
SMD ER Models, TCXOs, 3.0 or 5.0 Volts

MF Electronics ER (SMD) TCXOs are -30 to +75 °C oscillators which offer 4 choices of supply voltage and frequency control. These are available at eight standard frequencies from 12.0 to 19.68 MHz. They are ideal for high volume, low cost applications.

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.

Output is a clipped sine wave, and the current is less than 2 mA. Phase noise is within -125 dBc/Hz at 1 KHz offset. These oscillators are recommended for wireless, PCS, GSM and PC applications. They are furnished in tape and reel for automated production.

FIXED FREQUENCY

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

VOLTAGE CONTROL OF FREQUENCY

±4 ppm min is user-controlled by external voltage

MECHANICAL CONTROL OF FREQUENCY

±4 ppm min via externally accessible trimmer

STABILITY

±2.5 ppm

TEMPERATURE

-30 to +75°C

AGING

Less than 1 ppm year

INPUT VOLTAGE

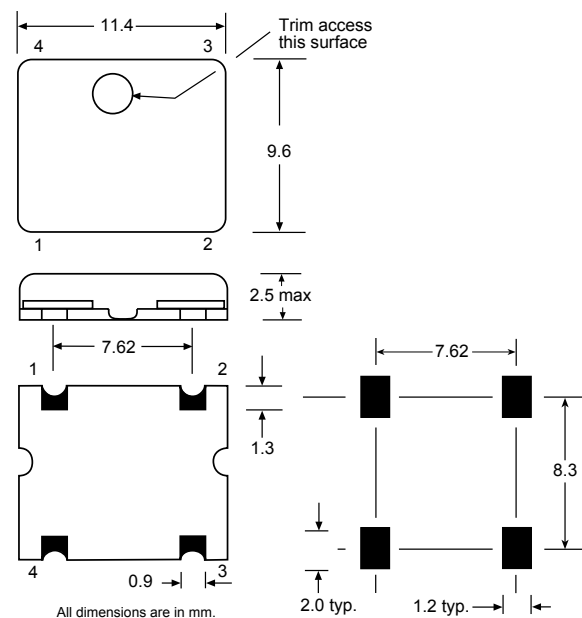
3.0 or 5.0 volts available

FEATURES

- Low power, low voltage
- Ideal for battery powered equipment
- Recommended for portable, mobile, wireless equipment
- Stability is ±2.5 ppm
- Guaranteed start-up with ramping DC Supply
- Phase noise is within -125 dBc/Hz at 1KHz offset

CONNECTIONS

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



TCXO-ER Models

Land Pattern

TCXO Oscillator

ER Models

3.0 or 5.0 V, 2.5 ppm

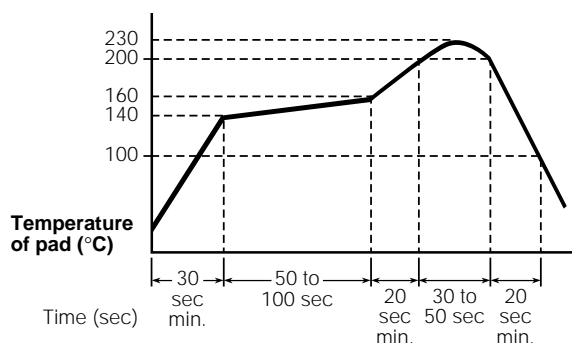
12.0 MHz to 19.68 MHz

SURFACE MOUNT

 ER-A,
 ER-B,
 ER-C
 ER-D

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

Model Options		
Model	Vdd	Frequency Control
ER-A	3 V	Mechanical Control
ER-B	3 V	Electronic & Mechanical
ER-C	5 V	Mechanical Control
ER-D	5 V	Electronic & Mechanical

TABLE I

SPECIFICATIONS

Temperature — All models

Operating

-30 to +75°C

Input Voltage, V_{DD}

 3.0 volts $\pm 5\%$, or 5 volts $\pm 5\%$

Input Current

2.0 ma, max

Standard Frequencies

 12.0, 12.6 12.8, 13.0, 14.4,
 15.36, 19.2, 19.68 MHz

Frequency Stability

vs Temperature

 ± 2.5 ppm

Aging

 ± 1 ppm per year at 25 °C

Frequency Control, Electronic

3V supply voltage

 ± 4 ppm, min for 1.5 ± 1.0 V

5V supply voltage

 ± 4 ppm, min for 2.5 ± 2.0 V

Frequency Control, Mechanical

with voltage control option

 ± 4 ppm, min

without voltage control option

 ± 3 ppm, min

Output

0.8 volts p-p, min, clipped sine wave

Phase Noise

Less than -125 dBc/Hz at 1 KHz offset

Load

10 pf in parallel with 10Kohms

HOW TO ORDER

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

ER - x - 13.0M

 "ER"
 is model
 type

 Insert model
 letter option
 from Table I

 "13.0 M"
 is frequency
 in MHz