Data sheet

FBT0507 — High Stability SMD TCXO - Clipped Sine Wave or LVCMOS

FEATURES

- High stability TCXO in small SMD package 7.1x5.1x2.0 mm
- Output : Clipped Sine Wave or LVCMOS
- Low Phase Noise, Low Jitter
- Provide Stratum III Level Frequency Stability
- 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 ± 0.20, ± 0.5, ± 1.0 ± 0.5, ± 1.0			ppm ppm ppm ppm	-20°C to +70°C -40°C to +85°C -50°C to +90°C -55°C to +95°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 45		 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)	7.1 x 5.1 x 2.0 mm max.			mm	
Weight			5	gram	

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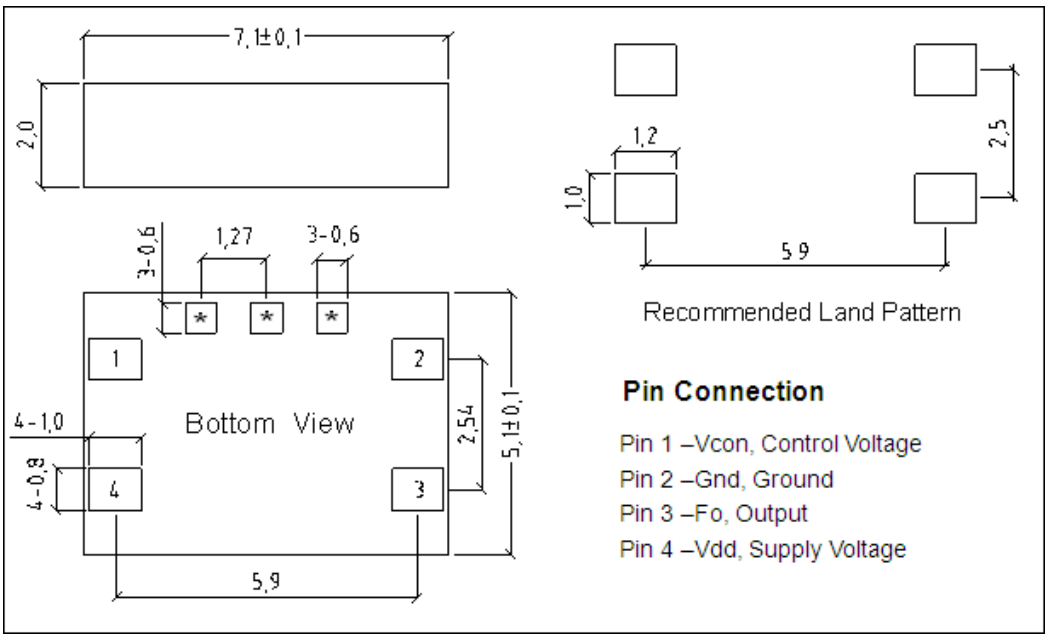
Environmental Conditions		
Operating Temperature range	-20°C to +70°C -40°C to +85°C -50 °C to +90°C -55°C to +95°C	
Maximum Ratings		
Parameter	Symbol	Rating
Storage Temperature Range Supply Voltage Control Voltage ESD, HBM/CDM/MM	Ts Vdd Vcon	-55° to +125°C -0.5V / 6V 0V / 3V 4KV/ 2KV/ 200V
Reliability		
Parameter	Condition	
Temperature Stress Test Mechanical Stress Test EMC Test (ESD) Solder Ability Moister Sensitivity Level Contact Pads RoHS	IEC60068, GJB360B IEC60068, GJB360B IEC61000, JESD22 EIA/JESD22-B102-C MSL3 Gold over Nickel RoHS Directive 2011/65/EU Annex II Recasting 2002/95/EC	

Ordering code:

Model	Package	Output level	Supply Voltage	Operating Temp. Range	Stability	Phase Noise	Tuning	Frequency [MHz]
FBT0507	**A**: Package A **B**: Package B	**C**: Clipped Sine **H**: HCMOS	**3**: 3.3Vdc	**C**: -20°C to +70°C **I**: -40°C to +85°C **M**: -50°C to +90°C **U**: -55°C to +95°C	**507**: ± 0.5 ppm **207**: ± 0.2 ppm **107**: ± 0.1 ppm **508**: ± 0.05 ppm	**C**: -130dBc/Hz@1KHz **D**: -135dBc/Hz@1KHz **E**: -140dBc/Hz@1KHz **G**: -145dBc/Hz@1KHz	**N**: No Tuning **A**: ±5 ppm	Frequency in MHz

Package A:



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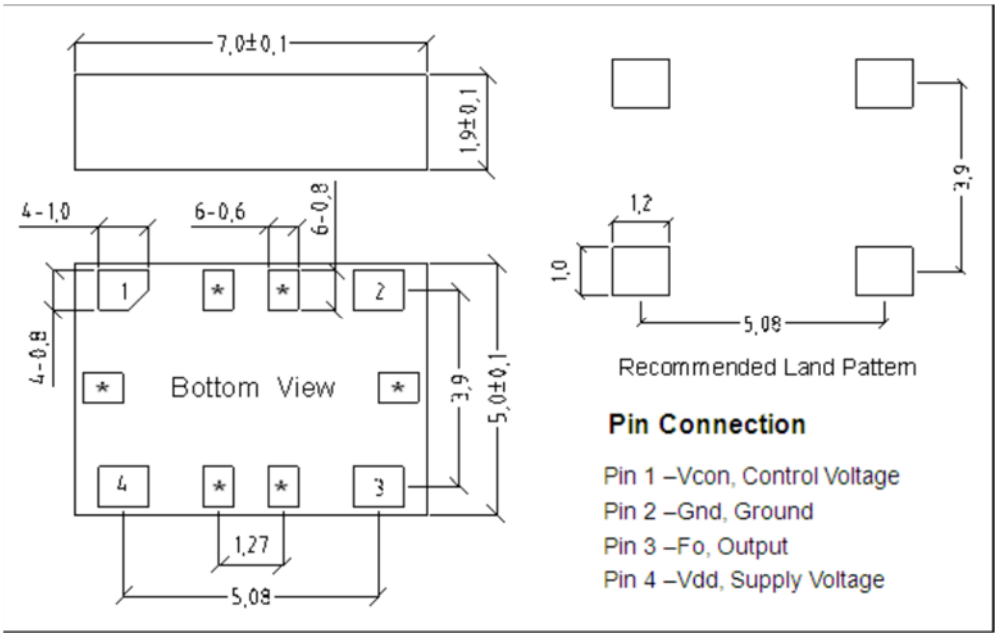
Package B:



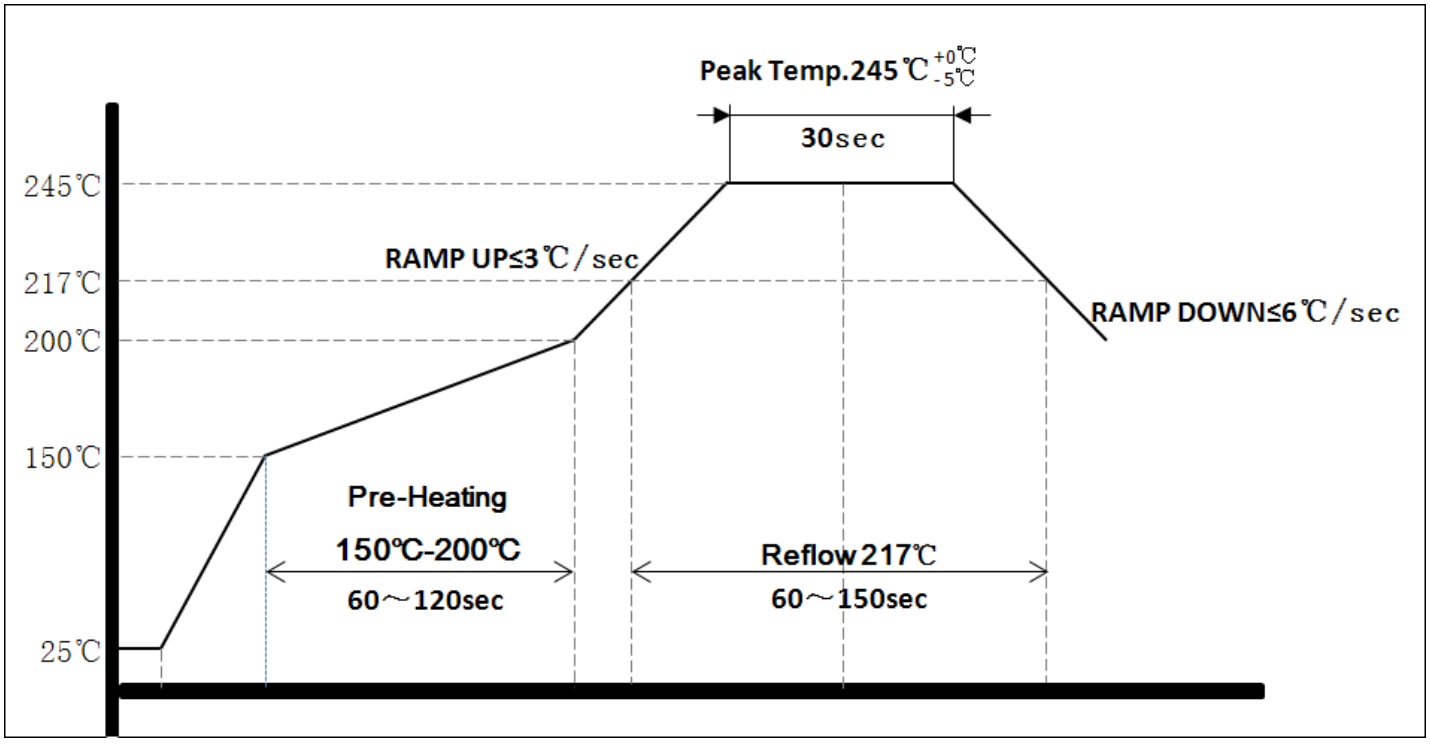
Note:

1. The pins with ' * ' are for factory test.
2. Leave pin 1 unconnected if Vcon is not used.

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.



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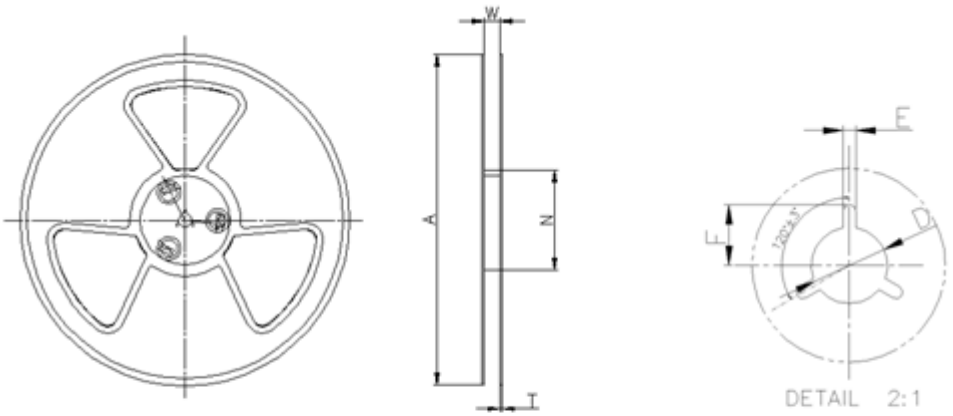
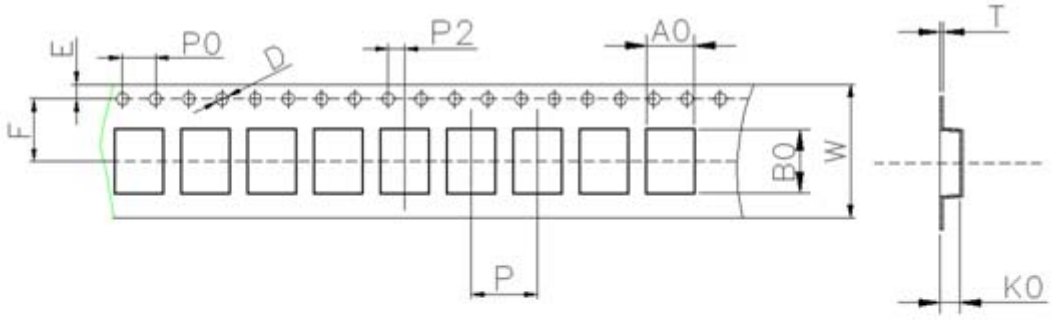
Tape & Reel



ITEM	W	A	N	T	E	F	D
DIM	16.5	330	100	1.8	2.1	10.75	13.5
TOLE	±0.4	±0.5	±0.3	±0.2	±0.3	±0.3	+0.5 −0.2



ITEM	W	A0	B0	K0	P	F	E	D	P0	P2	T
DIM	16.0	5.7	7.6	2.4	8	7.5	1.75	1.50	4.00	2.00	0.30
TOLE	+0.30 −0.30	+0.15 −0.15	+0.15 −0.15	+0.15 −0.15	+0.10 −0.10	+0.10 −0.10	+0.10 −0.10	+0.10 −0.00	+0.10 −0.10	+0.10 −0.10	+0.05 −0.05

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