

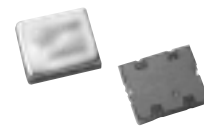
# Temperature Compensated Crystal Oscillator

## EC Models, 2.5 PPM

### 7x9 mm, SMD TCXO, 3.0V

### 12.6 MHz to 19.68 MHz

TCXO  
OSCILLATORS  
-30 to +75°C



#### SMD EC Models, TCXOs, 3.0 Volts

MF Electronics EC (SMD) TCXOs are ideal for high volume, low cost applications. With miniature 9 x 7 x 2 mm size, these oscillators use tiny precise crystals operating at standard frequencies from 12.6 to 19.68 MHz. Seven common frequencies are available. These oscillators have electronic frequency control of  $\pm 7$  ppm, allowing the frequency to be set to, or to track a reference frequency.

Operating at 3.0 volts and with current not exceeding 1.5, mA, they are ideal for battery operated equipment.

They are furnished in tape and reel, for automated production and come with large gold or solder plated pads. Side-castellations accept solder flow, and facilitate automated solder joint inspection.

#### FEATURES

- Low power, low voltage
- Ideal for battery powered equipment
- Recommended for portable, mobile, wireless equipment
- Stability is  $\pm 2.5$  ppm
- Guaranteed start-up with ramping DC Supply

#### CONNECTIONS

Pad 1.	Electronic Frequency Control
Pad 2.	Ground
Pad 3.	Output
Pad 4.	Vdd

#### FIXED FREQUENCY

These surface mount oscillators are available in seven standard frequencies. Other frequencies on special order

#### VOLTAGE CONTROL OF FREQUENCY

$\pm 7$  ppm min is user-controlled by external voltage

#### STABILITY

$\pm 2.5$  ppm

#### TEMPERATURE

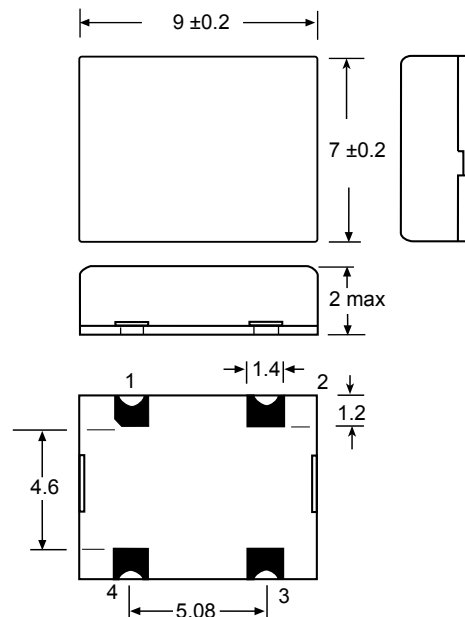
-30 to +75°C

#### AGING

Less than 1 ppm year

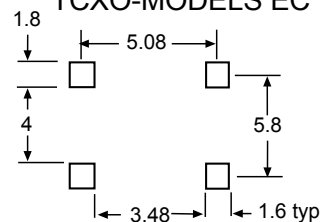
#### INPUT VOLTAGE

3.0 volts is standard



All dimensions are in mm.

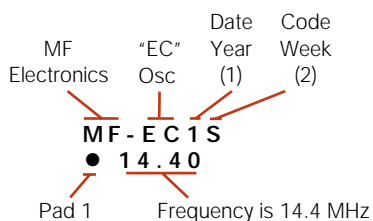
#### TCXO-MODELS EC



#### Land Pattern

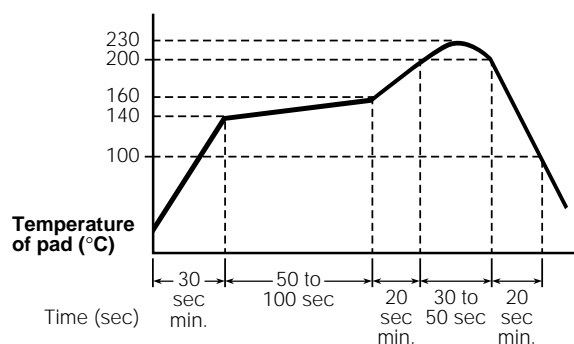
# MARKING SPECIFICATION

The format for the marking is:



# NOTES

- (1) Number in date code is year. In example, "1" is 2001.
- (2) Letter in date code is one two-week period. Year is divided into 26 two-week intervals. Each two-week interval is represented by one letter of the alphabet, in sequence.



**Recommended Reflow Soldering Profile**

# SPECIFICATIONS

**Temperature — All models**  
Operating

-30 to +75°C

**Standard Frequencies**

12.6, 12.8, 13.0, 14.4,  
15.36, 19.2, 19.68 MHz

**Frequency Stability vs Temperature**

±2.5 ppm

**Load**

10 pf in parallel with 10Kohms

**Output Levels**

0.8 volts p-p, min, clipped sine wave

**Aging**

±1 ppm per year

**Frequency Control**

±7 ppm, min for 1.5 ±1.0 V

**Input Voltage,  $V_{DD}$**

MIN.	TYP	MAX	UNITS
2.85	3.0	3.15	volts

**Input Current, no load**

1.5 mA

Note: Ultrasonic cleaning or aqueous cleaning must not be used

# HOW TO ORDER

For Part Number use model number and add frequency in MHz, for example:

**EC - 14.4 M**

↑ "EC" is model type

↑ "14.40M" is frequency in MHz