

深圳市炬焯科技有限公司  
CHIP SUN TECHNOLOGY CO., LTD

**APPROVAL  
SHEET**



CUSTOMER: Quartz 1

DESCRIPTION: SMD5032 VCTCXO 24.576MHz

MANUFACTURER PART NO.: FVTO24.576M3.3SM5-1.0/2.0C

CUSTOMER PART NO: \_\_\_\_\_

USED IN MODEL: \_\_\_\_\_

APPROVAL		
TECHNOLOGY DEPT.	QUALITY DEPT.	PURCHASING DEPT.

Date: 2023.06.12



深圳市炬焯科技有限公司

CHIP SUN TECHNOLOGY CO., LTD

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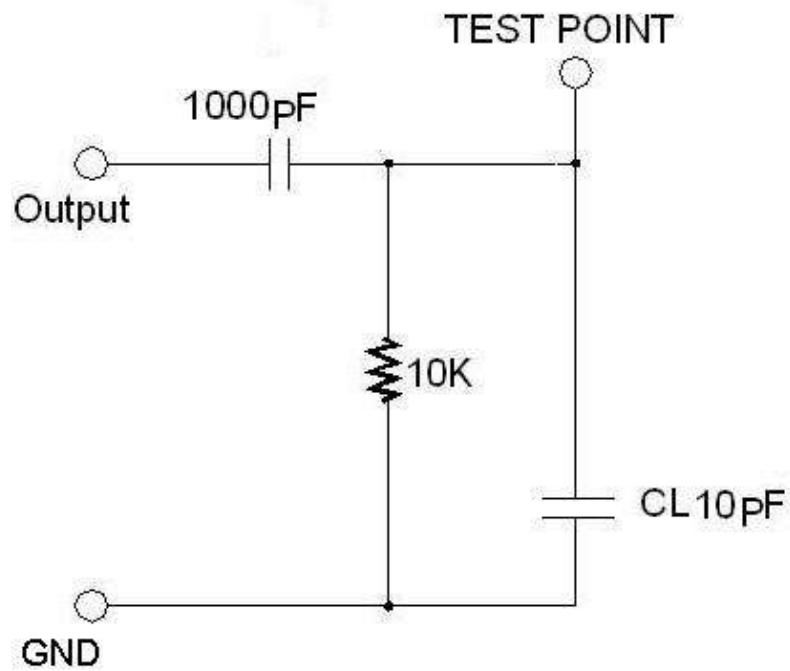
# 1. TEMPERATURE COMPENSATED CRYSTAL OSCILLATOR SPECIFICATION

Parameter	Value	Condition
1.1 Frequency:	24.576MHz	
1.2 Holder type:	<b>FVTO531S</b>	
1.3 Supply voltage:	3.3 V <sub>DC</sub> ± 5%	
1.4 Current:	3.5mA max	10K Ω //10pF
1.5 Output Level:	0.8 V <sub>p-p</sub> Min (Clipped Sine Wave DC-coupled 10K Ω //10pF)	
1.6 Output Load:	10K Ω //10pF ± 10%	
1.7 Operable temperature range:	-30°C To +85°C	
1.8 Storage temperature range:	-40°C To +85°C	
1.9 Frequency tolerance:	± 1.0ppm max	at 25°C
1.10 Frequency Stability:		
vs. Temperature:	± 2.0ppm max	-30°C To +85°C
vs. Supply voltage:	± 0.2ppm max	3.3V ± 5%
vs. Load Coefficient:	± 0.2ppm max	10K Ω //10pF +/-10%
vs. Aging:	± 1.0ppm max	1 Year (25 ± 2°C)
1.11 Start Up Time	3.0 ms max	More than 90% of final amplitude
1.12 Frequency Adjustment	± 10ppm min	V <sub>cont</sub> =1.5 ± 1.0V
1.13 Phase noise:		
@ 1KHz offset	-145 dBc/Hz	
1.14 Test circuit	Refer to fig.2	
1.15 Dimensions and marking	Refer to page.3	
1.16 Emboss carrier tape & reel	Refer to page.5 and page.6	

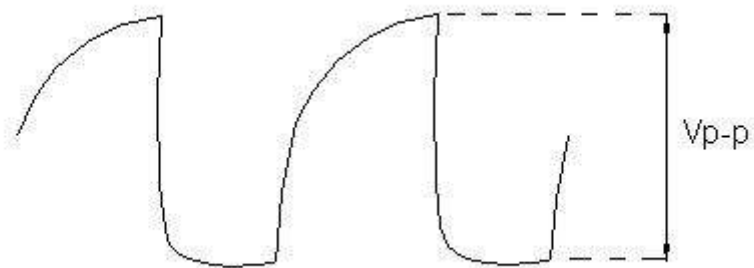
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## 2. Test circuit



## 3. Output Waveform:

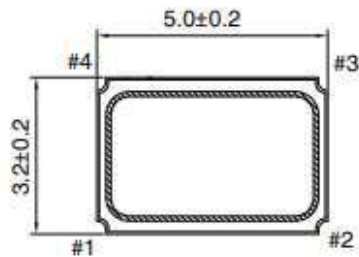


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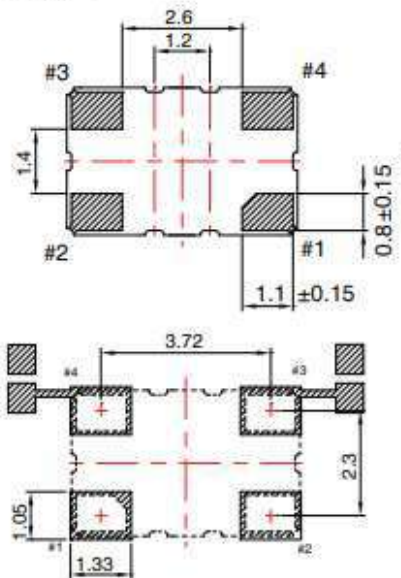
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## 4. FVTO531S DIMENSIONS

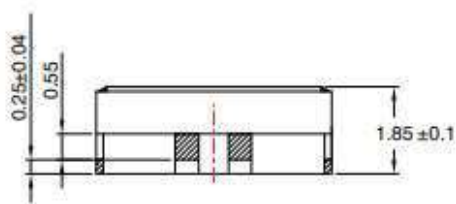
[ TOP VIEW ]



[ BOTTOM VIEW ]



[ SIDE VIEW ]



To ensure optimal oscillator performance, place a by-pass capacitor of 0.1 $\mu$ F as close to the part as possible between VDD and GND pads.

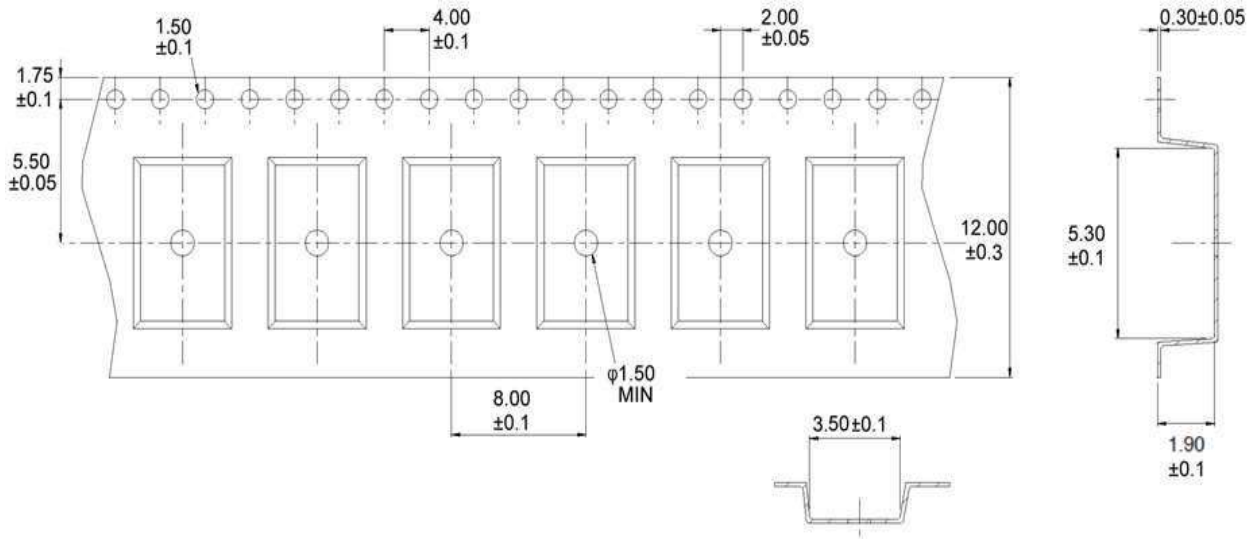
Pin	Function
#1	VOCN:VC-TCXO GND/NC:TCXO
#2	GND
#3	OUTPUT
#4	VDD

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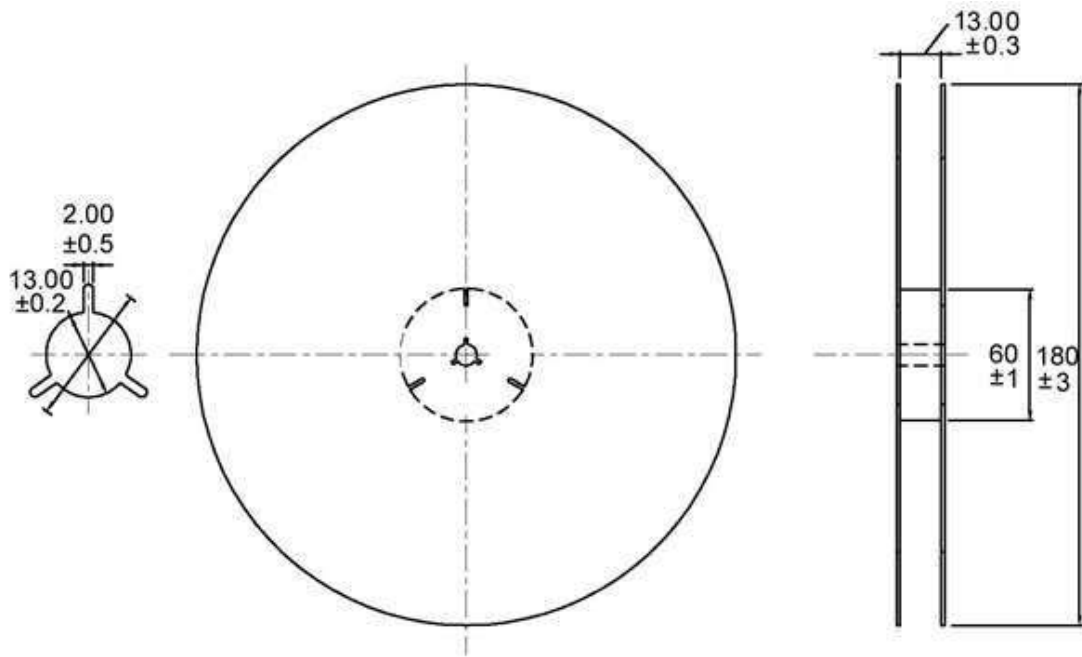
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## 5. FVTO531S EMOSS CARRIER TAPE & REEL

### a.) Dimensions of Carrier Tape



### b.) Dimensions of Reel

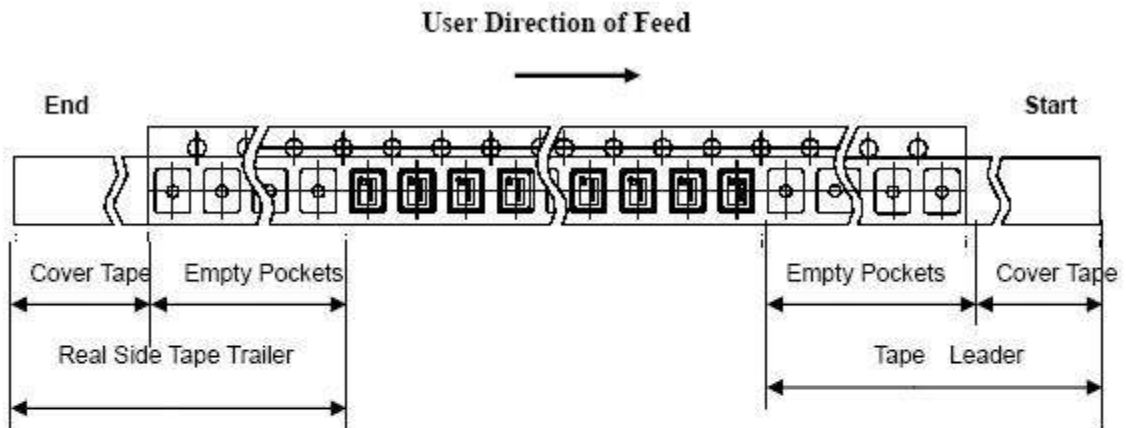


Unit:mm

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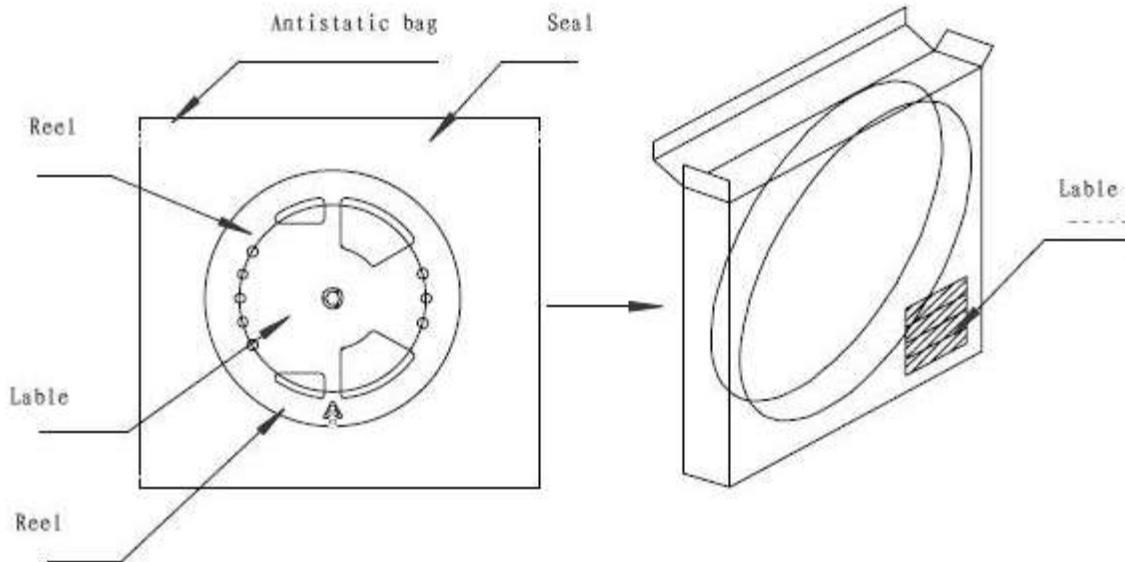
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c.) Packing



Item		Empty Space
Tape Leader	Cover Tape	Min.250mm
	Empty Pockets	Min.160pockets
Tape Trailer	Cover Tape	Min.250mm
	Empty Pockets	Min.160mm

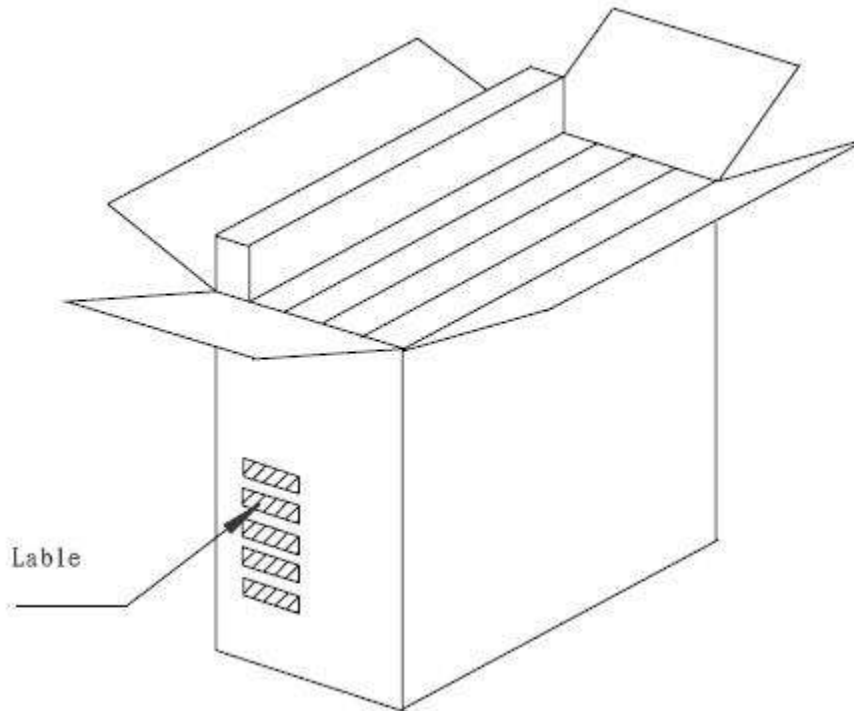
d.) Inner carton



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d.) Outet carton



e.) Marking Label

Label contents

- .The type of product
- .Our specification No.
- .Your Part No.
- .Lot No.
- .Nominal Frequency
- .Quantity
- .Our Company Name

INSPECTION RECORDS	
PART NUMBER	
Lot. NO:	
HOLDER TYPE	
FREQUENCY	
REMAKS	
QUANTITY	
CHIP SUN TECHNOLOGY CO., LTD	

Sticks label for every reel.

f.) Standard packing quantity

1,000PCS / REEL

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## 6. STORAGE ENVIRONMENT

- \* Storage the reel at normal temperature and humidity
- \* Open the packing just before using.
- \* Do not expose the sun.
- \* Do not storage with some erosive chemicals.
- \* Nothing is allowed to put on the reel or carton to prevent mechanical damage.

## 7. HANDLING

- \* Handle with care to prevent the damage of tape, reel and products.

- ELECTROSTATIC DISCHARGES

This device contains a CMOS IC. Please take precautionary measures against ESD damage.

- SHOCK RELIABILITY

This device contains a quartz crystal, so please do not give too much shock or vibration. Surface mounters can be used for assembling, but be sure to check your machine conditions before using them.

- ULTRASONIC CLEANING

Also be sure to check your cleaning condition of ultrasonic cleaning apparatus.

- TEMPERATURE AND HUMIDITY

We recommend to store and use device under normal temperature and humidity for frequency stability. Condensation may cause this device damages.

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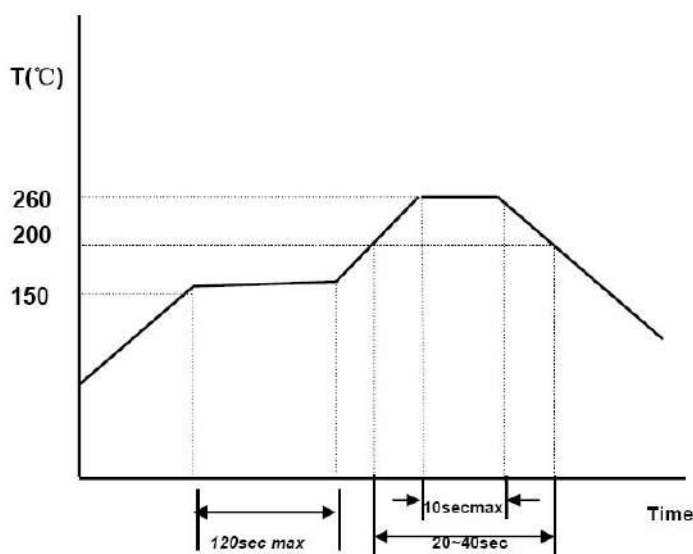
## 8. Mechanical Characteristics:

NO.	ITEM	CONDITIONS	REQUIREMENT
8.1	Shock Test	150cm, onto concrete, each side(6), corner(1), total 7times	No visible damage Meet electrical specification.
8.2	Vibration Test	20Hz~500Hz, amplitude 1.5mm 500-2000Hz, accelerate 20g X,Y,Z each direction ×15min	No visible damage Meet electrical specification.
8.3	Solder ability Test	235°C±5°C solder bath, 3±0.5sec	No visible damage more than 95% must be covered Meet electrical specification.

## 9. Environmental Characteristics:

NO.	ITEM	CONDITIONS	REQUIREMENT
9.1	Low Temperature Enduring	-40±2°C, 120±2 hours cooled to room temperature for 2 hours.	No visible damage Meet electrical specification.
9.2	High Temperature Enduring	+85±2°C, 120±2 hours cooled to room temperature for 2 hours.	No visible damage Meet electrical specification.
9.3	Humidity	+60°C, 95%RH, 120±2 hours cooled to room temperature for 2 hours.	No visible damage Meet electrical specification.
9.4	Heat shock	-40°C/30min~85°C/30min, 100cycles cooled to room temperature for 2 hours.	No visible damage Meet electrical specification.

## INFRARED REFLOW TEMP. PROFILE:



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