



深圳市科源信科技有限公司  
Shenzhen KeYuanXin Technology CO.,LTD

# 产品规格书

**SPECIFICATION FOR APPROVAL**

深圳市福田区振华路 118 号华丽装饰一栋西座 306A  
306A Block West Building 1, Huali Decoration  
NO.118 Zhenhua Road Futian District Shenzhen  
电话 TEL: 4008-735-535 传真 FAX: 0755-23616323



Product Name:

Crystal

---

Product Type:

SMD 2520

---

Nominal Freq:

32.0000MHz

---

ProvideBrand:

PARTRON

---

P/N:

CXZ3X320000CJVRC01

---

Customer P/N:

---

Approved By Customer

**Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

## Contents

1. Revision History	- - -	3
2. Specification	- - -	4
3. Mechanical characteristics	- - -	6
4. A Primary test result	- -	7
5. Reliability test	- - -	8
6. Soldering condition	- - -	9
7. Construction & material	- - -	10
8. Notices	- - -	11
9. Packing	- - -	12

PRELIMINARY



## 1. Scope

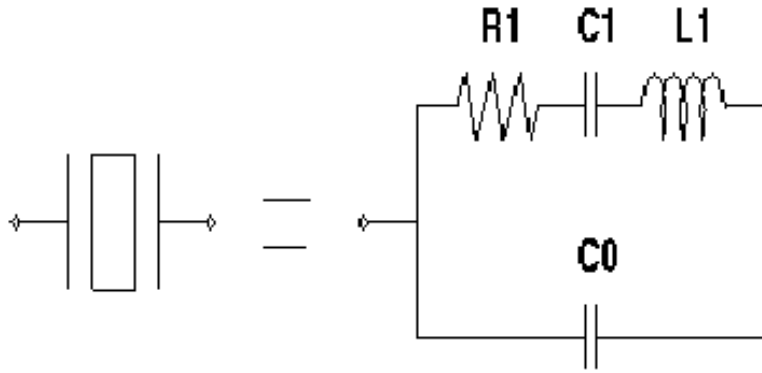
This specification is for SMD crystal units

## 2. Electrical Characteristics

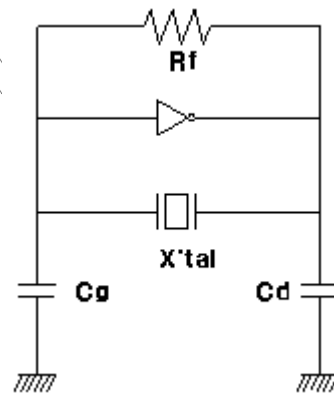
No.	Item	Symbol	Content
2.1	Frequency	$f_0$	32.0000 MHz
2.2	Frequency Tolerance <span style="border: 1px solid red; padding: 2px;">CTQ</span>	$\Delta f/f_0$	$\pm 20$ ppm (@+25°C $\pm 2^\circ\text{C}$ )
2.3	Temperature range	Storage	$T_{STG}$ -40 to 85°C
		Operating	$T_{OPR}$ -20 to 70°C
2.4	Frequency stability	$\Delta f/f_0$	$\pm 30$ ppm (-20 to +70°C, Ref.@+25°C $\pm 2^\circ\text{C}$ )
2.5	Drive level	DL	100 uW max.
2.6	Equivalent series resistance	R1	40 $\Omega$ max.
2.7	Oscillation mode	O/T	Fundamental
2.8	Shunt capacitance	C0	5 pF max.
2.9	Motional capacitance	C1	10 fF max.
2.10	Load capacitance	$C_L$	12.0 pF
2.11	Aging	fa	$\pm 3$ ppm/3year max. (@+25°C $\pm 2^\circ\text{C}$ )
2.12	Insulation resistance	IR	500 M $\Omega$ min @ 100VDC

[REMARK]

## 2-1 Crystal Equivalent Circuit and Application Circuit



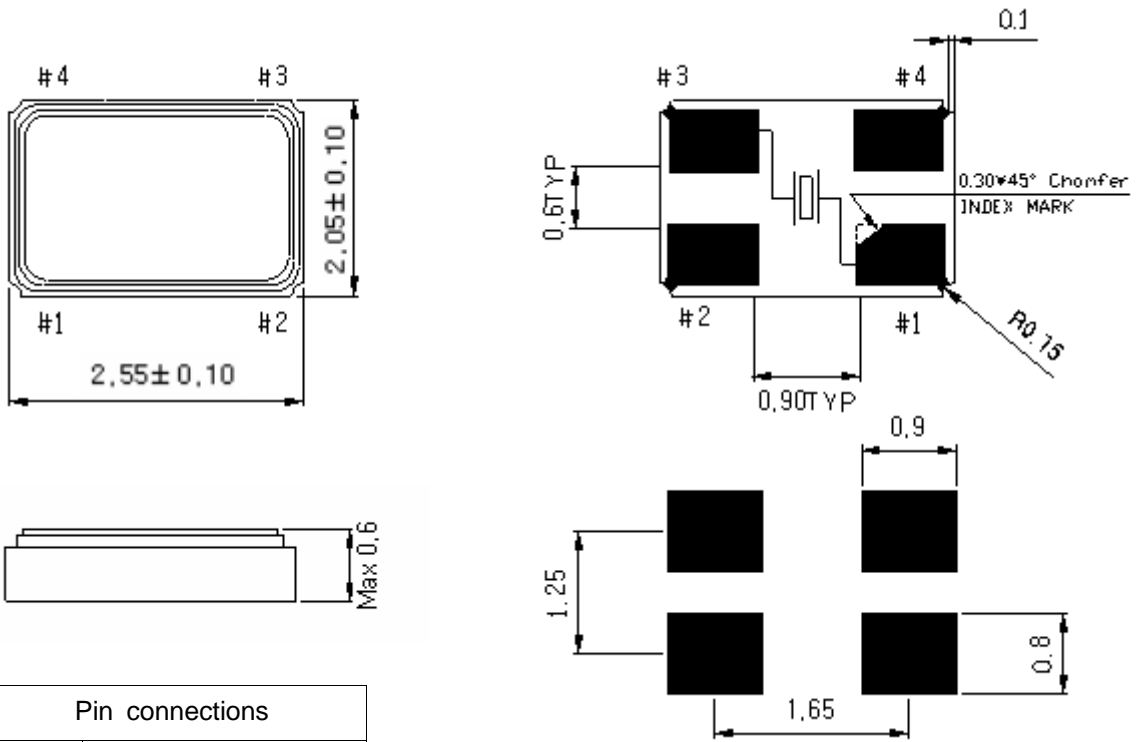
[Crystal and equivalent circuit]



[Application circuit for oscillation]

### 3. Mechanical characteristics

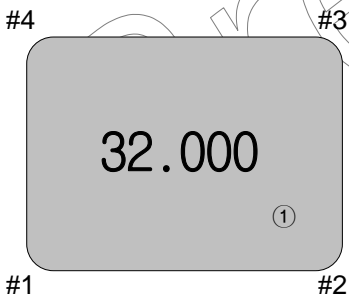
#### 3-1 Outline Dimensions and Pin connections



Pin connections	
#1	HOT
#2	GND
#3	HOT
#4	GND

[Recommended solder pad layout]

#### 3-2 Marking and LOT No (OEM Marking)



※Laser Marking

ITEM	MARKING	REMARK
①	32.000	OEM Marking

#### 4. A Primary test result

##### Electrical Characteristics Testing Data

Preliminary



## 5. Reliability test

### 5.1 Environment Test

Contents	Condition	Remark
High temperature Storage	+125°C±5°C, 240 hr	*Testing is complete, leave at room temperature for 24 hours, and Measure.(25°C±5°C) * Be satisfied with contents No 2. Specification
Low temperature Storage	-55°C±5°C, 240 hr	
High temperature High humidity Storage	+85°C±5°C, RH=85%, 96 hr	
PCT	+121°C±5°C, RH=100%, 24hr	

### 5.2 Thermal shock , Reflow Test

Contents	Condition	Remark
Thermal shock	-45°C±5°C,+90°C±5°C, 30 min, 32 cycle	*Testing is complete, leave at room temperature for 24 hours, and Measure.(25°C±5°C) * Be satisfied with contents No 2. Specification
REFLOW	Pre Heating 200±5°C , 30~60 sec Peak Heating 260°C±5°C , 30sec Max	

### 5.3 Mechanical Test

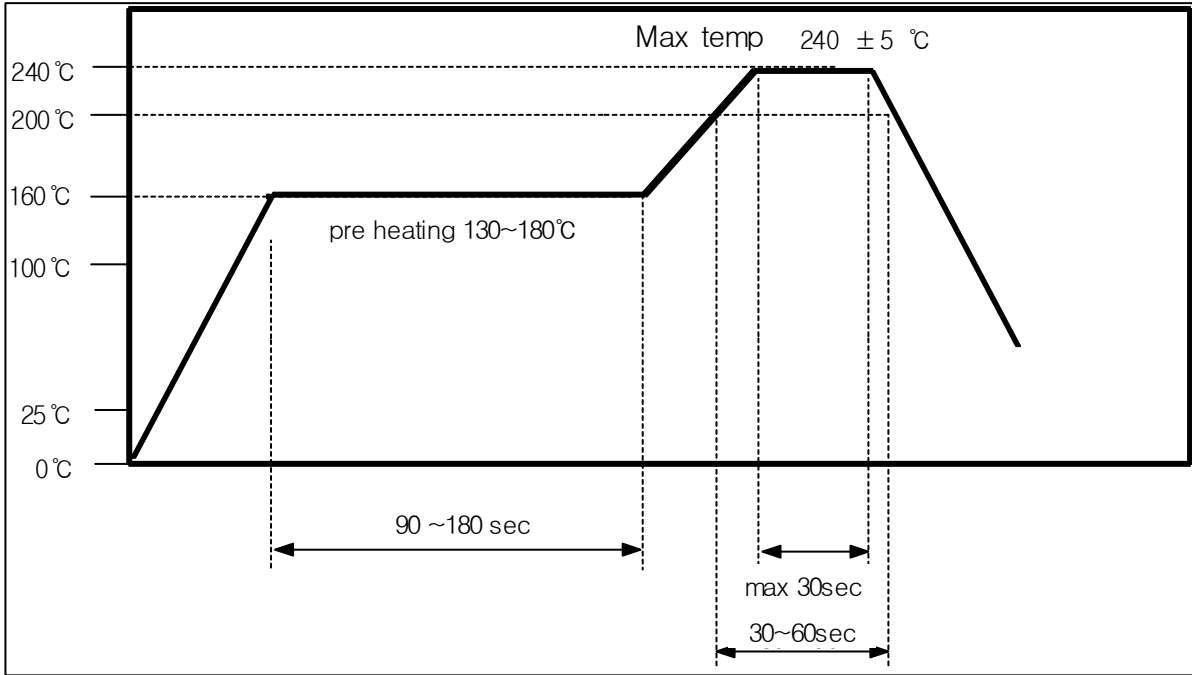
Contents	Condition	Remark
Vibration	Frequency : 10~500Hz, 10 x9.8m/s <sup>2</sup> (G) Sweep time 15min ,X.Y.Z each 5 times	*Testing is complete, leave at room temperature for 1 hours, and Measure.(25°C±5°C) * Be satisfied with contents No 2. Specification
Drop test	12 times falling at a 160cm height (falling with jig)	

### 5.4 Table

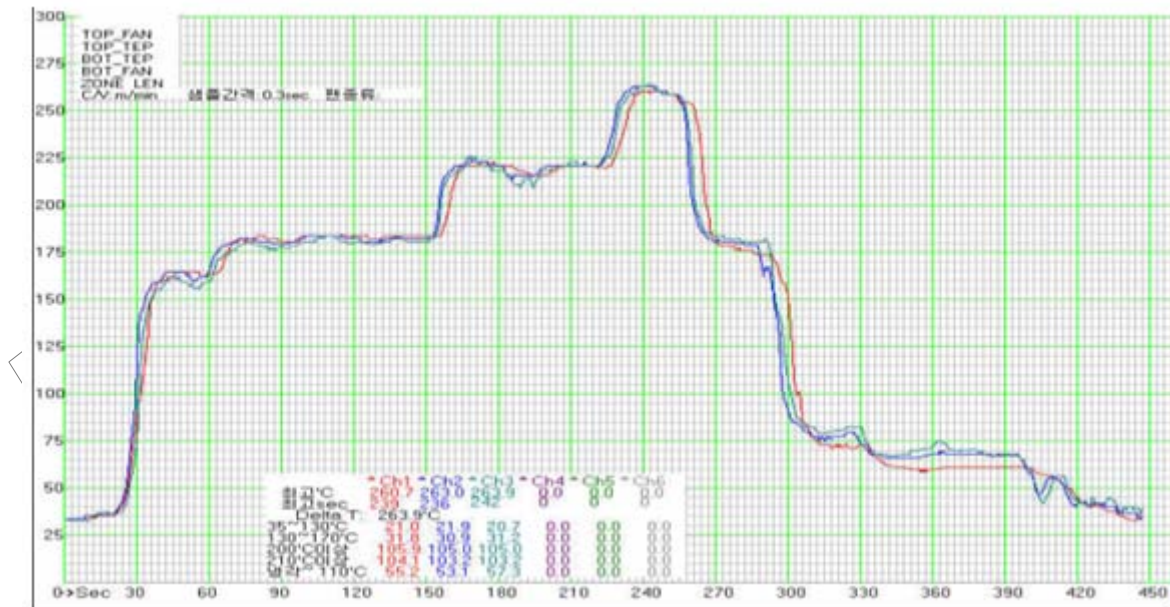
Frequency change permitted	±3ppm Max.
----------------------------	------------

## 6. Soldering Condition

### 6.1 Standard Reflow soldering condition



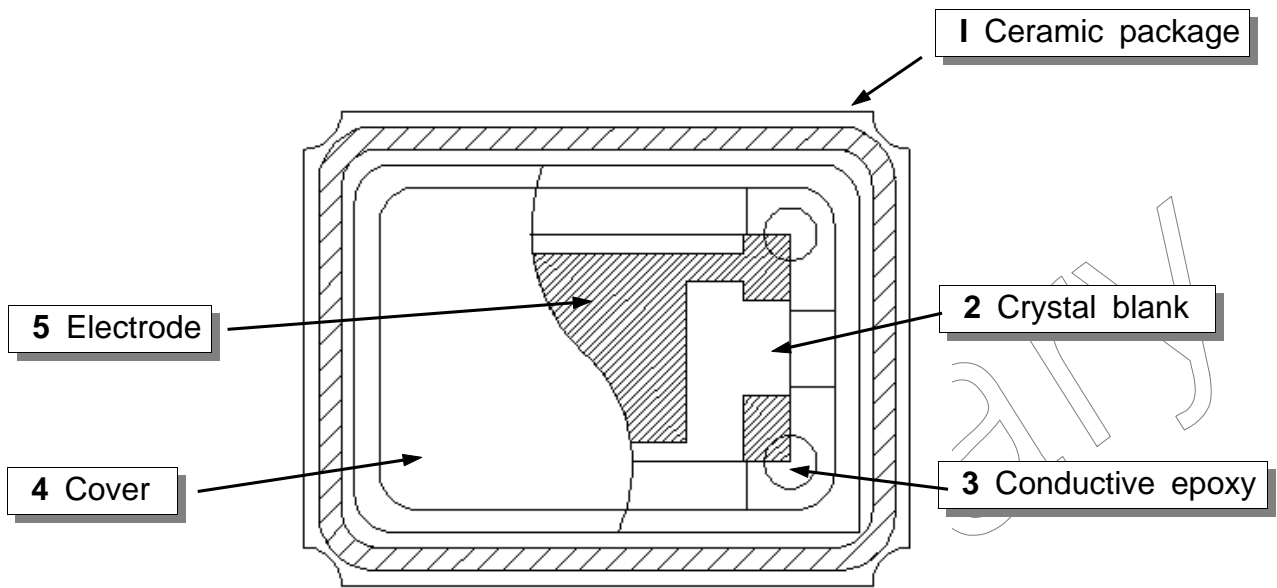
### 6.2 The maximum temperature guarantees to the 260°C(10sec Max)



### 6.3 Soldering Iron Method

- Pre heating : 120°C (30 ~ 300 sec)
- Max temp : 410°C Max
- Time : Max 4 sec

## 7. Construction



No	item
1	Ceramic package
2	Crystal blank
3	Conductive Epoxy
4	Lid(Cover)
5	Electrode

## 8. Notices

8-1 Max. two(2) times reflow is allowed.

Once miss soldering is happen, hand work soldering by soldering iron is recommended.  
(+400°C x within 5 sec)

8-2 Ultrasonic vibration may cause deterioration and destruction of the components.

Please avoid ultrasonic cleaning

8-3 We recommend storing products at +15°C to +35°C and 25% R.H to 75% R.H

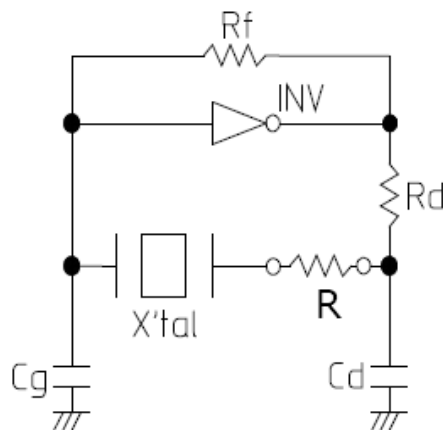
8-4 ESD Level : Class2(2000V ~ 4000V)

8-5 MSL LEVEL 1 (JEDEC J-STD-020C)

ITEM	Floor Life		Soak Requirements	
	Time	Conditions	Time	Conditions
1	Unlimited	=< 30°C/85%RH	165+5/-0	=< 85°C/85%RH

8-6 Unless adequate negative resistance is allocated in the oscillation circuit, start up time of oscillation may be increased, or no oscillation may occur. In order to avoid this, please provide enough negative resistance in the circuit design.

© How to check the negative resistance



- (1) Connect the resistor (R) to the circuit in series with the crystal resonator.
- (2) Adjust R so that oscillation can start (or stop).
- (3) Measure R when oscillation just start (or stop) in above (2).
- (4) Get the negative resistance  
 $-R = R + CI$  value
- (5) Recommended -R  
 $[-R] > CI \times 5$

## 9. Packing

### 9.1 Reel, carrier tape material

item	Main Material
Cover Tape	PE (Polyester film)
Carrier Tape	PC (Poly Carbonate +Carbon) or (Clear Poly Carbonate)
Reel	PS (Poly Styrene)

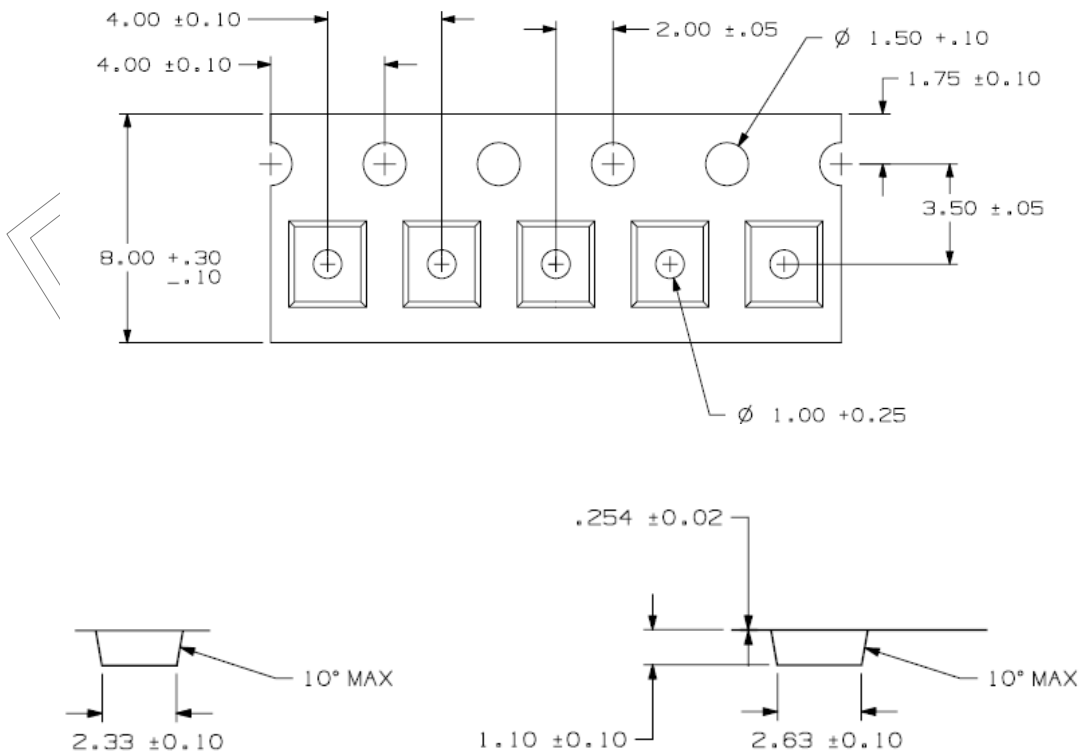
9.2 inner Box :1 reel/inner box and 3,000 pcs/1 reel.

9.3 Outer Box : 10 inner boxes/Outer Box

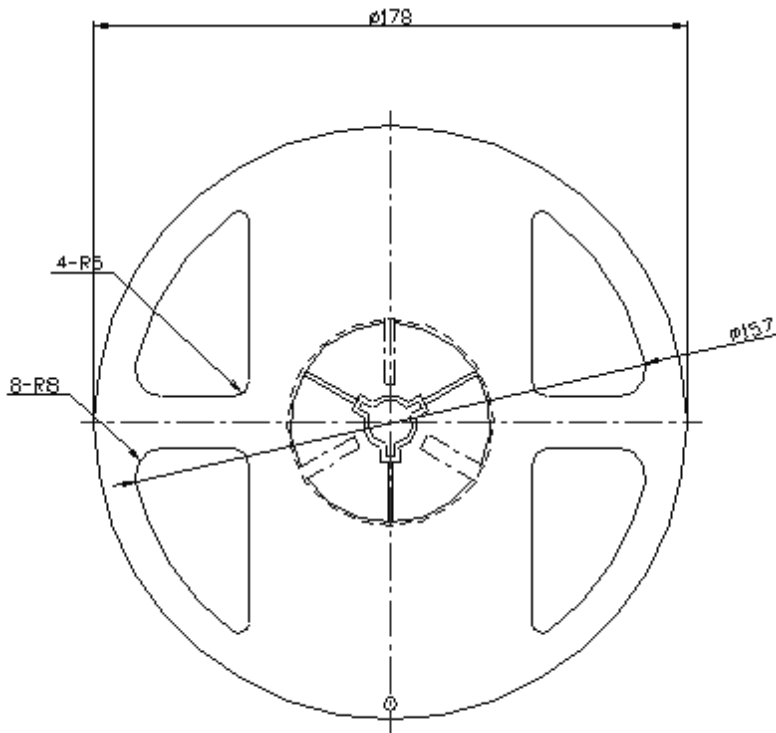
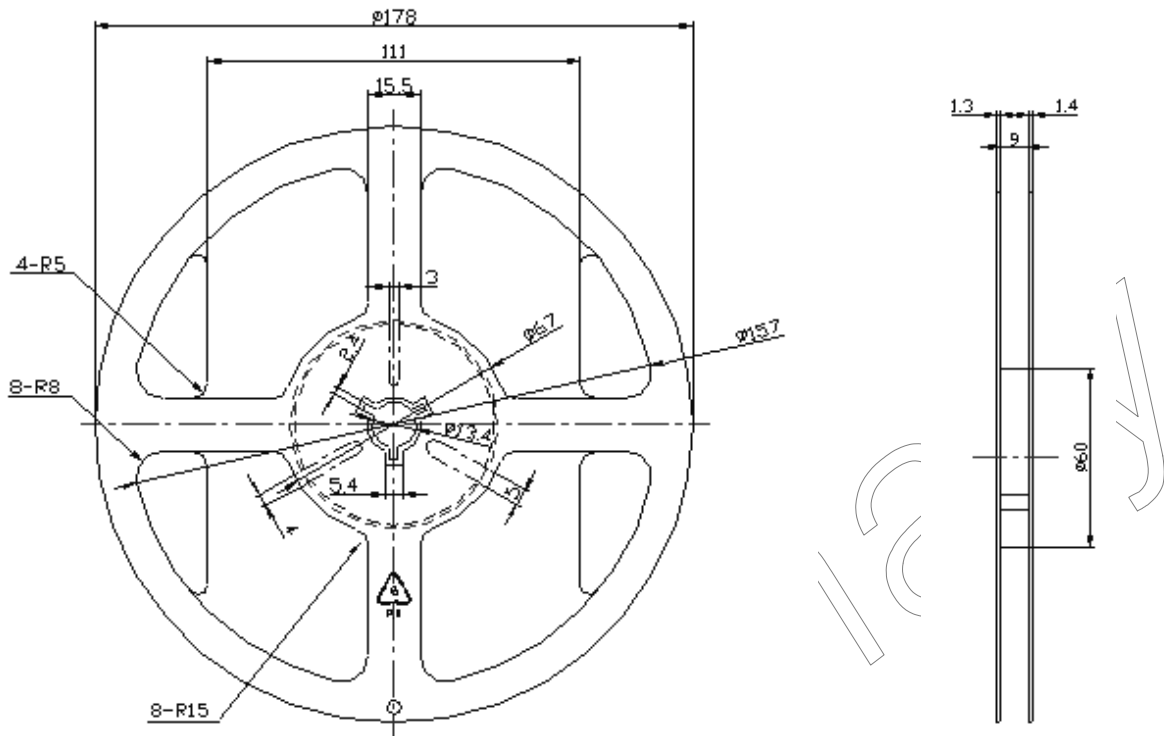
Total 30,000 pcs are packed in a 1 outer box

9.4 Reel and Carrier tape dimensions(unit : mm)

#### ■ Carrier tape

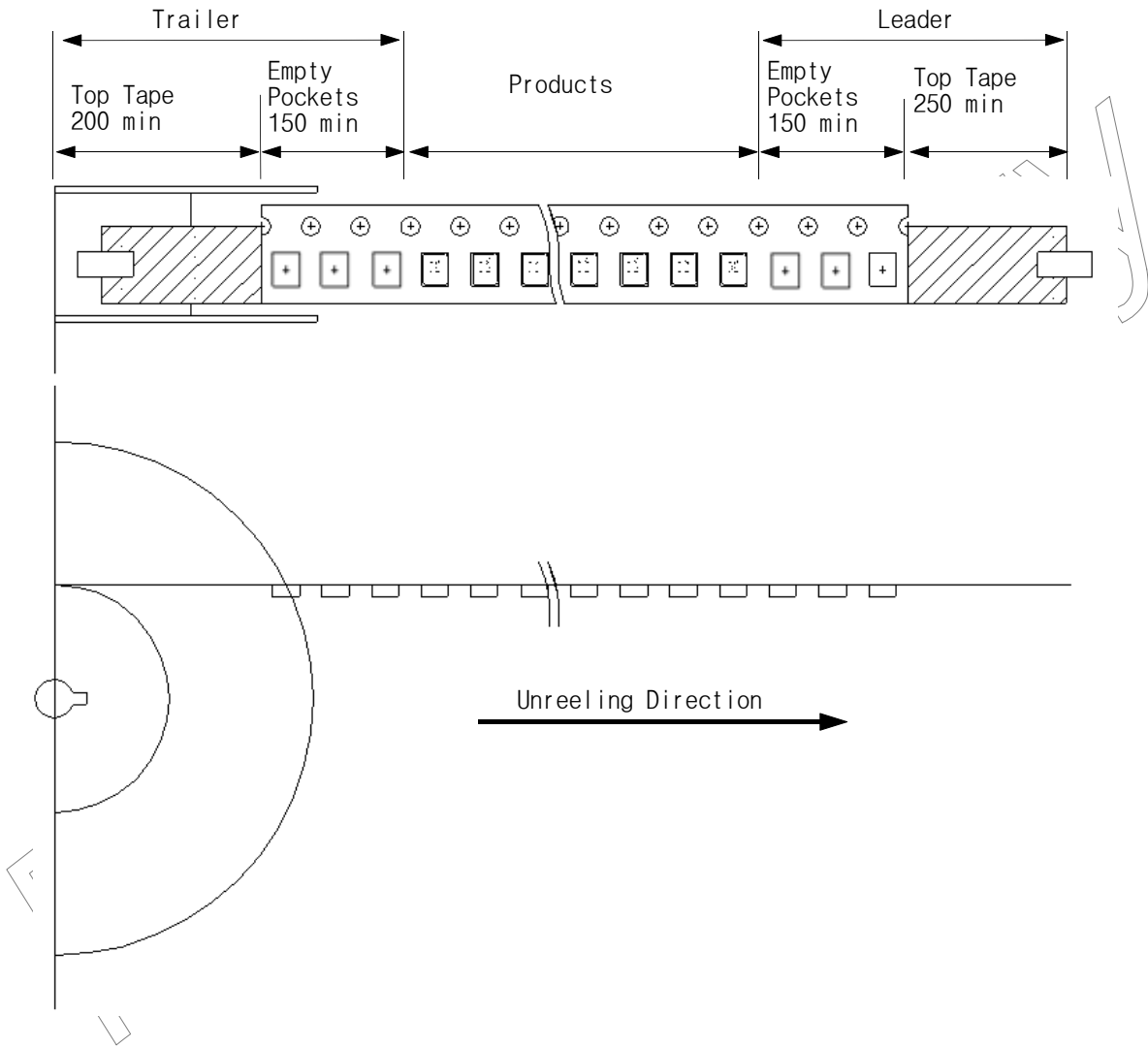


9.5 Reel Dimensions (unit : mm)

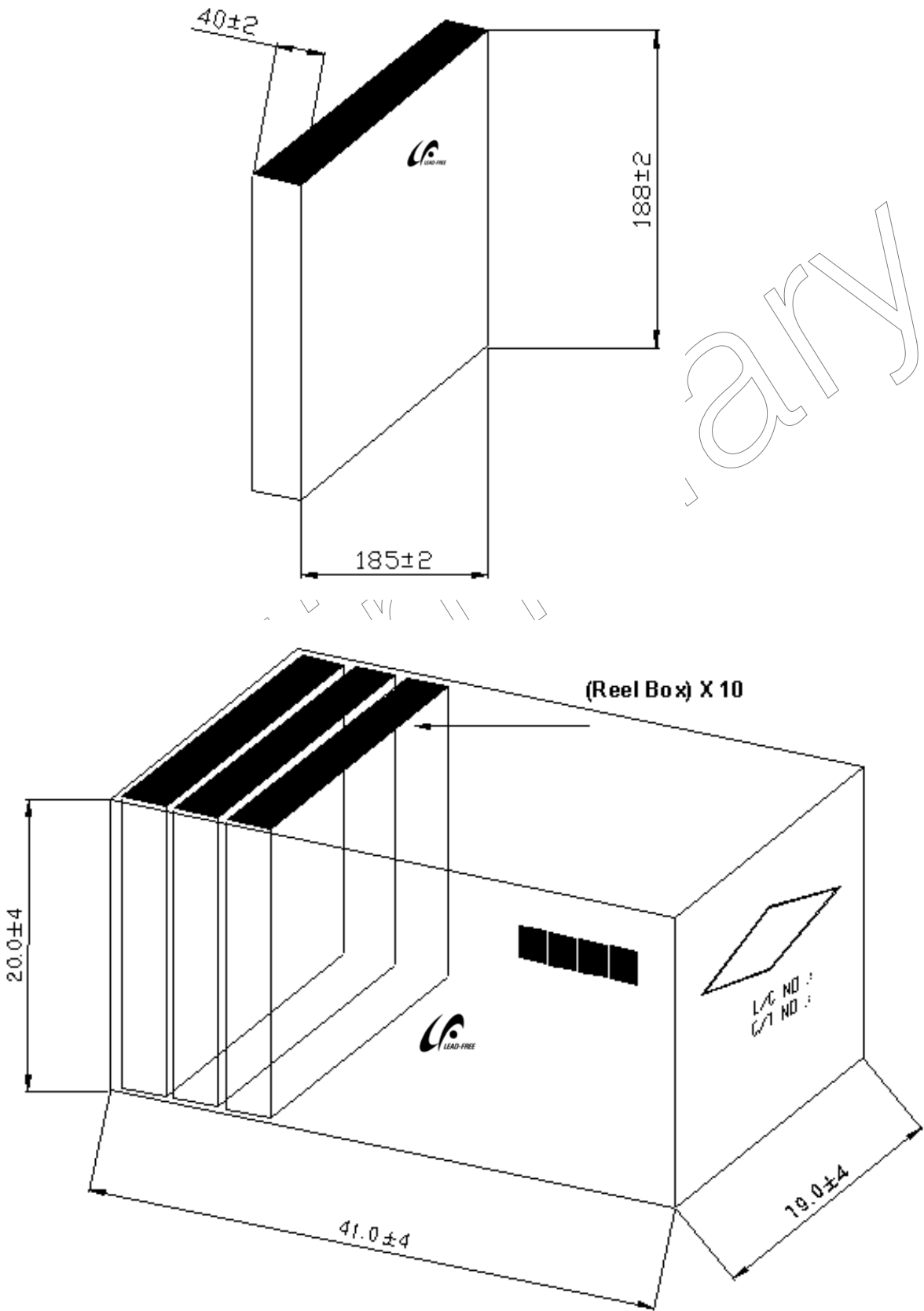


※ Do not attach any labels on the Reel.

### 9.5 Tape and Reel



9.6 Inner, outer box Dimensions (unit : mm)







KEYUANXIN TECHNOLOGY GO.,LTD

浏览网址：[www.szkyx.cn](http://www.szkyx.cn)