10^{-8}$  /year

## FREQUENCY TEMPERATURE STABILITY

$\pm 5 \times 10^{-8}$

## PHASE NOISE [-dBc /Hz @ Frequency Offset]

140      100Hz  
150      1 kHz  
155      10 kHz

## FREQUENCY RETRACE

$\leq \pm 1 \times 10^{-8}$  within 1 hour following 24 hours off

## G-SENSITIVITY

$\pm 1 \times 10^{-9}$  /g

## INPUT VOLTAGE

$\pm 15$  VDC  $\pm 5\%$

## INPUT VOLTAGE SENSITIVITY

$\pm 1 \times 10^{-9}$  for  $\pm 5\%$

## WARM-UP POWER

7W, max.

## WARM-UP TIME

2 min. to  $1 \times 10^{-7}$   
4 min. to  $1 \times 10^{-8}$

## STEADY STATE POWER

1.75 @ +25°C -/+ 22 mW/°C

## OPERATING TEMPERATURE RANGE

0 to +50°C

# OPTIONS AVAILABLE

## EXTENDED TEMPERATURE

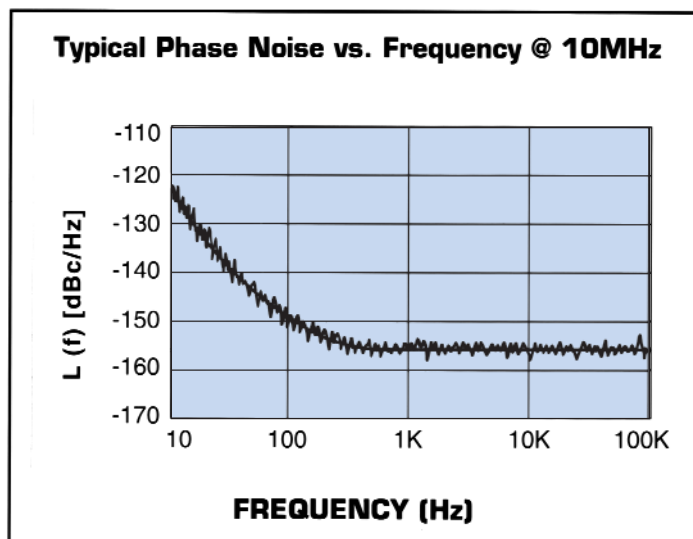
Option 1      -40 to 70°C  
Option 2      -55 to 85°C

## IMPROVED TEMPERATURE STABILITY

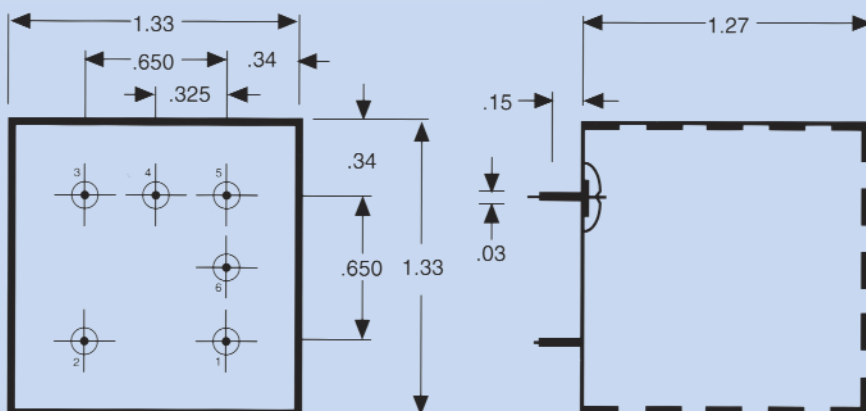
Option 4       $\pm 3 \times 10^{-8}$   
Option 5       $\pm 1 \times 10^{-8}$

## IMPROVED G SENSITIVITY

Option 8       $\pm 5 \times 10^{-10}$  /g  
Option 9       $\pm 3 \times 10^{-10}$  /g



# OUTLINE DRAWINGS



PIN	FUNCTION
1	GROUND
2	EFC
3	RF OUTPUT
4	+15V (OVEN/OSC POWER)
5	NC
6	+5V (CMOS POWER)

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