

FOX 3.0V ULTRA MINIATURE SMD TCXO/VCTCXO MODEL: FOX914 SERIES



FEATURES

- 3.0V Operation
- 1.5mm Height Max
- Clipped Sine Output
- Low Cost
- Tape and Reel (2,000 pcs. STD)

OPTIONS

- Voltage Control (FOX914E)
- Voltages of 2.8V ~ 3.3V



Quote it!

• PART NUMBER SELECTION [Learn More](#) - Internet Required

Part Number	Model Number	Frequency Stability	Operating Temperature (°C)	Frequency Range (MHz)
490-Frequency-xxxxx	FOX914B	See table	-20 ~ +75	12.288 ~ 35.000
491-Frequency-xxxxx	FOX914E	See table	-20 ~ +75	12.288 ~ 35.000

Learn more about:
[Part Marking Identification](#)
[Tape and Reel Specification](#)

Internet required

• ELECTRICAL CHARACTERISTICS

PARAMETERS	MAX (unless otherwise noted)
Frequency Range (Fo)	12.288 ~ 35.000 MHz
Temperature Range	
Operating (TOPR)	-20°C ~ +75°C
Storage (TSTG)	-40°C ~ +85°C
Supply Voltage ⁴ (VDD)	3.0V ± 5%
Input Current (IDD)	2.0mA
Initial Frequency Tolerance (@ 25°C ± 2°C) (Vc = 1.5V) ²	±0.5PPM
Frequency Stability ³	
Over Temperature Range	±2.5PPM
Over Supply Voltage Change (3.0V ± 5%)	±0.2PPM
Over Load Change (10kΩ ± 10% // 10pF ±10%)	±0.2PPM
Output Waveform (Clipped Sine)	
Peak-to-Peak Level (Vp-p)	0.8V Min
Output Load	10kΩ // 10pF
Aging per year	±1.0PPM
Pullability ² (Vc = 1.5 ± 1.0V)	±5.0 ~ ±15.0 PPM

¹ Undeveloped frequencies available on an inquiry basis.

² For proper operation, a control voltage (Vc) must be applied to pin 1 on VCTCXOs.

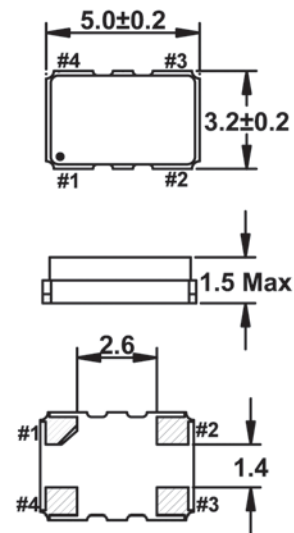
³ Other stabilities/temperature ranges available.

⁴ Other voltages available.

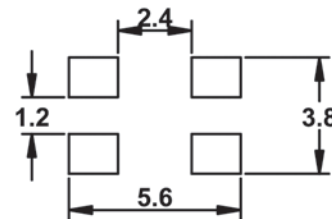
All specifications subject to change without notice. Rev. 6/1/04

• DEVELOPED FREQUENCIES¹

12.600 MHz	19.200 MHz
12.800 MHz	19.440 MHz
13.000 MHz	19.680 MHz
13.824 MHz	19.800 MHz
14.400 MHz	20.000 MHz
14.850 MHz	26.000 MHz
16.800 MHz	



Recommended Solder Pad Layout



Pin Connections

FOX914B		FOX914E	
#1 GND	#3 Output	#1 Vc	#3 Output
#2 GND	#4 VDD	#2 GND	#4 VDD

All dimensions are in millimeters.

FOX MODEL: FOX923E



FEATURES

- 3.0V Operation
- 1.2 mm Max Height
- Clipped SINE Output
- Low Cost
- Tape and Reel



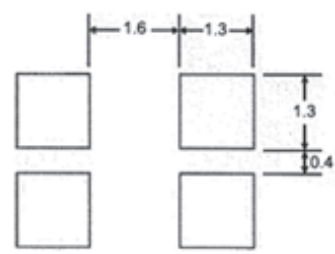
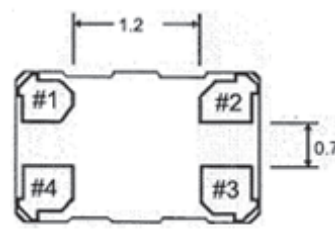
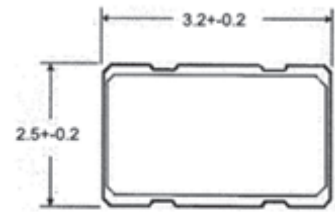
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• PART NUMBER SELECTION Learn More - Internet Required				
Part Number	Model Number	Frequency Stability	Operating Temperature	Frequency Range (MHz)
638-Frequency-xxxxx	FOX923E	see table	-20 ~ +75 °C	13.000 ~ 35.000

• ELECTRICAL CHARACTERISTICS	
PARAMETERS	MAX (unless otherwise noted)
Frequency Range (Fo)	13.000 ~ 35.000 MHz
Initial Frequency Tolerance @ 25°C	± 0.5 PPM
Frequency Stability ²	
Over Temperature Range	± 2.5PPM
Over Supply Voltage Change (3.0V ± 5%)	± 0.2PPM
Over Load Change (10KΩ/10pF) ±10%	± 0.2PPM
Temperature Range	
Operating (TOPR)	-20 ~ +75°C
Storage (TSTG)	-40 ~ +85°C
Supply Voltage ³ (VDD)	3.0V ± 5%
Input Current (IDD)	2.0mA
Output Waveform (Clipped Sine)	
Peak-to-Peak Level (Vp-p)	0.8V
Output Load	10K Ω // 10pF
Aging @ 25°C; per year	± 1.0PPM
Frequency Adjustment (Vc = 1.5V ± 1.0V) ¹	±5PPM MIN, ±15PPM MAX

All specifications subject to change without notice. Rev. 6/1/04
¹For proper operation, a control Voltage (Vc) must be applied to pin 1 on VCTCXO's.
²Other stabilities/temperature ranges available.
³Other voltages available.

Learn more about:
[Part Marking Identification](#)
[Tape and Reel Specification](#)
 Internet required



Pin Connections
 #1 Vc #3 Output
 #2 GND #4 Vdd

All dimensions are in millimeters.

FOX 3.0V LOW PROFILE VCTCXO MODEL: FOX801BE

FEATURES

- 3.0V Operation
- 2.0mm Height Max
- Clipped Sine Output
- Low Cost
- Stocking Standard
- Tape and Reel (2,000 pcs. STD)



Quote it!

Learn more about:
[Part Marking Identification](#)
[Tape and Reel Specification](#)

Internet required

• PART NUMBER SELECTION [Learn More](#) - Internet Required

Part Number	Model Number	Frequency Stability	Operating Temperature (°C)	Frequency Range (MHz)
254-Frequency-xxxxx	FOX801BE	see table	-30 ~ +75	10.000 ~ 50.000

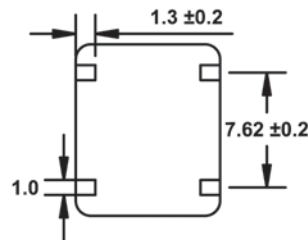
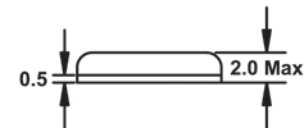
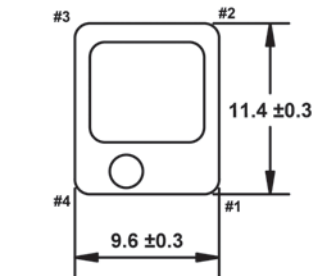
• ELECTRICAL CHARACTERISTICS

PARAMETERS	MAX (unless otherwise noted)
Frequency Range (Fo)	10.000 ~ 50.000 MHz
Temperature Range	
Operating (TOPR)	-30°C ~ +75°C
Storage (TSTG)	-35°C ~ +85°C
Frequency Tolerance (@25°C) Vc = 1.5V ¹	±0.5PPM
Supply Voltage (VDD)	3.0V ± 5%
Input Current (IDD)	2.0mA
Frequency Stability	
Over Temperature Range	±2.5PPM
Over Supply Voltage Change (3.0V ± 5%)	±0.3PPM
Over Load Change (10Ω ± 10% // 10pF ± 10%)	±0.3PPM
Voltage Control ¹ (1.5V ± 1.0V)	±3.0PPM Min
Output Waveform (Clipped Sine)	
Peak-to-Peak Level (Vp-p)	
10.000 ~ 14.400	0.8V Min
14.400+ ~ 22.000	0.7V Min
Output Load	10KΩ // 10pF
Frequency Adjustment (Internal Trimmer)	±3.0PPM
Aging per year	±0.8PPM

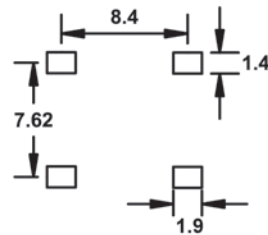
¹ For proper operation, a control voltage (Vc) must be applied to pin 1 on VCTCXOs.
All specifications subject to change without notice. Rev. 6/1/04

• DISTRIBUTOR STOCKING ITEMS

Model Number	Frequency (MHz)
FOX801BE-100	10.000
FOX801BE-128	12.800
FOX801BE-144	14.400
FOX801BE-160	16.000
FOX801BE-192	19.200



Recommended Solder Pad Layout



Pin Connections

#1 Vc #3 Output
#2 GND #4 VDD

All dimensions are in millimeters.

FOX MODEL: FOX801 SERIES

3.0V/5.0V LOW PROFILE TCXO

FEATURES

- 2.0mm Height Max
- Low Cost
- Clipped Sine Output
- Tape and Reel (2,000 pcs. STD)

OPTIONS

- 'A' Version - 5.0V
- 'B' Version - 3.0V
- VCTCXO - AE/BE Version
- VCTCXO - AH/BH Version (trimmerless)



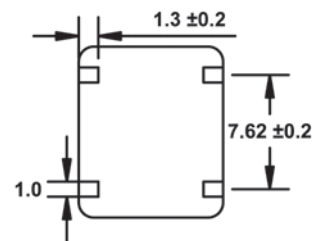
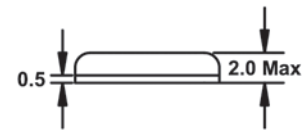
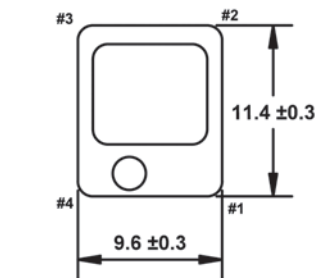
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• PART NUMBER SELECTION Learn More - Internet Required				
Part Number	Model Number	Frequency Stability	Operating Temperature (°C)	Frequency Range (MHz)
250-Frequency-xxxxx	FOX801A	see table	-30 ~ +75	10.000 ~ 50.000
251-Frequency-xxxxx	FOX801AE	see table	-30 ~ +75	10.000 ~ 50.000
252-Frequency-xxxxx	FOX801AH	see table	-30 ~ +75	10.000 ~ 50.000
253-Frequency-xxxxx	FOX801B	see table	-30 ~ +75	10.000 ~ 50.000
254-Frequency-xxxxx	FOX801BE	see table	-30 ~ +75	10.000 ~ 50.000
255-Frequency-xxxxx	FOX801BH	see table	-30 ~ +75	10.000 ~ 50.000

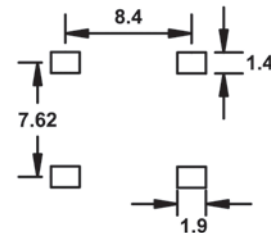
• ELECTRICAL CHARACTERISTICS	
PARAMETERS	MAX (unless otherwise noted)
Frequency Range (Fo)	10.000 ~ 50.000 MHz
Temperature Range	
Operating (T _{OPR})	-30°C ~ +75°C
Storage (T _{STG})	-35°C ~ +80°C
Initial Frequency Tolerance (@25°C)	
V _c = 2.5V (A Series) ¹ FOX801A/B/AE/BE	±0.5PPM
V _c = 1.5V (B Series) ¹ FOX801AH/BH	±2.0PPM
Supply Voltage (V _{DD})	
A Version	5.0V ± 5%
B Version	3.0V ± 5%
Input Current (I _{DD})	2.0mA
Frequency Stability	
Over Temperature Range	±2.5PPM
Over Supply Voltage Change (V _{DD} ± 5%)	±0.3PPM
Over Load Change (10Ω ± 10% // 10pF ± 10%)	±0.3PPM
Output Waveform (Clipped Sine)	
Peak-to-Peak Level (V _{p-p})	
A Version: 10.000 ~ 15.999 MHz	1.0V Min
A Version: 16.000 ~ 50.000 MHz	0.8V Min
B Version: 10.000 ~ 15.999 MHz	0.8V Min
B Version: 16.000 ~ 50.000 MHz	0.7V Min
Output Load	10KΩ // 10pF
Frequency Adjustment (Internal Trimmer)	
FOX801A/B/AE/BE	±3.0PPM
FOX801AH/BH	Trimmerless
Voltage Control Option (VCTCXO) ¹	
A Version (V _c =2.5±2.0V) FOX801A/B	None
B Version (V _c =1.5±1.0V) FOX801AE/BE	±5.0PPM Min
FOX801AH/BH	±8.0PPM Min
Aging per year	±0.8PPM

Learn more about:
[Part Marking Identification](#)
[Tape and Reel Specification](#)

Internet required



Recommended Solder Pad Layout



Pin Connections

- #1 V_c or N.C.*
- #2 GND
- #3 Output
- #4 V_{DD}

* A, B is N.C. all other V_c

All dimensions are in millimeters.

¹ For proper operation, a control voltage (V_c) must be applied to pin 1 on VCTCXOs.
 All specifications subject to change without notice. Rev. 6/1/04