

**EF Models, SMD TCXO**  
**1-5 PPM, 18.3 x 11.7 mm,**  
**3.3 or 5.0V**  
**1.2 MHz to 40 MHz**



**SMD EF Models, TCXOs, 3.0 or 5.0 Volts**

MF Electronics EF (SMD) TCXOs are intended to fit the standard full size DIL layout for a 14 pin oscillator. These are versatile oscillators with many specification combinations. They may be had within the frequency range of 1.2 MHz to 40 MHz, and are ideal for high volume, low cost applications.

Many choices of stability and temperature are possible, resulting in the optimum cost-performance tradeoff. Oscillators may be for 3.3 or 5.0 volts. Mechanical control is standard, but electronic control may be added, allowing the frequency to be set to, or track to a reference frequency.

HCMOS output may be chosen to drive logic devices. but when clipped sine wave is used, the current is less than 3 mA. They are furnished in tape and reel for automated production.

**FIXED FREQUENCY**

These surface mount oscillators are available from 1.20 MHz to 40 MHz

**VOLTAGE CONTROL OF FREQUENCY**

±5 ppm or ±10 ppm min is controlled by external voltage

**MECHANICAL CONTROL OF FREQUENCY**

±3 ppm min

**STABILITY**

±1 to ±5 ppm

**TEMPERATURE**

Four temperature-stability ranges

**AGING**

Less than 1 ppm per year

**INPUT VOLTAGE**

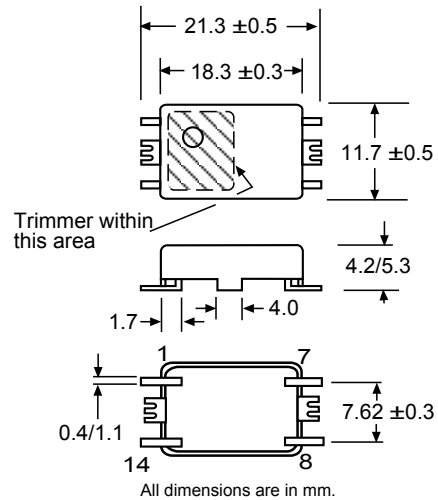
3.3 or 5.0 volts available

**FEATURES**

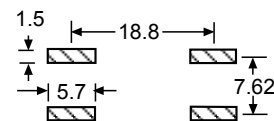
- Low power, low voltage
- Ideal for battery powered equipment
- Recommended for portable, mobile, wireless equipment
- Four stability choices
- Guaranteed start-up with ramping DC Supply
- Choice of two supply voltages
- Choice of two output waveforms

**CONNECTIONS**

Pad 1.	Electronic Frequency Control or No Connection
Pad 7.	Ground
Pad 8.	Output
Pad 14.	Voltage Supply



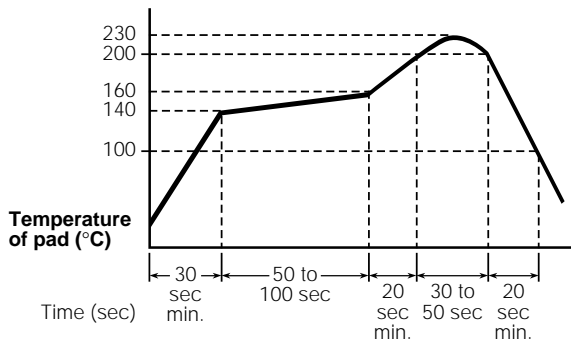
**TCXO-EF Models**



**Land Pattern**

**MARKING SPECIFICATION**

Oscillator is marked with part number, frequency and date code



**Recommended Reflow Soldering Profile**

Note: Ultrasonic cleaning or aqueous cleaning must not be used

**SPECIFICATIONS**

<b>Temperature</b> Operating	Choice of 4 ranges
<b>Frequency Range</b>	Any frequency from 1.20 MHz to 40 MHz
<b>Output Choice</b> Clipped Sine Wave (9.6 to 35 MHz)	0.8 volts p-p, min, clipped sine wave into 10 pf in parallel with 10Kohms
HCMOS (1.2 to 40 MHz)	HCMOS output into 15 pf max load, with 40/60 symmetry
<b>Frequency Stability</b> vs Temperature	±1 ppm to ± 5 ppm choices
<b>Aging, at 25°C</b>	±1 ppm/year, max.
<b>Frequency Control, Electronic</b> 3.3V supply voltage 5V supply voltage	±5 or ±10 ppm, min for 1.65 ±1.0 V ±5 or ±10 ppm, min for 2.5 ±2.0 V
<b>Frequency Control, Mechanical</b>	±3 ppm, min
<b>Input Voltage, V<sub>DD</sub></b>	3.3 volts±5%, or 5 volts ±5%
<b>Input Current</b>	3.0 ma, max (clipped sine wave) 35 ma, max (HCMOS)

**ORDERING**

Add desired performance codes for requirements to "EF", and frequency, as shown below

