

Data sheet

FBT0503

Miniature High Stability SMD TCXO - Clipped Sine Wave or LVCMOS

FEATURES

- High stability TCXO in small SMD package 5x3.2x1.9 mm
- Output : Clipped Sine Wave or LVCMOS
- Low Phase Noise, Low Jitter
- Wide Temperature Range
- Frequency range : 10 to 40 MHz.

Applications

- Base Stations
- Instrumentations
- Synthesizer
- SDH/SONET
- Medical Electronics



Parameter	min.	typ.	max.	Unit	Condition
Frequency range	10		40	MHz	
Standard frequencies	10, 12.8, 13, 15.36, 16.32, 18.432, 19.2, 19.44, 20, 20.48, 25, 26, 30.72, 32.768, 38.4, 40			MHz	
Frequency stability				ppm	
Initial tolerance			± 0.3	ppm	At shipment, nominal EFC, +25 °C
vs. operating temperature range	± 0.05, ± 0.1, ± 0.2, ± 0.5 ± 0.1, ± 0.2, ± 0.5			ppm ppm	-20°C to +70°C -40°C to +85°C
RMS Jitter (By E5052B)			1.3	ps	12 KHz to 5 MHz
vs. supply voltage variation	± 0.1			ppm	Vcc ± 5%
vs. load change	± 0.2			ppm	Load ± 5%
Aging / First Year			± 1 ± 0.3	ppm ppm	Standard Customized
Phase Noise					
SSB Phase Noise @ 10 MHz Measured at +25°C			-95 -120 -140 -145 -150	dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	Offset 10 Hz Offset 100 Hz Offset 1 KHz Offset 10 HKz Offset 100 KHZ
RF output					
Signal waveform	Clipped Sine Wave Square HMOS				Option Clipped Sine wave Option HMOS
Output Level (Clipped Sine Wave) Load	0.8			Vp-p	10kΩ//10pF
Output Level (HCMOS) HIGH (VOH) LOW (VOL) Duty Cycle Rise/Fall Edge Load	2.4		0.4 55 6 15	V V % Ns pF	LVCMOS Output, Load = 15pF LVCMOS Output, Load = 15pF (Voh - Vol)/2 LVCMOS Output, Load = 15pF
Supply voltage V _s		3.3		V	
Current consumption	1		3	mA	
Electronic Frequency Control					
Control Voltage Range	1.5 ± 1.0			Vdc	
Frequency Tuning Range	± 5		± 12	ppm	
Tuning Slope		positive			
Non-linearity			1	%	
Enclosure (see drawing) (LxWxH)	5x3.2x1.9 mm max.			mm	

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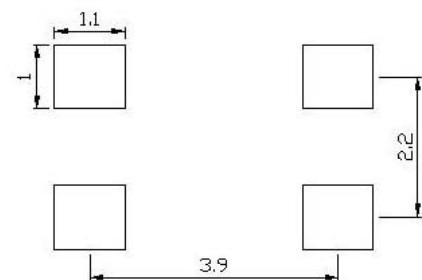
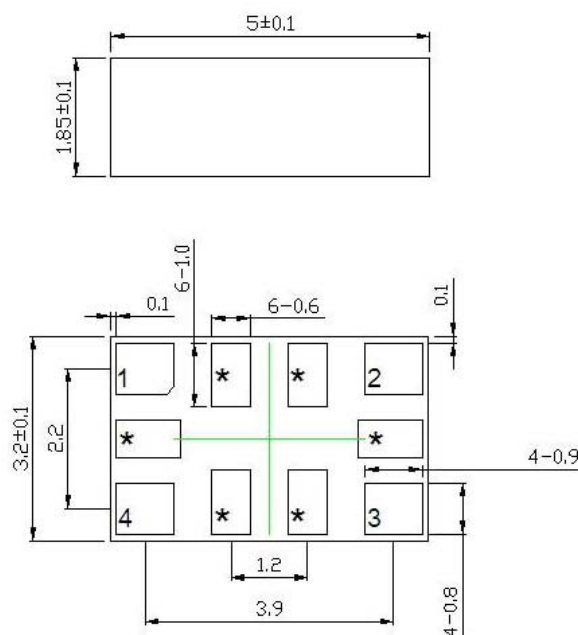
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Environmental Conditions		
Operating Temperature range	-20°C to +70°C -40°C to +85°C	
Maximum Ratings		
Parameter	Symbol	Rating
Storage Temperature Range	Ts	-55° to +125°C
Supply Voltage	Vdd	-0.5V / 6V
Control Voltage	Vcon	0V / 3V
ESD, HBM/CDM/MM		4KV/ 2KV/ 200V
Reliability		
Parameter	Condition	
Temperature Stress Test	IEC60068, GJB360B	
Mechanical Stress Test	IEC60068, GJB360B	
EMC Test (ESD)	IEC61000, JESD22	
Solder Ability	EIA/JESD22-B102-C	
Moister Sensitivity Level	MSL3	
Contact Pads	Gold over Nickel	
RoHS	RoHS Directive 2011/65/EU Annex II Recasting 2002/95/EC	

Ordering code:

Model	Output level	Supply Voltage	Operating Temp. Range	Stability	Phase Noise	Tuning	Frequency [MHz]
FBT0503	C: Clipped Sine H: HCMOS	3: 3.3Vdc	C: -20°C to +70°C I: -40°C to +85°C	507: ± 0.5 ppm 207: ± 0.2 ppm 107: ± 0.1 ppm 508: ± 0.05 ppm	A: -120dBc/Hz@1KHz B: -125dBc/Hz@1KHz C: -130dBc/Hz@1KHz D: -135dBc/Hz@1KHz E: -140dBc/Hz@1KHz G: -145dBc/Hz@1KHz	N: No Tuning A: ±5 ppm B: ±7 ppm C: ±12 ppm	Frequency in MHz

Package:



Recommended Land Pattern

Pin Connection

- Pin 1- V_{con}, Control Voltage
- Pin 2- Gnd, Ground
- Pin 3- F_{out}, Output
- Pin 4- V_{dd}, Supply Voltage

Note:

1. The pins with '*' are for factory test
2. Leave pin 1 unconnected if V_{con} is not used.

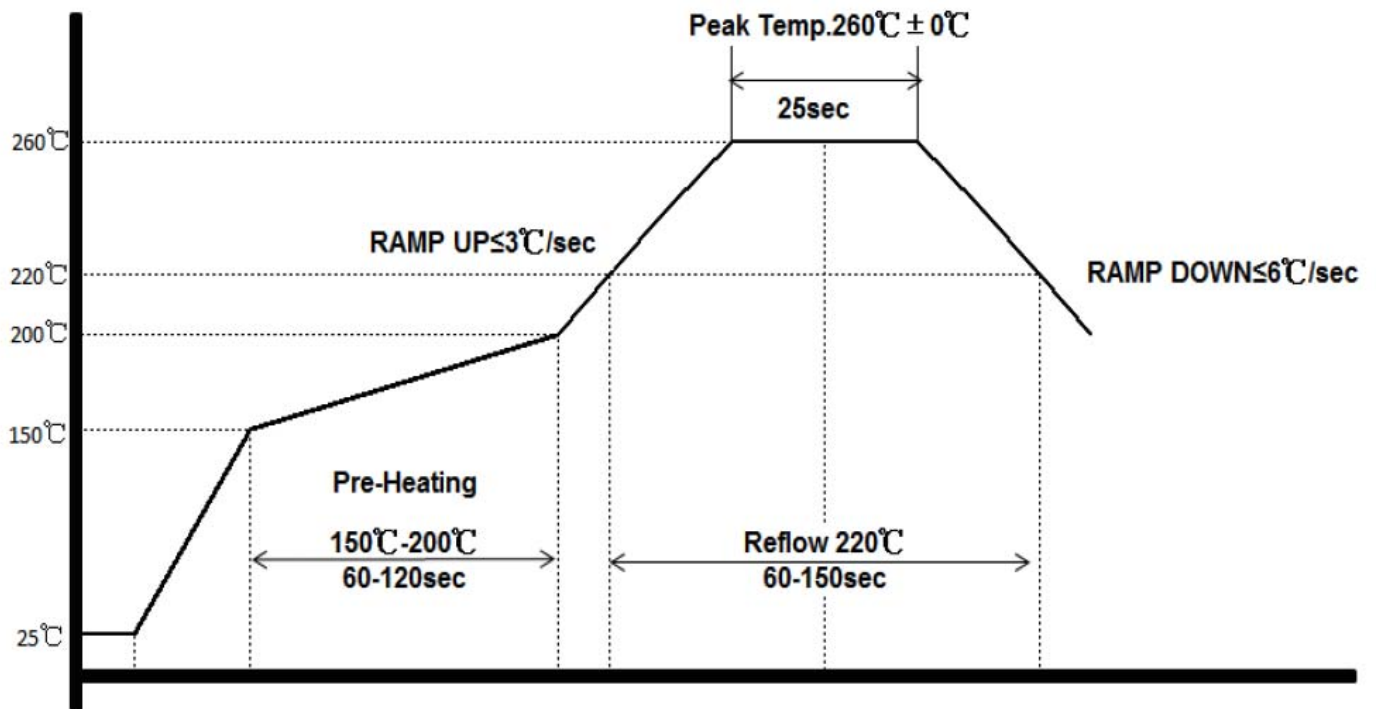
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IR Reflow Profile

Suggested IR Reflow

Devices are built using lead-free epoxy and can be subjected to standard lead free IR reflow conditions shown in the figure.



Tape & Reel

