

# SPECIFICATION FOR APPROVAL



CUSTOMER : JWT1521  
 PRODUCT NAME : QUARTZ CRYSTAL UNIT  
 HOLD TYPE : SMD 3225-4P  
 NOMINAL FREQ. : 24.000MHz  
 CUSTOMER P/N : \_\_\_\_\_  
 JWT P/N : CF4024M00012T1521001  
 ISSUE DATE : 2022-10-12

PREPARED	CHECKED	APPROVED
王文蓉	唐梦梦	姚良元

CUSTOMER APPROVAL:

CHECKED	APPROVED

Please return one copy with approval to JWT



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## RECORD OF REVISION

Rev.No	page	Revise contents	Date	Reviser	Checked
0.1	1	Initial released	2022.10.12	Wang Wenhui	Tang Mengmeng

## SPEC SHEET CONTENTS

No.	Content	page
1	PRODUCT DESCRIPTION	3
2	ELECTRICAL SPECIFICATIONS	3
3	DIMENSIONS	4
4	MARKING	4
5	SUGGESTED REFLOW PROFILE	4
6	STRUCTURE ILLUSTRATION	5
7	EMBOSS CARRIER TAPE & REEL	6~7
8	RELIABILITY SPECIFICATIONS	8~9

## ● PRODUCT DESCRIPTION

### 1. Holder Form

Epoxy Resin     Resistance Welding     Laser Welding     AuSn Welding

### 2. Holder Medium

N2     Vacuum     Others

### 3. Standard atmospheric conditions

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

Ambient temperature :        25±10°C

Relative humidity        :        45%~75%

If there is any doubt about the results, measurement shall be made within the following limit:

Ambient temperature :        25±1°C

Relative humidity        :        48%~52%

### 4. Measure equipment

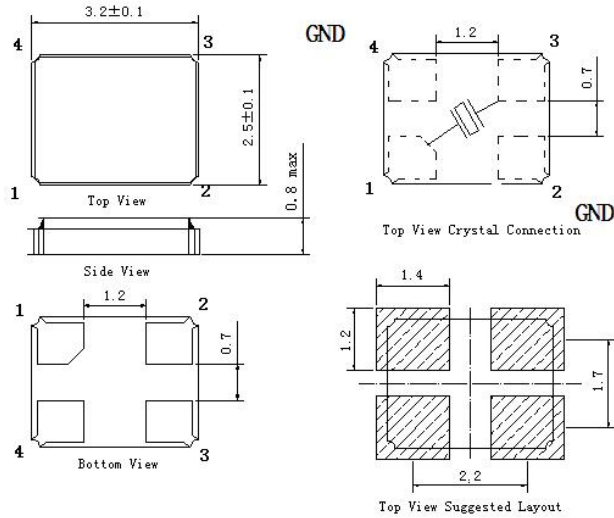
Electrical characteristics measured by S&A 250B and insulation resistance tester or equivalent.

## ● ELECTRICAL SPECIFICATIONS

NO.	Parameters	Symbol	Specifications				Notes
			Min	Type	Max	Units	
1	Nominal frequency	F0	24.000			MHz	
2	Mode of Oscillation	-	Fundamental				AT-CUT
3	Load Capacitance	CL	12			pF	
4	Frequency Tolerance	FL	±10			ppm	at 25±2°C
5	Frequency Stability	TC	±20			ppm	reference 25°C
6	Operating Temperature	-	-40	~	+85	°C	
7	Drive Level	DL	1	100	300	uW	
8	Effective Resistance	RR	≤ 35			Ω	
9	Shunt Capacitance	C0	≤ 3.0			pF	
10	Insulation Resistance	IR	≥ 500			M Ω	at DC 100V
11	Spurious Ratio	SPDB	≤ -3			dB	F0±500KHz
12	Aging	-	±2			ppm	First year
13	Storage Temperature Range	-	-55	~	+125	°C	

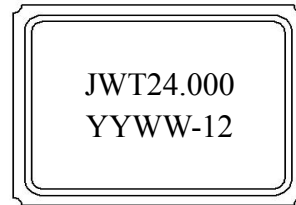
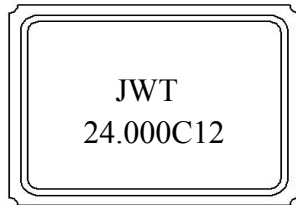
# ● DIMENSIONS

(unit: mm)



Note: Different manufacturers have different shape and the base of pin, but it has not influence on using.

# ● MARKING

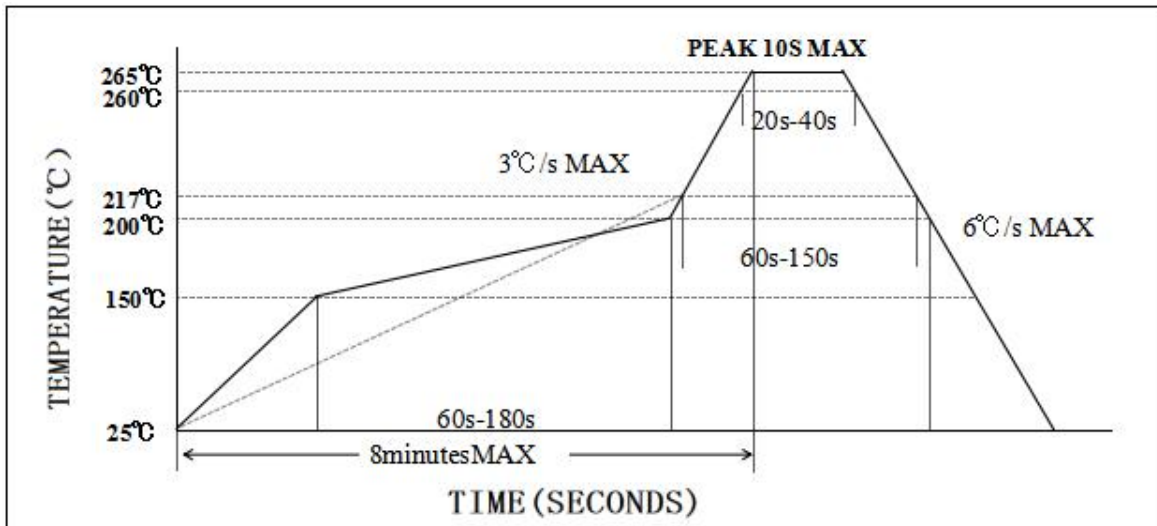


JWT ----- Logo  
 24.000 ----- Frequency  
 C12 ----- Load Capacitance

JWT ----- Logo  
 24.000 ----- Frequency  
 YYWW ----- Year Week  
 12 ----- Load Capacitance

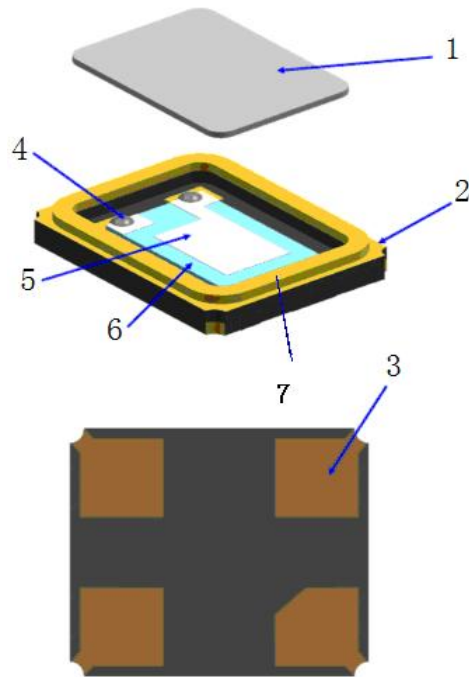
Marking regulation: Adopting double figures upon year and week. Eg.1045 refers to the forty-fifth week of 2010, and 1103 refers to the third week of 2011. A week has seven days.

# ● SUGGESTED REFLOW PROFILE



Reference standard: JEDEC J-STD-020. (lead free)

## ● STRUCTURE ILLUSTRATION

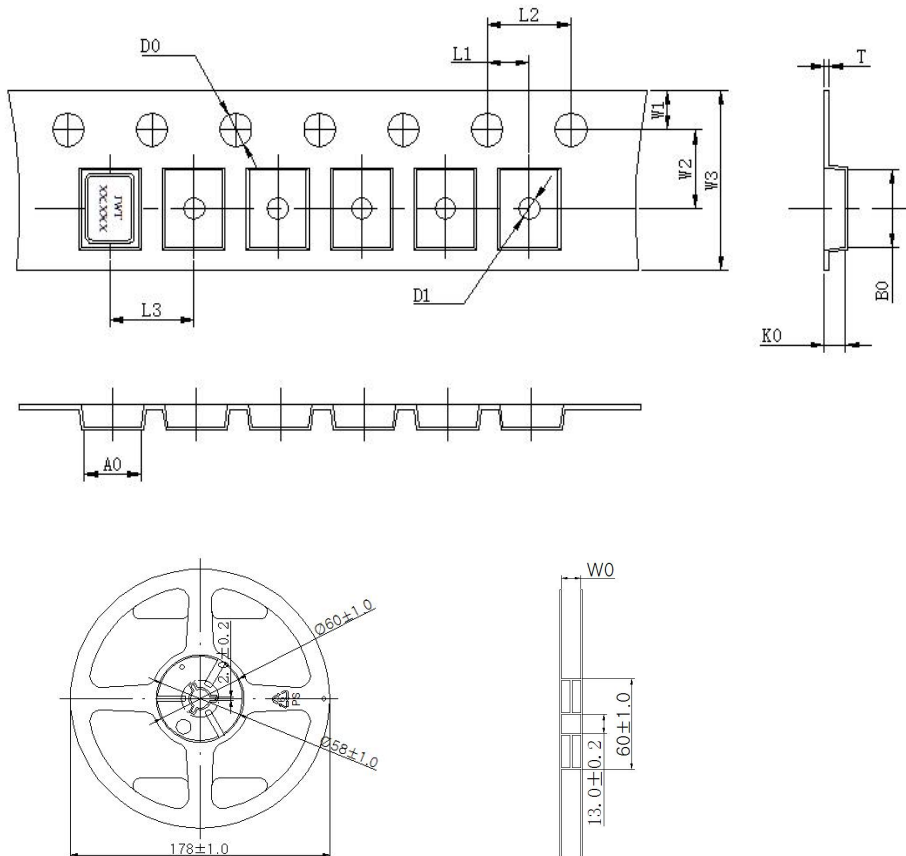


NO.	COMPONENTS	MATERIALS	QTY
1	Cap(Lid)	kovar	1
2	Base(Package)	Al <sub>2</sub> O <sub>3</sub>	1
3	Pad(Package)	Au	4
4	Conductive adhesive	Ag+ Silicone resin	4
5	Electrode	Noble Metal	2
6	Crystal blank	SiO <sub>2</sub>	1
7	Kovar ring	Kovar ring alloy	1

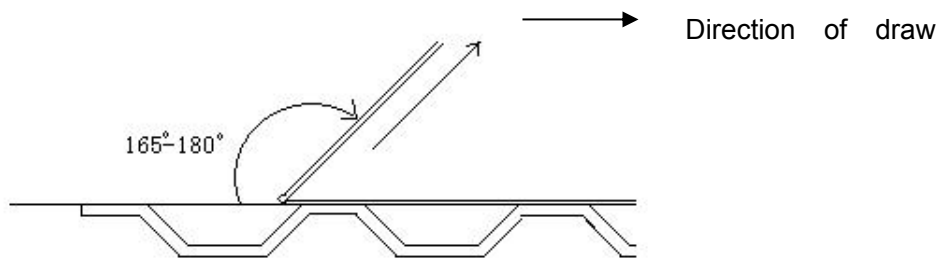
# ● EMOSS CARRIER TAPE & REEL

(unit: mm)

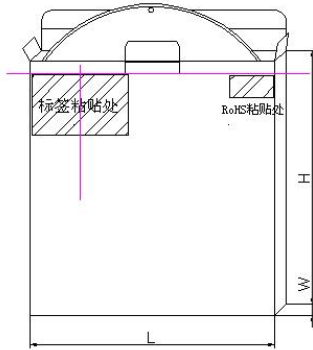
## 1. Dimension of taping and reel



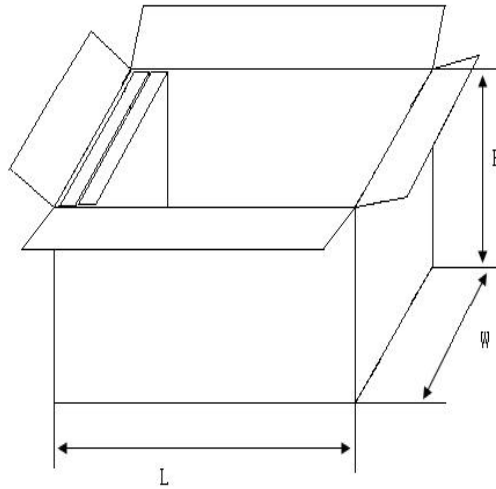
## 2. peel force of top cover tape shall be 20g to 100g



### 3. Packing



1 Reel/Inner Box



10 In-Boxer/Catton(Standard)

#### Package & Quantity

Type	Size (L*W*H)	Quantity
Inner Box	180*20*180	3000pcs
Catton	240*200*200	30000pcs

**Standard Reel Quantity is 3000pcs per reel.**

### 4. Contents of Packaging Labels

- \* CUSTOMER No.
- \* NOMINAL FREQUENCY
- \* LOAD CAPA.
- \* FREQ. TOLERANCE
- \* ESR
- \* DATE
- \* LOT.
- \* P/N
- \* HOLDER TYPE
- \* QUANTITY
- \* MARKING

#### ★ Remark

**Customer specified requirements for marking , Labels, packaging, please provide the operation procedure.**

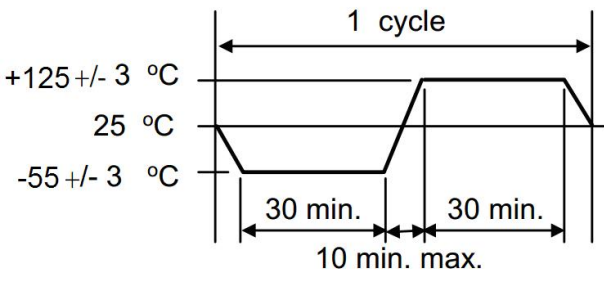


# ● RELIABILITY SPECIFICATIONS

## 1. MECHANICAL ENDURANCE

No.	Test Item	Experimental standard	Test Methods	Test Criteria
1	Drop Test	GB/T2423.8	Electrical characteristics shall be satisfied after dropping three times from the height of 150cm onto the board of the 3cm thickness.	A、C
2	Mechanical Shock	GB/T2423.5	Device are shocked to half sine wave ( 1000 G ), duration time :0.5ms, and three mutually perpendicular axes each 3 times	A、C
3	Vibration	GB/T2423.10	Frequency range 10 ~ 2000Hz Amplitude 1.52mm Sweep Time 20 min Direction x,y,z Test time 2hours/Each Direction	A、C
4	Solder ability	IEC60068-2-58	Temperature 245 °C±5 °C Immersing depth 0.5 mm minimum Immersion time 3±0.5 seconds Flux Rosin resin methyl alcohol solvent ( 1 : 4 )	E

## 2. ENVIRONMENTAL ENDURANCE

No.	Test Item	Experimental standard	Test Methods	Test Criteria
5	Resistance To Soldering Heat	IEC60068-2-58	Pre-heat temperature 180 °C Pre-heat time 60 ~ 120 sec. Test temperature 260±5°C Test time 10±1 sec.	A、C、D
6	High Temp. Storage	GB/T2423.2	+ 125°C±2°C for 500 ±12 hours	A、C、D
7	Low Temp. Storage	GB/T2423.1	-40 °C±2 °C for 500±12 hours	A、C、D
8	Thermal Shock	GB/T2423.22	Total 10 cycles of the following temperature cycle  <p>The diagram shows a temperature cycle with three levels: +125 +/- 3 °C, 25 °C, and -55 +/- 3 °C. A cycle consists of a 30 min dwell at +125 °C, a transition to -55 °C (labeled 10 min. max.), a 30 min dwell at -55 °C, and a transition back to +125 °C. The total duration of one cycle is indicated as 1 cycle.</p>	A、C、D
9	High Temp & Humidity	GB/T2423.3	85°C± 3°C, RH 85%,500Hrs	A、C、D

### 3. RELIABILITY SPECIFICATIONS

Specifications	
A	Frequency change: Within $\pm 5$ ppm or in customer's specification.
B	Frequency change: Within $\pm 10$ ppm or in customer's specification.
C	Effective resistance (RR) change: Within $\pm 20\%$ or $5\Omega$ (larger value).
D	After conditioning, quartz crystal units shall be subjected to standard atmospheric conduction for 2 hour, and measured.
E	Minimum 95% of immersed terminal shall be covered with new uniform solder.

**★Note:**

1. The above reliability items are routine test items of our company. If customers have requirements for products such as drop, impact, collision and ultrasonic welding process, please feed back your requirements to our company, and our company will update the reliability items of the products.

2. After the client heats the crystal, in order to ensure the accuracy of frequency, it is recommended to fully cool the crystal before relevant tests.

3. The product meets the requirements of environmental protection standards, please contact us when you need test report.