

Temperature Compensated Crystal Oscillator EB Models, 2.0-2.5 PPM SMD TCXO, 3.0V 10 MHz to 20 MHz



SMD EB Models, TCXOs, 3.0 Volts

MF Electronics EB (SMD) TCXOs are ideal for high volume, low cost applications. With miniature 7 x 5 x 2 mm size, these oscillators use tiny precise crystals operating at standard frequencies from 10 to 20 MHz. Thirteen common frequencies are available. They have electronic frequency control of ± 5 ppm, allowing the frequency to be set to, or to track a reference frequency.

Operating at 3.0 volts and with current not exceeding 2 mA, they are ideal for battery operated equipment. This group of models include the 10 MHz and 20 MHz frequencies which may be used for counting and timing applications.

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, small size
- Ideal for battery powered equipment
- Recommended for portable, mobile, wireless equipment
- Choice of stability: ± 2.5 or ± 2.0 ppm
- Choice of 2 temperature ranges
- 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 thirteen standard frequencies

VOLTAGE CONTROL OF FREQUENCY

± 5 ppm min is user-controlled by external voltage

STABILITY

± 2.0 or ± 2.5 ppm

TEMPERATURE

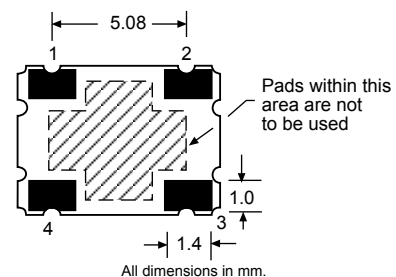
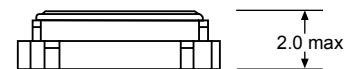
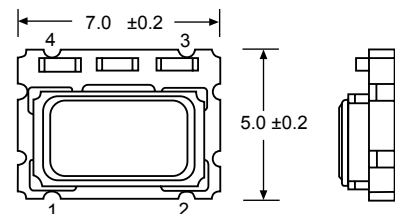
-30 to +80°C or -20 to +70°C

AGING

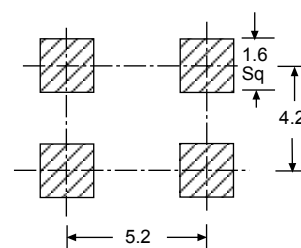
Less than 1 ppm per year

INPUT VOLTAGE

3.0 volts is standard. 5.0 volts may be had on special order



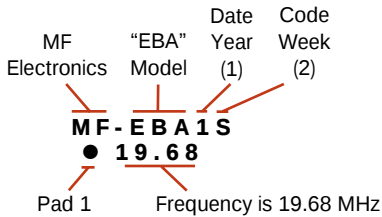
TCXO EB Models



Land Pattern

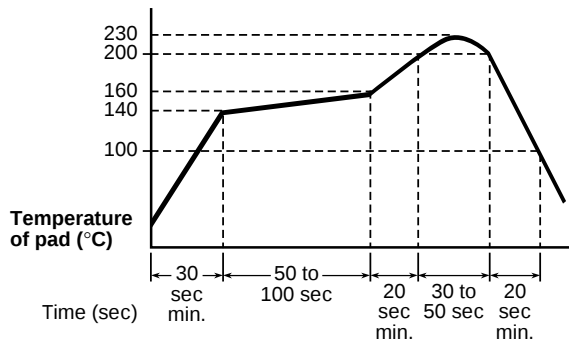
MARKING SPECIFICATION

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

Note: Ultrasonic cleaning or aqueous cleaning must not be used

SPECIFICATIONS

Temperature — All models

Operating -20 to +70°C or -30 to +80°C

Standard Frequencies

10.0, 12.6, 12.8, 13.0, 14.4,
 14.85, 15.36, 16.8, 19.2, 19.44,
 19.68, 19.8, 20.0MHz

Output Levels

0.8 volts p-p, min, clipped sine wave

Phase Noise

-120 dBc/Hz at 1KHz offset, typ

Frequency Stability vs Temperature

±2.0 or 2.5 ppm

Aging

±1 ppm/year max, at 25°C

Load

10 pf in parallel with 10Kohms

Frequency Control

±5 ppm for 1.5 ±1.0 V

Input Voltage, Vdd

MIN.	TYP	MAX	UNITS
2.85	3.0	3.15	volts

Input Current

10 to 15 MHz	1.5	ma
15 to 20 MHz	2.0	ma

MODEL OPTIONS

Model	Frequency Stability	Temperature
EB-A	2.5 ppm	-30 to +80°C
EB-B	2.0 ppm	
EB-C	2.5 ppm	
EB-D	2.0 ppm	

Table I

HOW TO ORDER

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

