Features

- Ultra Stable
- Wide Temperature Range
- Small Packaging(12.6×20.2mm)

Applications

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



BT1220L Series Specifications

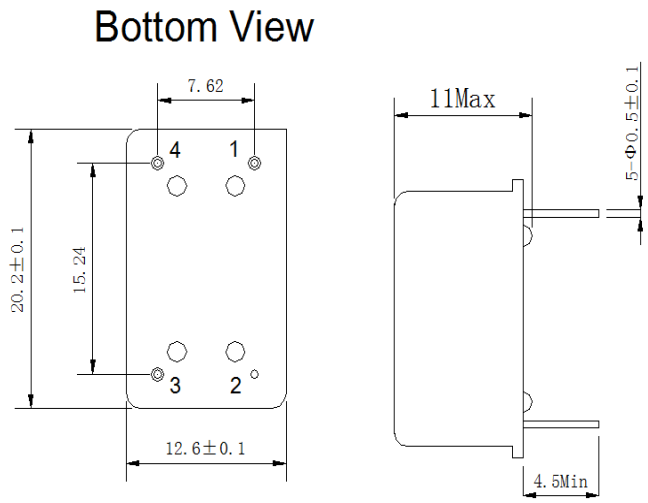
Parameter		Value			Unit	Conditions	
		Min.	Typ.	Max.			
Supply Voltage		–	3.3	–	V		
		–	5	–	V		
Supply Current		–	–	30	mA		
Frequency Range		10 ~ 52			MHz		
Nominal Frequency		10, 12.8, 16.384, 19.2, 20, 24.576, 25, 26, 30.72, 40, 50			MHz		
Initial Frequency Tolerance		±0.05	–	±0.5	ppm	At shipment, nominal EFC, +25℃	
Freq. Stability Vs. Temp.		±0.05	–	±0.5	ppm	-20℃~+70℃	
		±0.05	–	±0.5	ppm	-40℃～+85℃	
		±0.2	–	±1.0	ppm	-50℃～+90℃	
		±0.5	–	±1.0	ppm	-55℃～+95℃	
Sine Wave	Output Level	0.8	–	–	Vp-p		
	Load	50ohm					
Clipped Sine Wave	Output Level	0.8	–	–	Vp-p		
	Load	10kΩ//10pF					
LVCMOS	V_{OH}	2.4	–	–	V	LVCMOS Output, Load=15pf	
	V_{OL}	–	–	0.4	V	LVCMOS Output, Load=15pf	
	Duty Cycle	45	–	55	%	(V_{OH} - V_{OL})/2	
	Rise/Fall Edge	–	–	6	ns	LVCMOS Output, Load=15pf	
	Load	–	–	15	pf		
RMS Jitter(By E5052B)		–	–	1.3	ps	12KHz~5MHz	
Supply Sensitivity		–	–	±0.1	ppm	Vcc±5%	
Load Sensitivity		–	–	±0.2		Load±5%	
Aging/ First Year		–	–	±1.0		Standard	
		±0.3	–	±0.8		Customized	
SSB Phase Noise @10MHz		–	–	-95	dBc/Hz	Offset 10Hz	At +25℃
		–	–	-120		Offset 100Hz	
		–	–	-140		Offset 1kHz	
		–	–	-145		Offset 10kHz	
		–	–	-150		Offset 100kHz	
Control Voltage Range		1.5 ± 1.0			V		
Frequency Turning Range		±5	–	±12	ppm		
Tuning Slope		Positive					
Non-linearity		–	–	10	%		

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Phase Noise @1KHz

Freq. Range	<-125dBc	<-130dBc	<-135dBc	<-140dBc	
10MHz				A	A=Available
12.8~20MHz			A	N/A	N/A=Not Available
20.48~38.4MHz		A	N/A	N/A	
40MHz	A	N/A	N/A	N/A	

Outline Dimension & Pin Connections



Pin Connections

Pin1	Vcon	Control Voltage
Pin2	GND	Ground,Case
Pin3	Fout	Output
Pin4	Vdd	Power Supply

Note:
Leave pin 1 unconnected If vcon is not used.

Note: Leave pin 1 unconnected If Vcon is not used.

Environmental Conditions

Operating Temperature Range	-55℃～+95℃
Storage Temperature Range	-55℃ ~ +125℃

Maximum Ratings

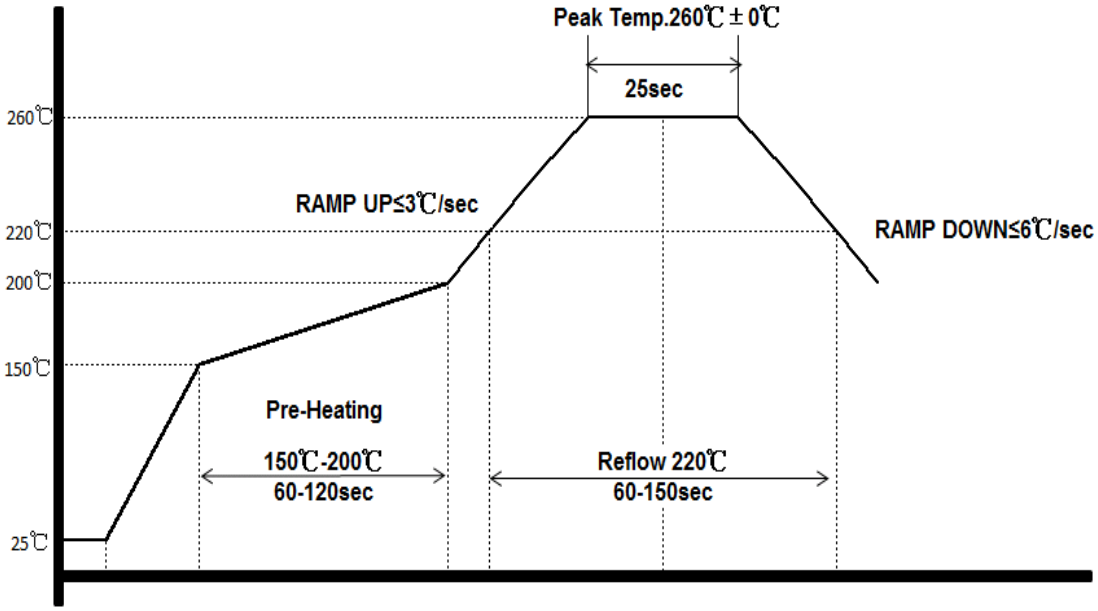
Parameter	Symbol	Rating
Supply Voltage	Vdd	-0.5V / 6V
Control Voltage	Vcon	0V / 3V
ESD, HBM/CDM/MM		4KV/ 2KV/ 200V

Reliability

Parameter	Condition
Temperature Stress Test	IEC60068, GJB360B
Mechanical Stress Test	IEC60068, GJB360B
EMC Test (ESD)	IEC61000, JESD22
Solder Ability	EIA/JESD22-B102-C
Moisture Sensitivity Level	MSL3
Contact Pads	Gold over Nickel
RoHS	RHOS Directive 2011/65/EU Annex II Recasting 2002/95/EC

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IR Reflow Profile



Ordering Guide

BT 1220 L X X X XXX X X XX.XX

- Product: TCXO
- Outline: 20mm x 12mm
- Package L
- Output:
  H: CMOS
  C: Clipped Sine Wave
  S: Sine Wave
- Supply Voltage:
  3: 3.3 Vdc
  5: 5.0 Vdc
- Temp. Range:
  C: -20℃ ~ +70℃
  I: -40℃ ~ +85℃
  M: -45℃ ~ +90℃
  U: -55℃ ~ +95℃
  F: Customized
- Temp. Stability:
  106: ±1ppm
  507: ±0.5ppm
  207: ±0.2ppm
  107: ±0.1ppm
  508: ±0.05ppm
- Phase Noise:
  A: -120dBc/Hz@1kHz
  B: -125dBc/Hz@1kHz
  C: -130dBc/Hz@1kHz
  D: -135dBc/Hz@1kHz
  E: -140dBc/Hz@1kHz
  G: -145dBc/Hz@1kHz
- Tuning Range:
  N:No Tuning
  A: ±5ppm
  B: ±7ppm
  C: ±12ppm
- Frequency:
  xx MHz

Example: BT1220LS5C107DN10

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