

深圳市炬烜科技有限公司  
CHIP SUN TECHNOLOGY CO., LTD

**APPROVAL  
SHEET**



**(Seam Type)**

CUSTOMER: MICROS sp.j. W.Kedra i J.Lic  
DESCRIPTION: SMD3225 25.000MHz Quartz Crystal Resonator  
MANUFACTURER PART NO.: FTX25.000M18SM3S-30/30DEW  
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: February 19, 2021



深圳市炬烜科技有限公司

CHIP SUN TECHNOLOGY CO., LTD

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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			DavidJiang

<b>CHIP SUN TECHNOLOGY CO., LTD</b>		
<b>DESCRIPTION</b>	SMD3225 25.000MHz ±30ppm 18pF	Page:
<b>DATE</b>	2021-02-19	2 / 11

# 1. QUARTZ CRYSTAL UNIT SPECIFICATION

- 1.1 Nominal Frequency : 25.000 MHz
- 1.2 Holder type : FTX321S (SMD3225 Seam Type)
- 1.3 Mode of oscillation : Fundamental
- 1.4 Frequency tolerance ( $\Delta FL$ ) :  $\pm 30\text{ppm}$  at  $25^\circ\text{C} \pm 3^\circ\text{C}$
- 1.5 Equivalent resistance (RR) : 50 ohms max
- 1.6 Operating temperature range ( $T_{\text{OPR}}$ ) :  $-20^\circ\text{C}$  To  $+70^\circ\text{C}$
- 1.7 Storage temperature range ( $T_{\text{STG}}$ ) :  $-40^\circ\text{C}$  To  $+85^\circ\text{C}$
- 1.8 Frequency Stability :  $\pm 30\text{ppm}$  at  $-20^\circ\text{C}$  To  $+70^\circ\text{C}$
- 1.9 Loading capacitance (CL) : 12 pF
- 1.10 Drive level ( $D_L$ ) : 100 uW Typical (200uW max)
- 1.11 Shunt Capacitance ( $C_0$ ) : 3.0pF max
- 1.12 Insulation resistance (IR) : More than 500M $\Omega$  at DC 100V
- 1.13 Circuit : Measured in HP/E5100A,S&A 250B
- 1.14 Aging :  $\pm 3$  ppm Max (+25 $^\circ\text{C}$  1<sup>st</sup> 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:

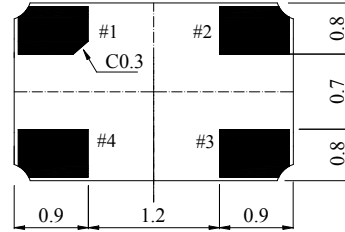
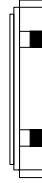
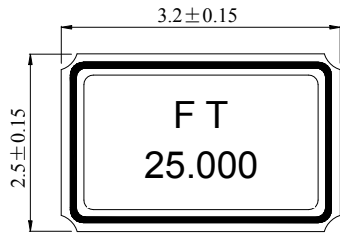
Ambient temperature :  $25 \pm 3^\circ\text{C}$

Relative humidity : 40%~70%

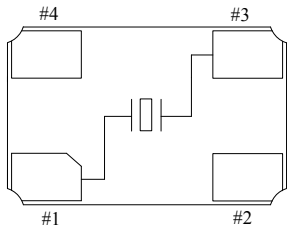
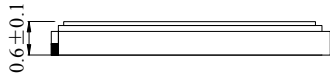
## CHIP SUN TECHNOLOGY CO., LTD

<b>DESCRIPTION</b>	SMD3225 25.000MHz $\pm 30\text{ppm}$ 18pF	<b>Page:</b>
<b>DATE</b>	2021-02-19	3 / 11

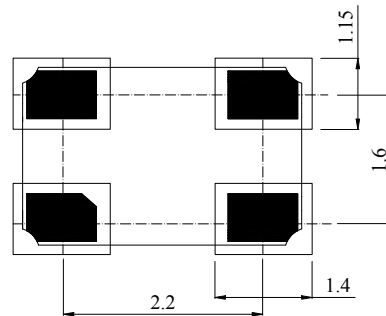
## 2. FTX321S MARKING & DIMENSIONS



Marking #2, #4 is connected with metal cap of top.



<TOP VIEW>



Recommended Solder Pad Layout:

\*Marking should be printed as following:

Logo, Nominal Frequency

\*Manufacturing Logo: FT

\*Nominal frequency = 3 number after decimal point MAX.

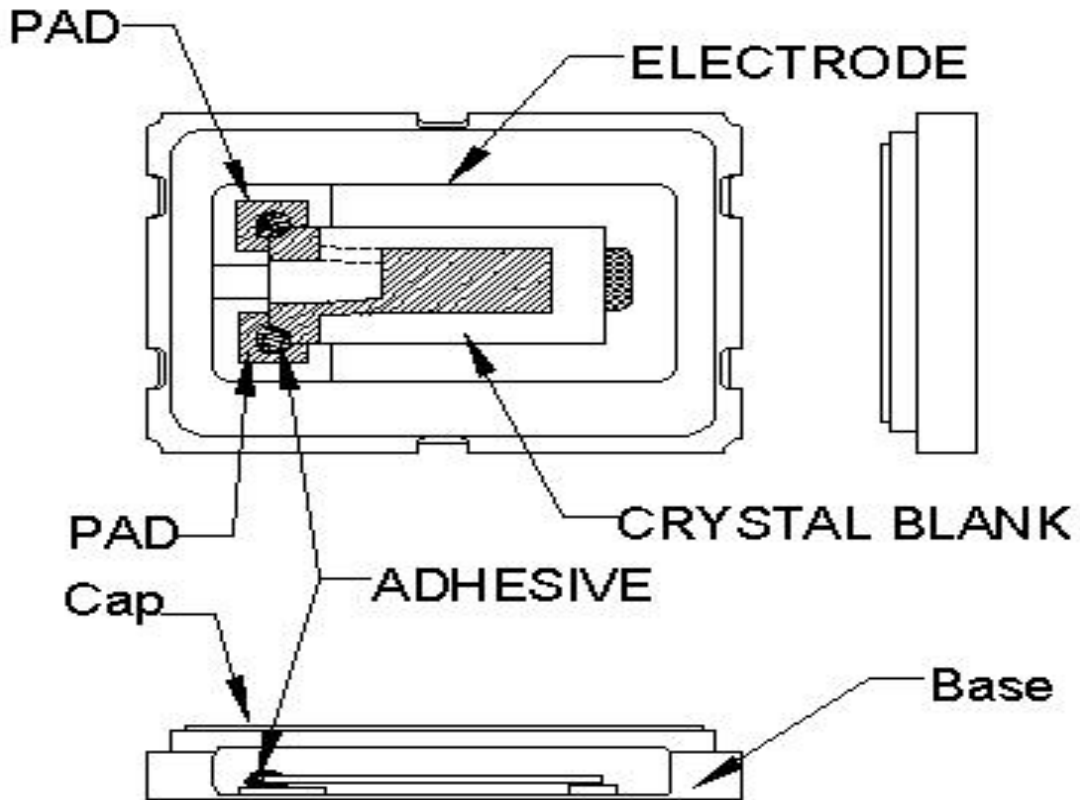
( ex. 25.000 MHz → 25.000 )

Marking: Laser marking

### CHIP SUN TECHNOLOGY CO., LTD

DESCRIPTION	SMD3225 25.000MHz ±30ppm 18pF	Page:
DATE	2021-02-19	4 / 11

### 3. INSIDE STRUCTURE



Reference drawing

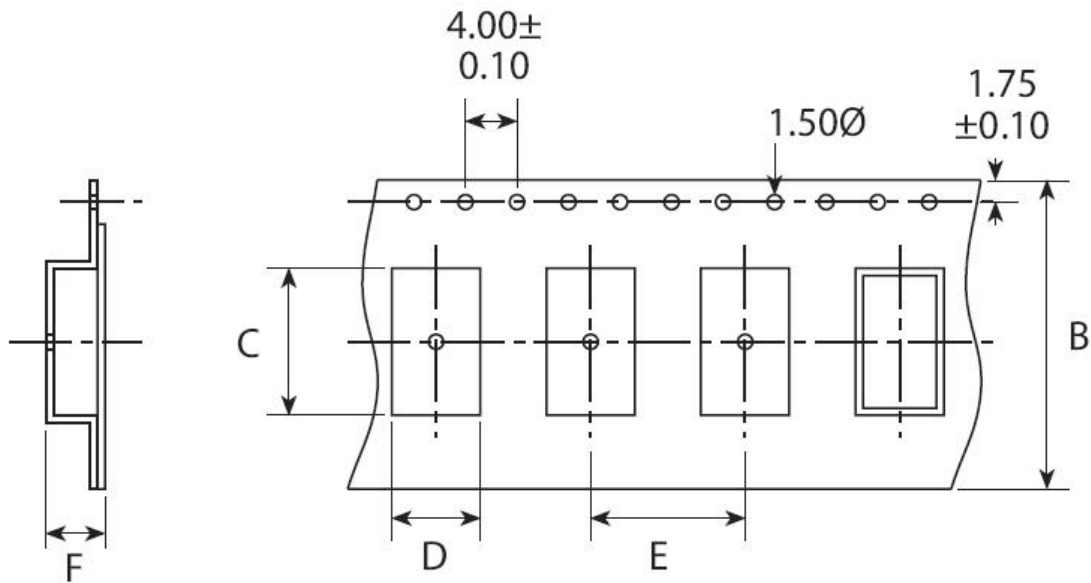
Base:	Alumina Ceramic ( $Al_2O_3$ ) Metallized Pad: W Ni Plating Au Plating
Cap:	Fe-Ni
(3) Crystal Enclosure Seal:	Seal Seam
(4) Crystal Blank	Rectangular At-Cut Quartz Crystal Blank
(5) Adhesive	Silver Conductive Polyimide Resin
(6) Electrode	Ag
(7) PAD	Alumina Ceramic (W. Ni. Au)

#### CHIP SUN TECHNOLOGY CO., LTD

DESCRIPTION	SMD3225 25.000MHz $\pm 30ppm$ 18pF	Page:
DATE	2021-02-19	5 / 11

## 4. FTX321S EMBOSS CARRIER TAPE & REEL

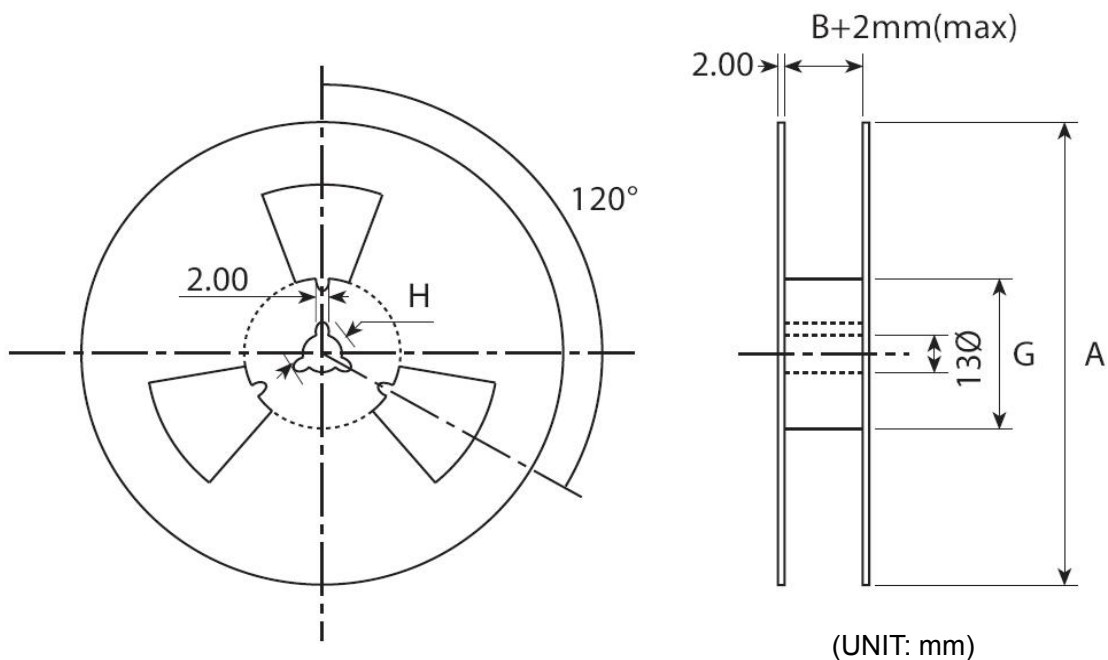
### a.) Dimensions of Carrier Tape



	A	B	C	D	E	F	G
SMD3225	178±2.0	8.0±0.3	3.55±0.10	2.80±0.10	4.0±0.1	0.85±0.10	60.5±1.0

### b.) Dimensions of Reel

(UNIT: mm)



(UNIT: mm)

### c.) Storage condition

CHIP SUN TECHNOLOGY CO., LTD		
DESCRIPTION	SMD3225 25.000MHz ±30ppm 18pF	Page:
DATE	2021-02-19	6 / 11

Temperature: +40deg.C Max.

Relative Humidity: 80% Max.

d.) Standard packing quantity

3,000PCS / REEL

e.) Material of the tape

Tape	Material
Carrier tape	A – PET
Top tape	Polyester

f.) 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.

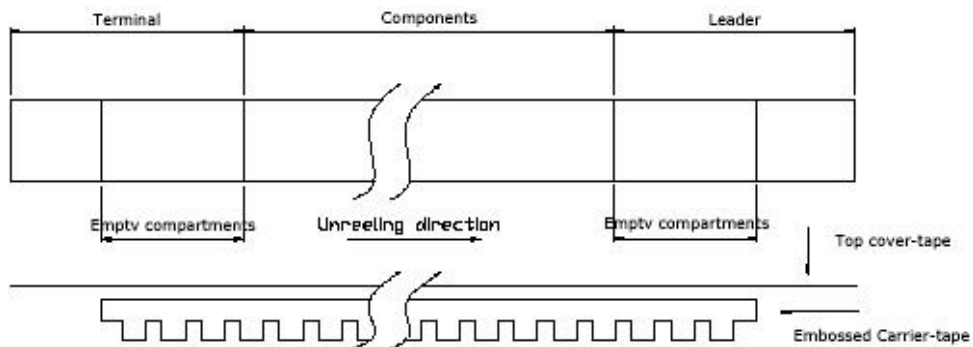
PART NUMBER	
PO NO	
PR. NO:	
HOLDER TYPE	
FREQUENCY	
REMAKS	
QUANTITY	
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**CHIP SUN TECHNOLOGY CO., LTD**

<b>DESCRIPTION</b>	SMD3225 25.000MHz $\pm$ 30ppm 18pF	Page:
<b>DATE</b>	2021-02-19	7 / 11

g.) 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.



h.) Joint of tape

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

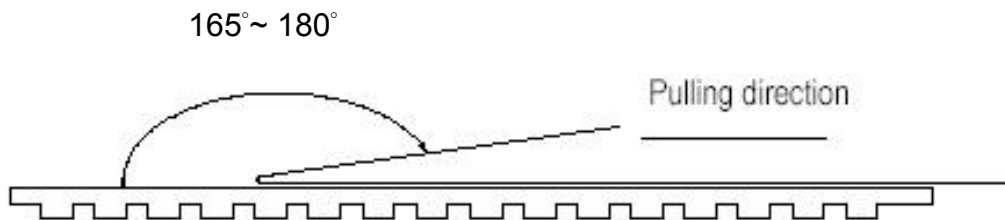
i.) Release strength of cover tape

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.

CHIP SUN TECHNOLOGY CO., LTD		
DESCRIPTION	SMD3225 25.000MHz ±30ppm 18pF	Page:
DATE	2021-02-19	8 / 11



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

	Item	Conditions	Specifications
5.1	Drop	Method: fallen on the concrete (thickness is 3cm or more) Height: 75 cm Direction: each direction of 3 mutually perpendicular ( x、 y、 z ) axis. Number of shocks: 2 shocks in each direction	Freq. Drift $\pm$ 5ppm Max Resistance Drift $\pm$ 15% Max
5.2	Vibration	Should be satisfied after supplying following vibration. (1)Vibration Frequency: 10~55Hz (2)Cycle: 1 to 2 Min. (3)Full Cycle: 1.5mm P-P. (4)Direction: X.Y.Z (5)Time: 2 Hours / Each Direction	Freq. Drift $\pm$ 5ppm Max Resistance Drift $\pm$ 15% Max
5.3	Substrate Bending	Mount the specimen on substrate. Apply the following pressure Direction: see Fig -1 Speed: 0.5 mm/sec Hours: 5 $\pm$ 1 sec Amount of substrate: 3 mm Max.	Without mechanical damage such as breaks.  Without electrode peeling.  Electrical characteristics shall be satisfied.
5.4	Adhesion	Mount the specimen on substrate. Apply the following pressure Direction: see Fig -2 Weight: 10N Hours: 10 $\pm$ 1 sec	
5.5	Body strength	Mount the specimen on substrate. Apply the following pressure Direction: see Fig -3 Weight: 10N Hours: 10 $\pm$ 1 sec	

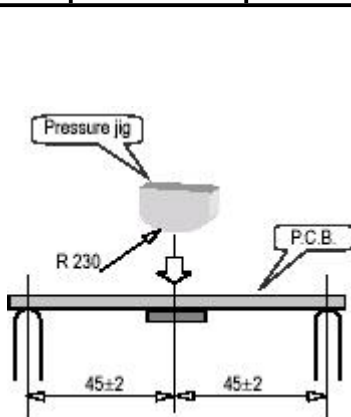


Fig-1

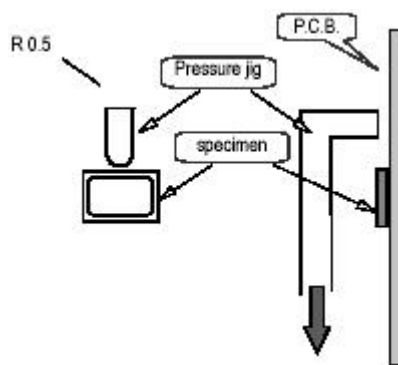


Fig-2

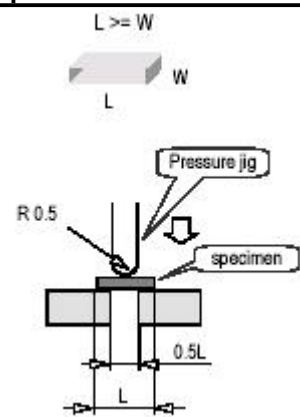
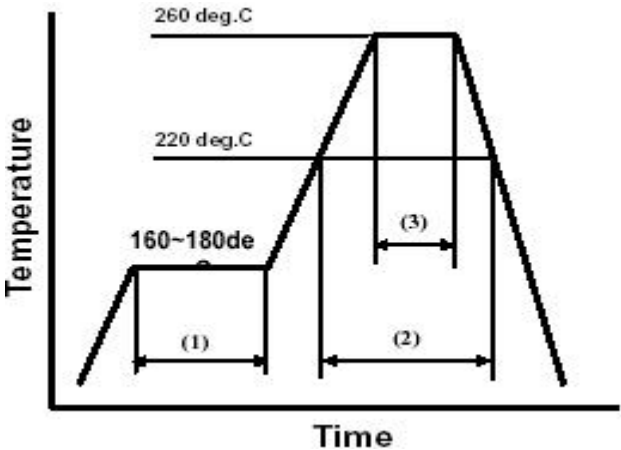


Fig-3

**CHIP SUN TECHNOLOGY CO., LTD**

<b>DESCRIPTION</b>	SMD3225 25.000MHz $\pm$ 30ppm 18pF	Page:
<b>DATE</b>	2021-02-19	9 / 11

5.6	Seal	Less than $3.0 \times 10^{-8}$ atm.cc/sec by Helium leak detector. Also, no serial bubble is observed by Fluorinate tests.													
5.7	Solder ability	3 sec Dip in $235^{\circ}\text{C} \pm 5^{\circ}\text{C}$ solder. (Use ROSIN type flux for solder.)	More than 90% of lead shall be covered by new solder.												
5.8	Resistance to Soldering Heat	<p>Run in Reflow Reflow soldering shall be allowed Only two(2) time.</p> <p style="text-align: center;"><b>Available for Lead Free Soldering</b></p>  <table border="1" data-bbox="451 1232 1010 1355"> <tr> <td>(1)</td> <td>Preheat</td> <td>160~180 deg.C</td> <td>120sec.</td> </tr> <tr> <td>(2)</td> <td>Primary heat</td> <td>220 deg.C</td> <td>60sec.</td> </tr> <tr> <td>(3)</td> <td>Peak</td> <td>260 deg.C</td> <td>10sec. Max.</td> </tr> </table> <p style="text-align: right;">Freq. Drift <math>\pm 5\text{ppm Max.}</math> Resistance Drift <math>\pm 20\% \text{ Max.}</math></p>		(1)	Preheat	160~180 deg.C	120sec.	(2)	Primary heat	220 deg.C	60sec.	(3)	Peak	260 deg.C	10sec. Max.
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**CHIP SUN TECHNOLOGY CO., LTD**

<b>DESCRIPTION</b>	SMD3225 25.000MHz $\pm 30\text{ppm}$ 18pF	Page:
<b>DATE</b>	2021-02-19	10 / 11

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

	Item	Conditions	Specifications
6.1	Humidity	Should be satisfied after letting it alone at $+60^{\circ}\text{C}\pm 2^{\circ}\text{C}$ in humidity of 90%~95% for 500 hours.	Freq. Drift $\pm 5\text{ppm}$ Max Resistance Drift $\pm 15\%$ Max
6.2	Storage in Low Temperature	Should be satisfied after letting it alone at $-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$ for 500 hours.	Freq. Drift $\pm 5\text{ppm}$ Max Resistance Drift $\pm 15\%$ Max
6.3	Storage in High Temperature	Should be satisfied after letting it alone at $+85^{\circ}\text{C}\pm 3^{\circ}\text{C}$ for 500 hours.	Freq. Drift $\pm 5\text{ppm}$ Max Resistance Drift $\pm 15\%$ Max
6.4	Temperature Cycle	Should be satisfied after supplying the following temperature cycle ( 100 cycles). (Refer to Fig-4). Temperature shift from low to high, high to low shall be done in $1^{\circ}\text{C}/\text{min}$ .	Freq. Drift $\pm 5\text{ppm}$ Max Resistance Drift $\pm 15\%$ Max

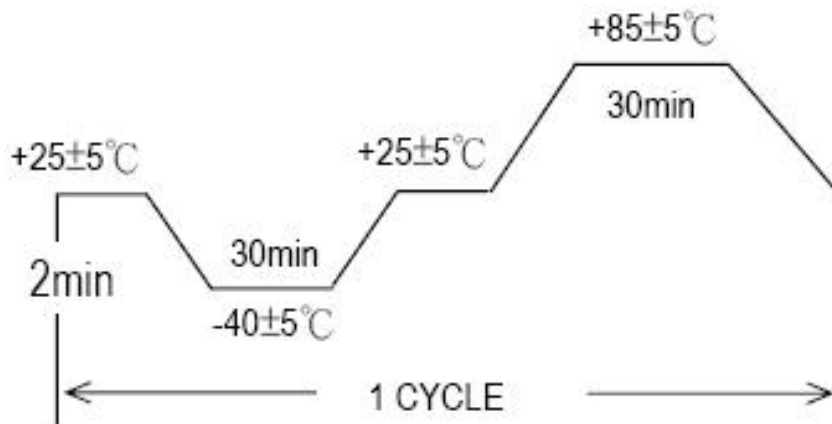


Fig-4

CHIP SUN TECHNOLOGY CO., LTD		
DESCRIPTION	SMD3225 25.000MHz $\pm 30\text{ppm}$ 18pF	Page:
DATE	2021-02-19	11 / 11