

深圳市炬烜科技有限公司

CHIP SUN TECHNOLOGY CO., LTD

APPROVAL SHEET



CUSTOMER: Quartz 1

DESCRIPTION: SMD3.2*1.5 32.768KHz Quartz Crystal Resonator

MANUFACTURER PART NO.: FTX32.768K6.0SM3-20D

CUSTOMER PART NO: _____

USED IN MODEL: _____

REVISION A1

承 认 APPROVAL		
工程部 TECHNOLOGY DEPT.	品质部 QUALITY DEPT.	采购部 PURCHASING DEPT.

Date: June 15, 2023



深圳市炬烜科技有限公司

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<u>Rev</u>	<u>Revise page</u>	<u>Revise contents</u>	<u>Date</u>	<u>Ref.No.</u>	<u>Reviser</u>
A1	ALL	Initial released		N/A	DavidJiang

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1. QUARTZ CRYSTAL UNIT SPECIFICATION

Parameter	Specification
1.1 Frequency:	32.768KHz
1.2 Holder type :	SMD3.2×1.5×0.8 mm
1.3 Frequency tolerance:	±20ppm at 25°C
1.4 Equivalent resistance:	70Kohms Max
1.5 Operating temperature range:	-40°C To +85°C
1.6 Storage temperature range:	-55°C To +125°C
1.7 Temperature Coefficient	-0.04×10 ⁻⁶ / °C ² max
1.8 Turn-over temperature::	+25°C±5°C
1.9 Loading capacitance (CL) :	6.0pF
1.10 Drive level:	0.5uW max
1.11 Shunt Capacitance:	1.1pF Typical
1.12 Motional Capacitance:	4.1fF Typical
1.13 Insulation resistance :	More than 500M ohms
1.14 Aging:	±3 ppm/Year Max Ta=+25°C±3°C , first year
1.15 Dimensions and marking	Refer to page.3
1.16 Emboss carrier tape & reel	Refer to page.5 and page.6
1.17 Note	

Standard atmospheric conditions

Unless otherwise specified, the standard range of atmospheric conditions for making measurement and tests are as follow:

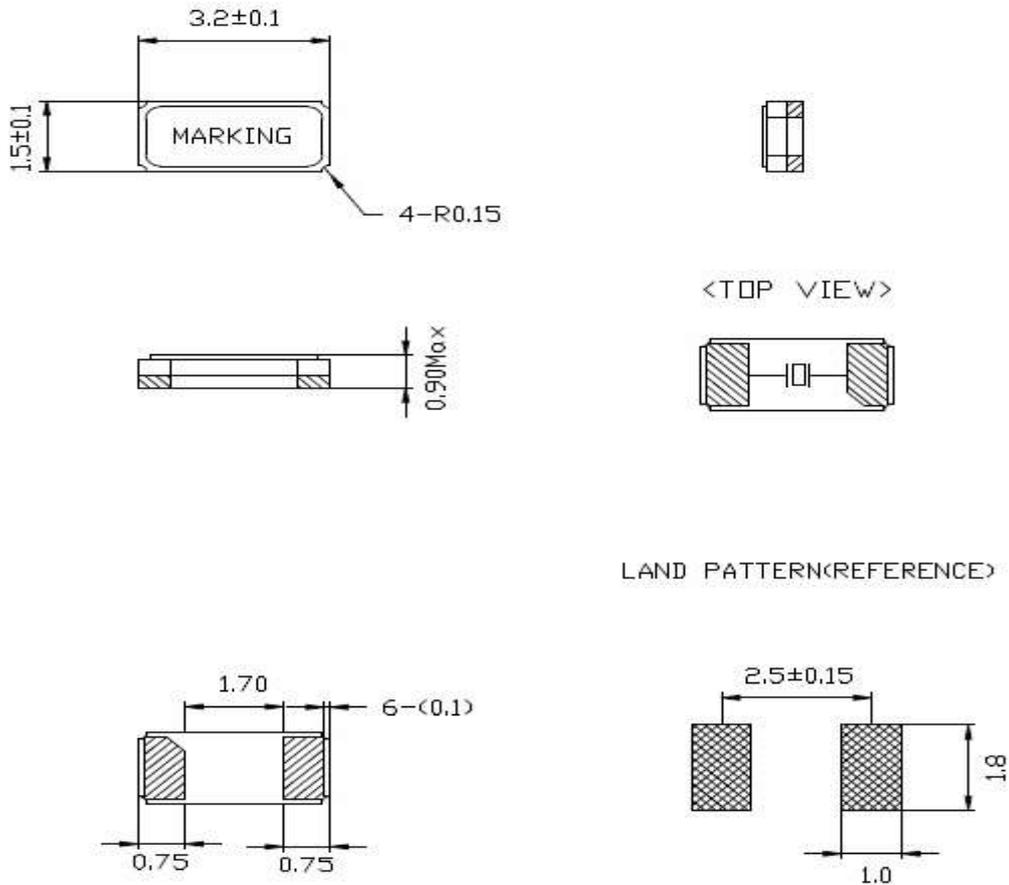
Ambient temperature : 25±3°C

Relative humidity : 40%~70%

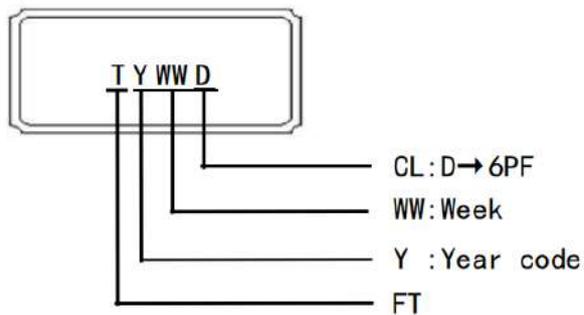
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2. DIMENSIONS (Unit: mm)



Marking Instructions

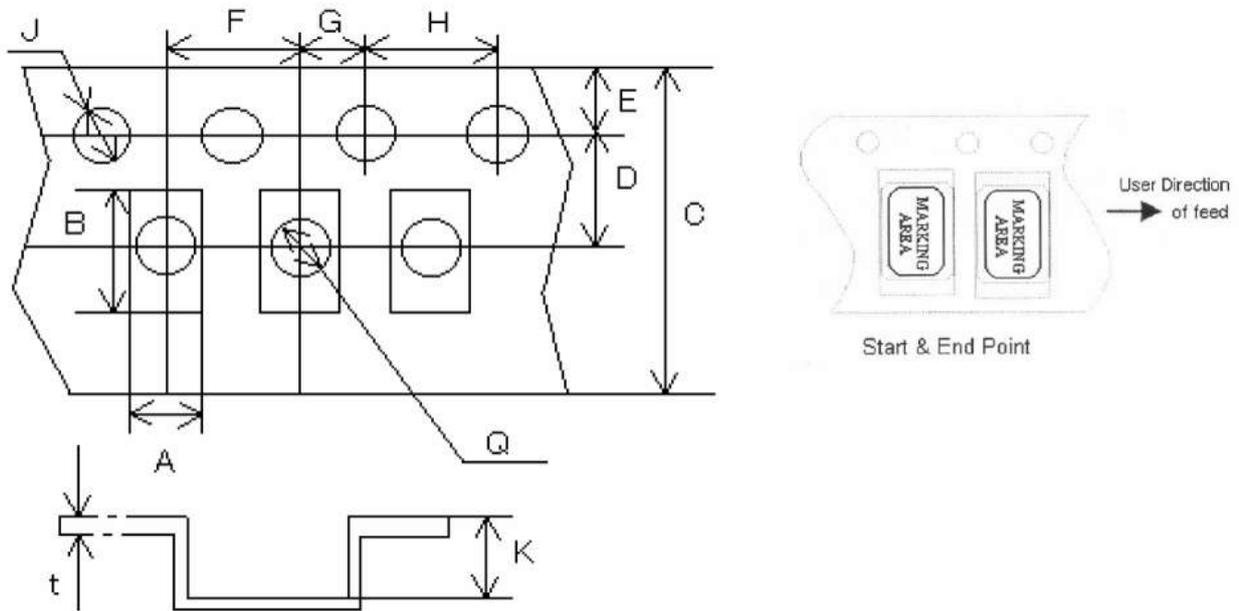


Year : 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030
 Code : 1 2 3 4 5 6 7 8 9 0

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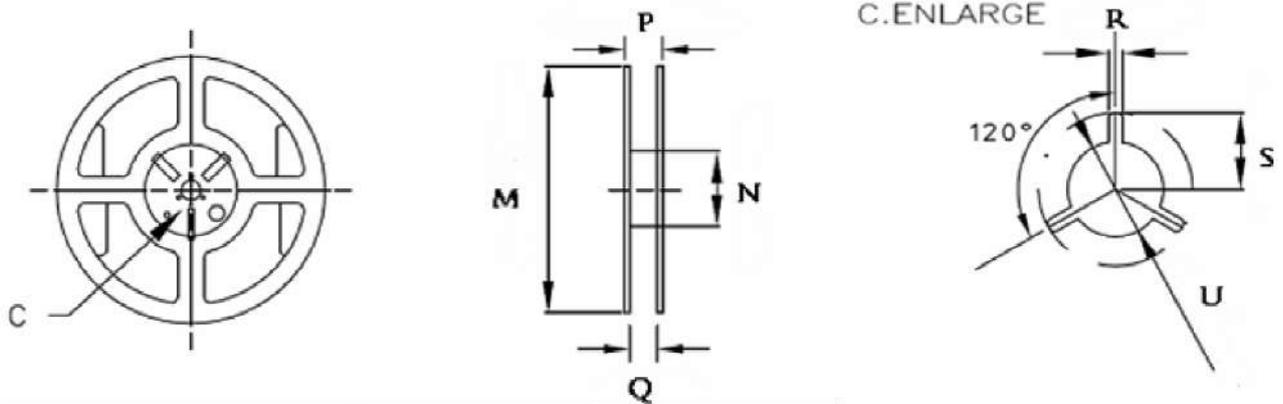
3 CARRIER TAPE & REEL

a.) Dimensions of Carrier Tape



A	B	C	D	E	F	G	H	J	K	t
1.75	3.45	12.0	5.5	1.75	4.0	2.0	4.0	1.5	1.0	0.25

b.) Dimensions of Reel



M	N	P	Q	R	S	U
180	60	17.5	13.5	3.2	10.5	13.0

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a.) Storage condition

Temperature: -55deg.C To +125deg.C

Relative Humidity: 80% Max.

b.) Standard packing quantity

3,000PCS / REEL

c.) Material of the tape

Tape	Material
Carrier tape	A- PET
Top tape	Polyester

d.) Label contents

.The type of product

.Our specification No.

.Your Part No.

.Lot No.

.Nominal Frequency

.Quantity

.Our Company Name

Sticks label for every reel.

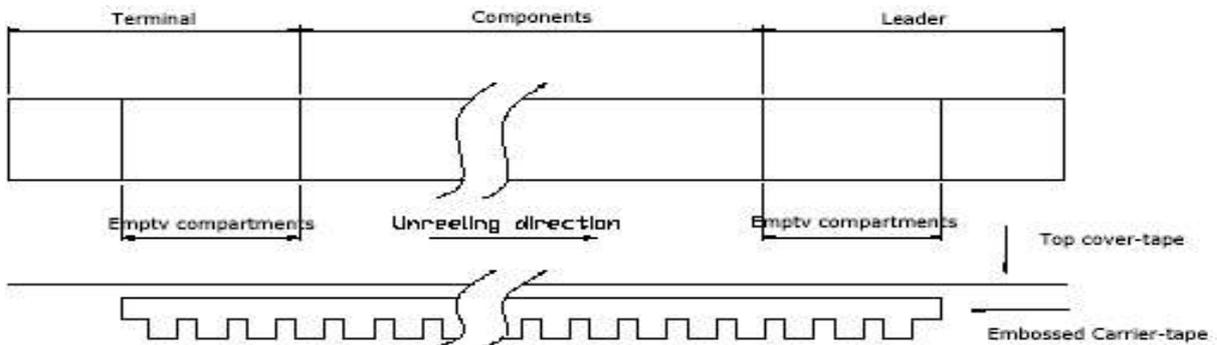
PART NUMBER	
PO. NO.:	
PR. NO.:	
HOLDER TYPE	
FREQUENCY	
REMAKS	
QUANTITY	
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e.) Taping dimension

Leader	Cover-tape	The length of cover-tape in the leader is more than 400 mm including empty embossed area.
	Carrier-tape	After all products were packaged, must remain more than twenty pieces or 400 mm empty area, which should be sealed by cover-tape.
Terminal	Cover-tape	The tip of cover-tape shall be fixed temporary by paper tape and roll around the core of reel one round.
	Carrier-tape	The empty embossed area which are sealed by top cover-tape must remain more the 40 mm.



f.) Joint of tape

The carrier-tape and top cover-tape should not be jointed.

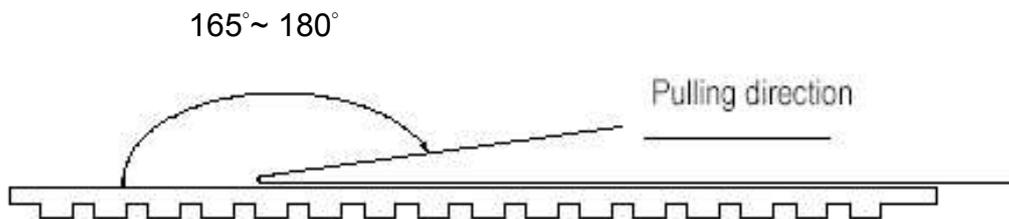
g.) Release strength of cover tape

It has to between 0.1N to 0.7N under following condition.

Pulling direction 165° to 180°

Speed 300mm/min.

Otherwise unless specified.



Other standards shall be based on JIS C 0806-1990.

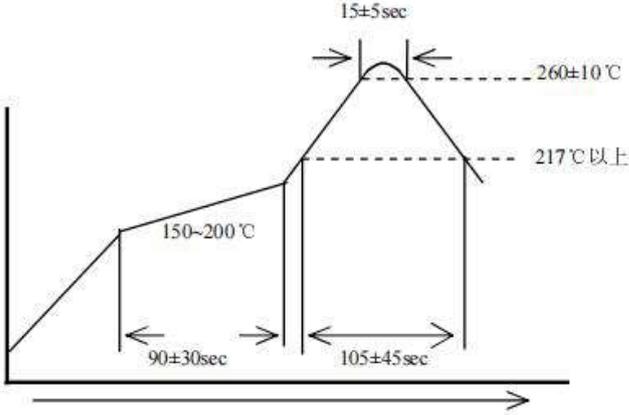
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4. Mechanical Endurance: Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.

	Test Item	Condition of Test	Performance Requirements
4.1	Shock (Destructive)	Resonator shall be tested after 3 times random drops from the height of 75 cm onto hard wooden board of thickness more than 30 mm.	No visible damage, Measured Values shall meet Table 1.
4.2	Vibration (Destructive)	Subject resonator to following vibration Frequency: 10-55Hz Amplitude: 0.75mm Cycle time: 1~2min(10-55-10Hz) Duration: 3 mutually perpendicular Planes in each 2 hours Direction: X, Y, Z	No visible damage, measured Values shall meet Table 1.
4.3	Terminal Strength (Destructive)	Pulling: body of resonator shall be fixed, and 0.5kg of tension weight shall be supplied gradually to axial direction of lead terminals for 30 seconds	The lead shall not be broken, measured Values shall meet Table 1.
		Bending: body of resonator shall be fixed, And 90 °C bending at a distance of 2.5±0.5 mm from crystal main body shall be given being supplied 250g tension weight. after that, lead terminals shall be straightened gradually. Then, the same bending and straightening shall be supplied to the opposite direction in the same axial.	
4.4	Solder ability	Pre-heat temperature : +150±10°C Pre-heat time : 60~120s When the temperature of the specimen is reached at +215±3°C, it shall be left for 30±1sec. Peak temperature 240±5°C Material: Pb-free (Sn-3.0Ag-0.5Cu) Flux : Rosin resin methyl alcohol solvent (1:4) The electrodes should be covered by a new solder at least 90% of immersed area.	No visible damage, measured Values shall meet Table 1.

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4.5	Resistance to Soldering Heat	<p>Run in Reflow Reflow soldering shall be allowed Only two(2) time.</p> <p style="text-align: center;">Available for Lead Free Soldering</p>  <table border="1" data-bbox="456 887 1046 1050"> <tr> <td>(1)</td> <td>Preheat</td> <td>150~200 deg.C</td> <td>90 ± 30sec.</td> </tr> <tr> <td>(2)</td> <td>Primary heat</td> <td>217 deg.C</td> <td>105 ± 45sec.</td> </tr> <tr> <td>(3)</td> <td>Peak</td> <td>260 ± 10 deg.C</td> <td>15 ± 5sec.</td> </tr> </table>	(1)	Preheat	150~200 deg.C	90 ± 30sec.	(2)	Primary heat	217 deg.C	105 ± 45sec.	(3)	Peak	260 ± 10 deg.C	15 ± 5sec.	No visible damage, measured Values shall meet Table 1.
(1)	Preheat	150~200 deg.C	90 ± 30sec.												
(2)	Primary heat	217 deg.C	105 ± 45sec.												
(3)	Peak	260 ± 10 deg.C	15 ± 5sec.												
4.6	Leakage (non-destructive)	The resonator is to be soaked in the alcohol and enforced with the pressure of 25N/cm ² for 5 minutes Next , the resonator shall be tested after being taken out and dried with a dryer.	The Ir between the wire and the shell must be more than 500MΩ.												

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5. Environmental Endurance: Provided that measurement shall be carried out after letting it alone in the room temperature for 1 hour.

Item	Conditions	Specifications
5.1 Humidity	Should be satisfied after letting it alone at $+60^{\circ}\text{C}\pm 2^{\circ}\text{C}$ in humidity of $85\% \pm 5\%$ for 240 hours.	No visible damage, measured Values shall meet Table1.
5.2 Storage in Low Temperature	Should be satisfied after letting it alone at $-30^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 240 hours.	No visible damage, measured Values shall meet Table1
5.3 Storage in High Temperature	Should be satisfied after letting it alone at $+85^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 240 hours.	No visible damage, measured Values shall meet Table1
5.4 Temperature Cycle	Should be satisfied after supplying the following temperature cycle (10 cycles). (Refer to Fig-4). Temperature shift from low to high, high to low shall be done in $1^{\circ}\text{C} /\text{min}$.	No visible damage, measured Values shall meet Table1

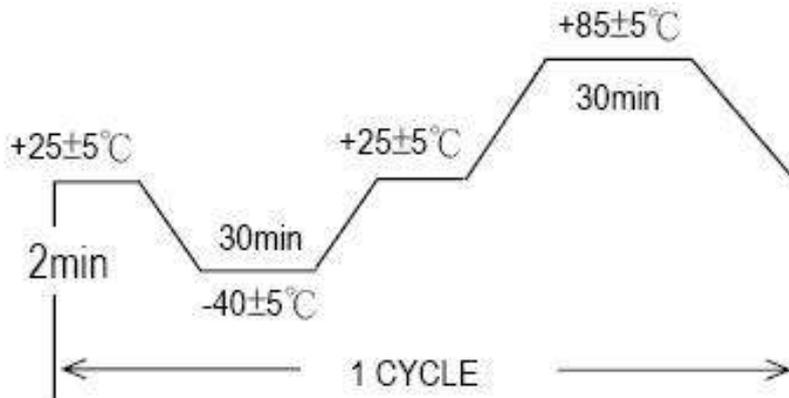


Fig-4

Table 1

Test Item	Specification	Note
Frequency change ($\Delta f/f_0$)	$\pm 5\text{ppm}$	Reference to the initial value
C.I. (ΔR)	15%	Reference to the initial value

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