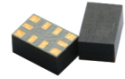


Features

- Ultra Stable
- Wide Temperature Range
- SMD Package (5.0x3.2mm)

Applications

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


BT0503 Specifications

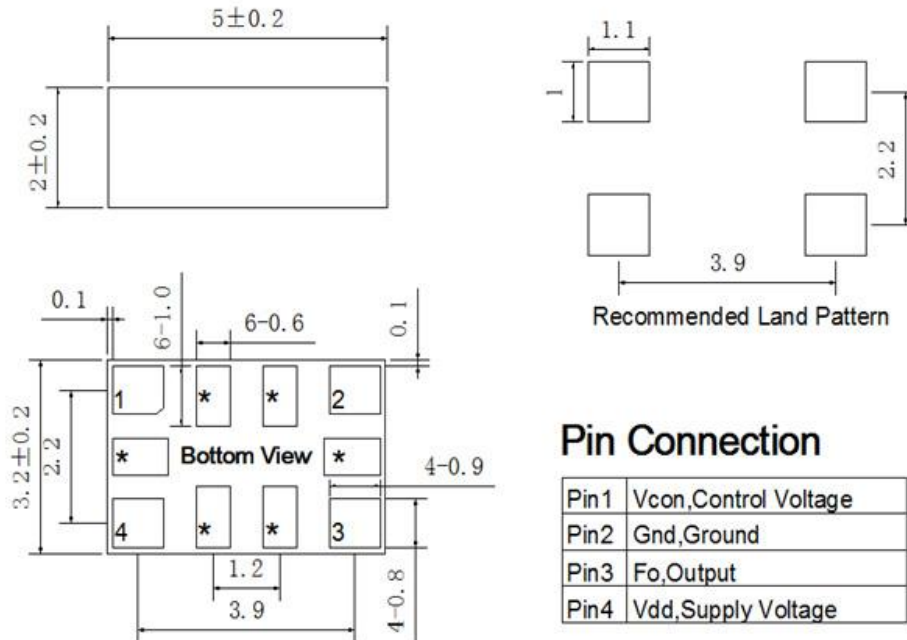
| Parameter | Value | | | Unit | Conditions | |
|-----------------------------|---|------------|------|------------|---------------------------------|--|
| | Min. | Typ. | Max. | | | |
| Supply Voltage | - | 3.3 | - | V | | |
| | - | 5 | - | V | | |
| Supply Current | 3 | - | 6 | mA | | |
| Frequency 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°C | |
| Freq. Stability Vs. Temp. | ±0.05 | - | ±0.5 | ppm | -20°C ~ +70°C | |
| | ±0.1 | - | ±0.5 | ppm | -40°C ~ +85°C | |
| | ±0.2 | - | ±1.0 | ppm | -50°C ~ +90°C | |
| | ±0.5 | - | ±1.0 | ppm | -55°C ~ +95°C | |
| 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 | V _{cc} ±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 | |
| | - | - | -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 | % | | |

Phase Noise @1KHz

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

Outline Dimension & Pin Connections

Outline Dimensions: mm


Pin Connection

| | |
|------|----------------------|
| Pin1 | Vcon,Control Voltage |
| Pin2 | Gnd,Ground |
| Pin3 | Fo,Output |
| Pin4 | Vdd,Supply Voltage |

Note:

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

Environmental Conditions

| | |
|-----------------------------|----------------|
| Operating Temperature Range | -55°C ~ +95°C |
| Storage Temperature Range | -55°C ~ +125°C |

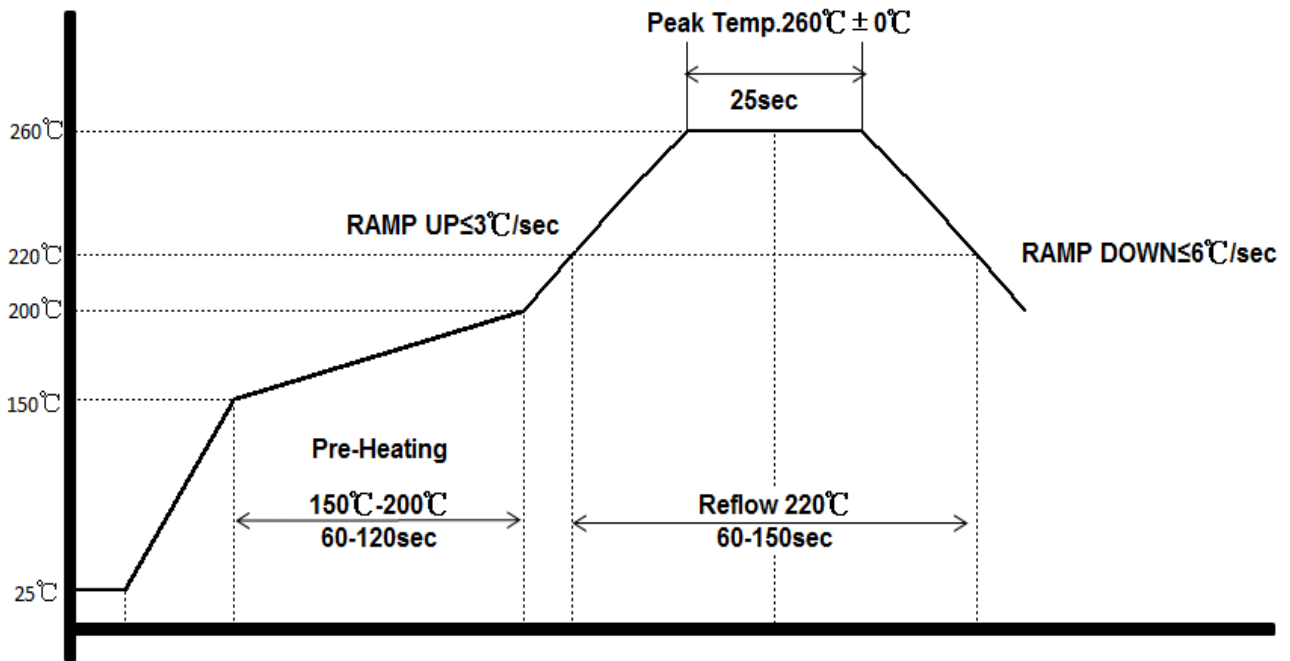
Maximum Ratings

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

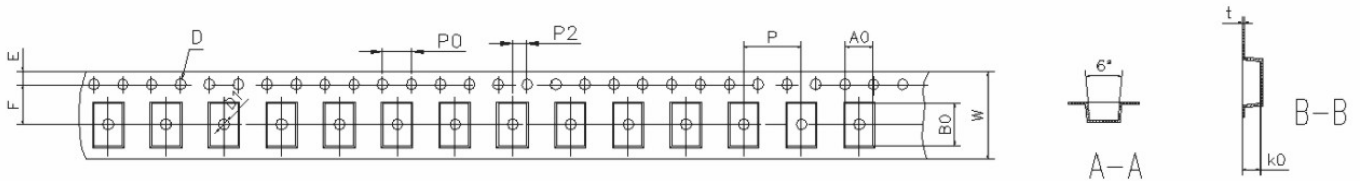
Reliability

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

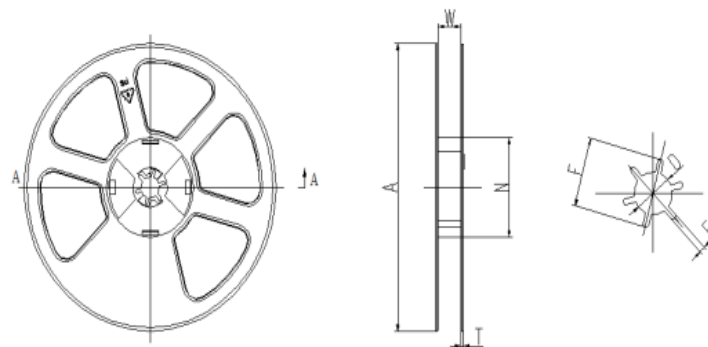
IR Reflow Profile



Tape & Reel



| ITEM | W | A0 | B0 | K0 | P | F | E | D | D1 | P0 | P2 | t | 7" |
|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------|
| DIM | 16.0 | 3.7 | 5.6 | 2.0 | 8.00 | 7.50 | 1.75 | 1.50 | 1.50 | 4.00 | 2.00 | 0.3 | L/R QTY/PCS |
| 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 -0.00 | +0.10 -0.10 | +0.10 -0.10 | +0.05 -0.05 | 4M 500PCS |



| Item | W | A | N | T | E | F | D |
|------|------|------|------|------|------|------|------|
| Size | 16.4 | 178 | 62 | 1.8 | 2 | 21.8 | 13.5 |
| TOL | ±0.3 | ±0.5 | ±0.4 | ±0.2 | ±0.5 | ±0.8 | ±0.3 |

Ordering Guide

BT 0503 X X X XXX X X XX.XX

Product:
TCXO

Outline:
5.0mm x 3.2mm

Output:
H:LVC MOS
C:Clipped Sine

Supply Voltage:
3: 3.3 Vdc
5: 5.0 Vdc

Temp. Range:
C: -20°C ~ +70°C
I: -40°C ~ +85°C
M: -50°C ~ +90°C
U: -55°C ~ +95°C
F: Customized

Frequency:
xx MHz

Tuning Range:
N:No Tuning
A: ±5ppm
B: ±7ppm
C: ±10ppm

Phase Noise:
A: -120dBc/Hz@1kHz
B: -125dBc/Hz@1kHz
C: -130dBc/Hz@1kHz
D: -135dBc/Hz@1kHz
E: -140dBc/Hz@1kHz

Temp. Stability:
507: ±0.5ppm
287: ±0.28ppm
207: ±0.2ppm
107: ±0.1ppm
508: ±0.05ppm

Example: BT0503H3C107DN12.8

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