



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  
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NO. 118 Zhenhua Road Futian District Shenzhen  
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Product Name: Crystal  
\_\_\_\_\_

Product Type: OSC 3225  
\_\_\_\_\_

Nominal Freq: 32.768KHz  
\_\_\_\_\_

ProvideBrand: PARTRON  
\_\_\_\_\_

P/N: CSC6S000328EEVRS00  
\_\_\_\_\_

Customer P/N:  
\_\_\_\_\_

Approved By Customer

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

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Preliminary



## 2. Specification

Item		Symbol	Content
Frequency		$f_o$	32.7680 KHz
Supply voltage		VDD	1.6V ~ 3.6V (Typical 2.6V)
Temperature range	Storage	$T_{STG}$	-40 to 85°C
	Operating	$T_{OPR}$	-30 to 80°C
Frequency stability(*Note 1) 		$\Delta f/f_o$	$\pm 20\text{ppm}$
Current consumption		$I_{op}$	1mA max
Duty cycle		$t_w/t$	$50\% \pm 5\%$
Output voltage	High	$V_{OH}$	$VDD - 10\%VDD \text{ min}$
	Low	$V_{OL}$	$10\%VDD \text{ max}$
Rise and fall time		$t_R/t_F$	10ns max
Output load condition		$C_L$	15pF
Aging		$f_a$	$\pm 3\text{ppm}/3\text{year}$
Start up time		$t_{osc}$	50ms max
Pin 1 Tri-state	$VDD \pm 0.5V$		Enable (*Note 2)
	0.3V MAX		Disable

[REMARK]

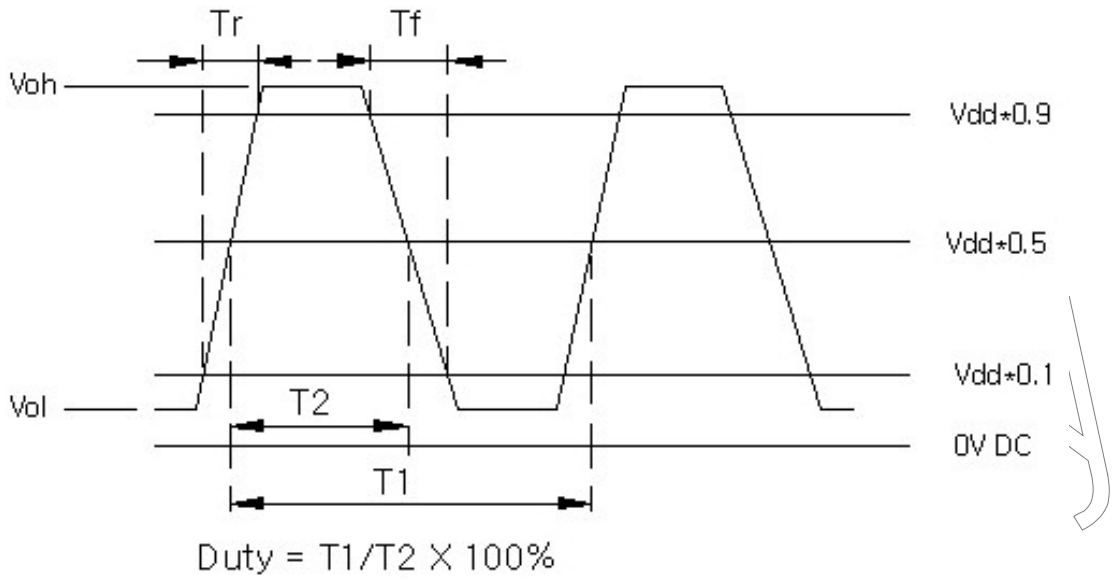
**\*Note 1**

Frequency stability contains Initial Tolerance(at 25°C), Temperature Draft(-30°C ~ +80°C), and Supply Voltage Variation (1.6V ~ 3.6V).

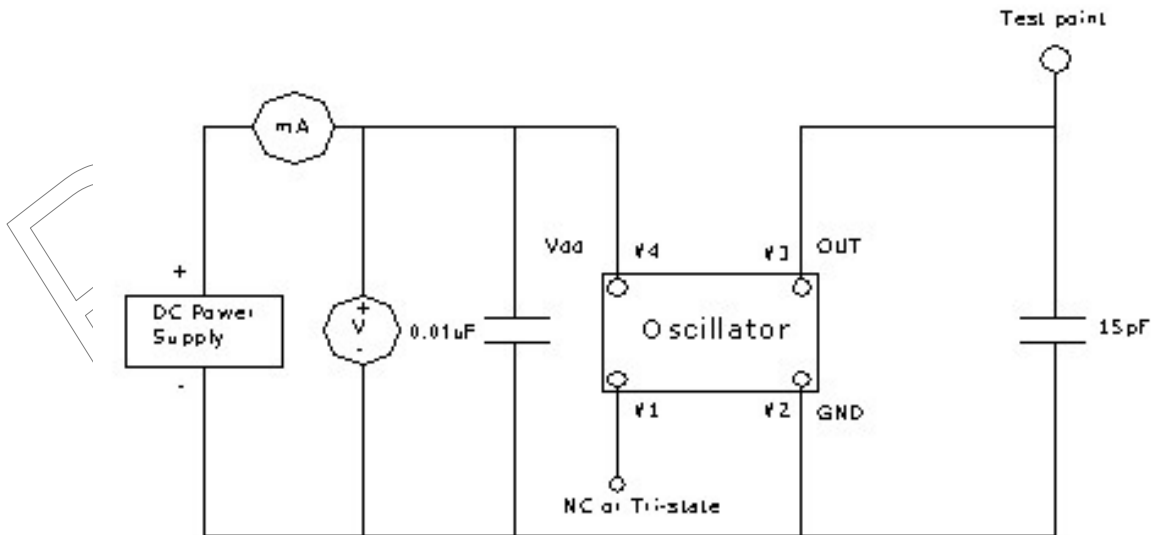
**\*Note 2**

If tri-state level is higher than  $VDD + 0.5V$ , no oscillation or abnormal oscillation

Output wave form

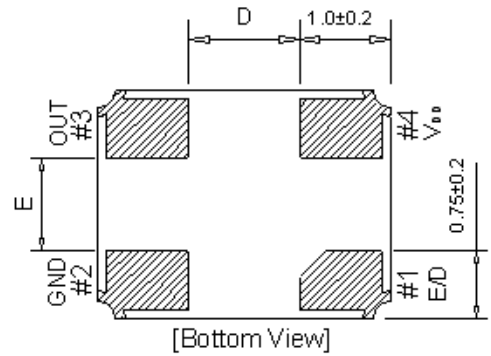
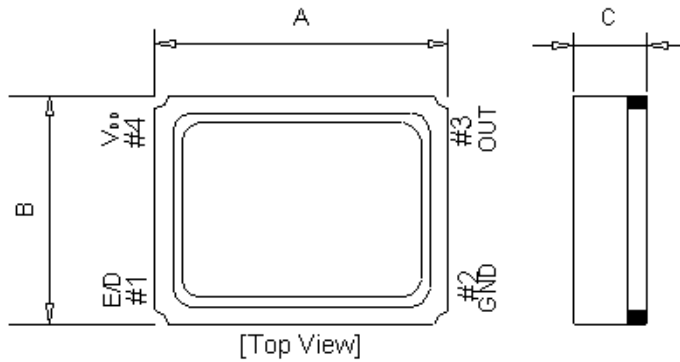


Measurement circuit

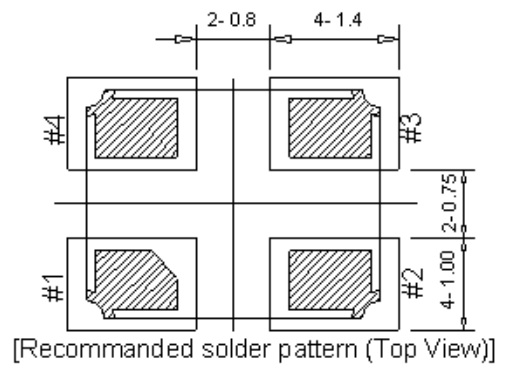


### 3. Appearance

#### 3-1 Outline Dimensions and PIN CONNECTIONS



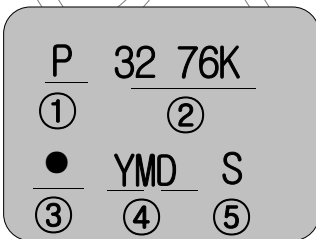
Size in mm				
A	B	C	D	E
3.20 ±0.10	2.50 ±0.10	1.00 max.	1.20 ±0.10	1.00 ±0.10
Pin connections				
#1	Tri-state or Open			
#2	GND			
#3	Output			
#4	V <sub>DD</sub>			



#### [About Pin #1]

- Open or high level : frequency output
- Low level : Output is high impedance

#### 3-2 Marking and Lot No.



※Laser Marking

ITEM	MARKING	REMARK
①	P	Partron logo
②	32 76K	Frequency: 32.7680KHz
③	●	Pin 1 Direction mark
④	YMD	Y : the last 1 digit of year M : 1 digit of month (Jan to Sept; 1 to 9, Oct; A, Nov; B, Dec; C) D : 1 digit of day 1 to 9, A to V (A=10, V=31) EX) 769 = 2007.06.09, 8AS = 2008.10.28
⑤	S	Manufacturing Site K .. Korea C .. China

#### 4. A Primary test result

Item No.	Result	tosc (ms)	$\Delta f/ f_0$ (ppm)	lop (mA)	tR (nS)	tF (nS)	tw/t (%)	VOH (V)	VOL (V)
Spec	High	50.00	20.00	1.00	10.00	10.00	60.00	-	0.26
	Low	-	-20.00	-	-	-	40.00	2.34	-
Max	Pass	23.9	7.8	0.5	8.4	8.5	50.0	2.6	-0.1
Min	Pass	22.7	2.5	0.5	7.7	6.5	50.0	2.6	-0.2
Average	Pass	23.1	5.6	0.5	8.0	7.4	50.0	2.6	-0.1
Stdev	Pass	0.5	1.5	0.0	0.2	0.8	0.0	0.0	0.0
1	Pass	22.9	5.5	0.5	8.1	6.5	50.0	2.6	-0.2
2	Pass	22.8	4.6	0.5	7.8	8.1	50.0	2.6	-0.2
3	Pass	22.8	7.8	0.5	8.0	7.3	50.0	2.6	-0.2
4	Pass	23.8	2.5	0.5	8.4	6.6	50.0	2.6	-0.2
5	Pass	23.8	6.6	0.5	8.0	7.4	50.0	2.6	-0.2
6	Pass	22.7	6.3	0.5	7.7	7.1	50.0	2.6	-0.1
7	Pass	22.9	5.6	0.5	8.3	8.5	50.0	2.6	-0.1
8	Pass	23.9	6.8	0.5	8.1	8.4	50.0	2.6	-0.1
9	Pass	22.9	6.3	0.5	7.9	8.0	50.0	2.6	-0.1
10	Pass	22.7	4.1	0.5	7.7	6.5	50.0	2.6	-0.1

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	-40°C±5°C,+85°C±5°C, 30min, 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

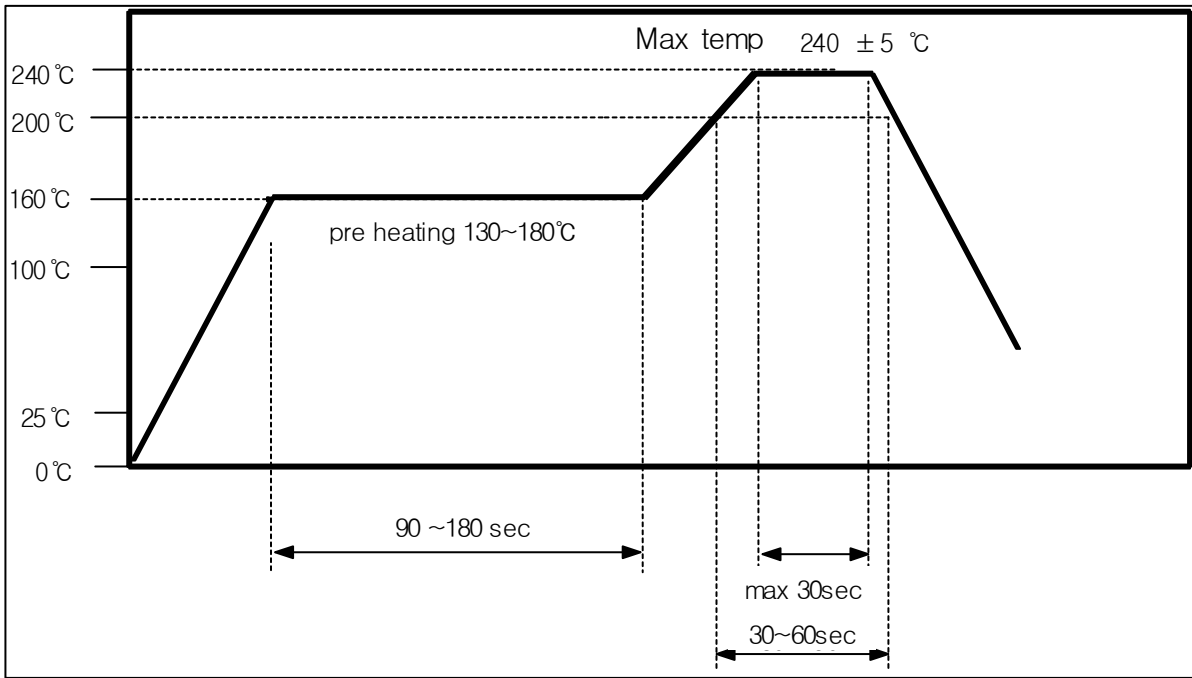
Contents	Condition	Remark
Vibration	Frequency : 10~500Hz, 10 ×9.8m/s <sup>2</sup> (G) Sweep time 15min ,X.Y.Z each 5 times	*Testing is complete, leave at room temperature for 1 hours, and Measure.(25°C±5°C) * Be satisfied with contents No 2. Specification
Drop test	12 times falling at a 152cm height (falling with jig)	

### 5.4 Table

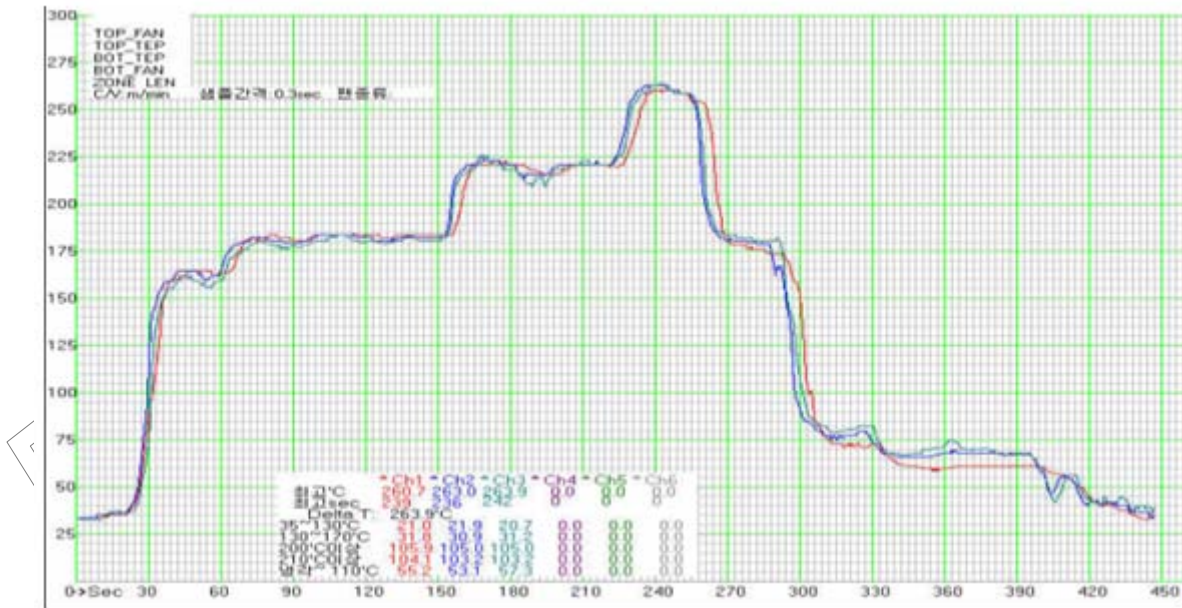
Frequency change permitted	±5ppm Max.
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## 6. Soldering Condition

### 6.1 Standard Reflow soldering condition



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

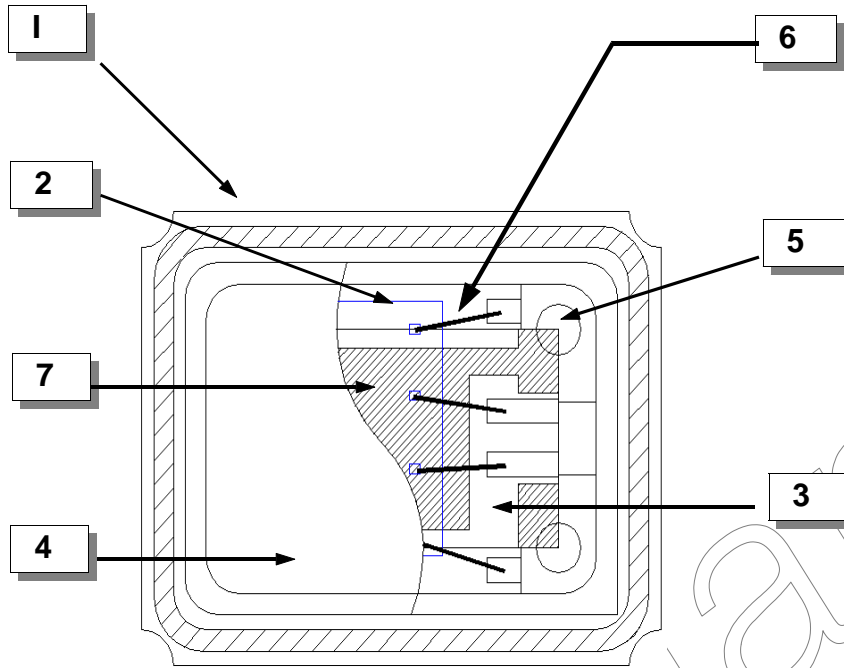


### 6.3 Soldering Iron Method

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

## 7. Construction and Materials

### 7.1 Constructions



### 7.2 Product Materials

No	item	main material
1	Ceramic Package	Al <sub>2</sub> O <sub>3</sub> + gold-plating
2	IC	SiO <sub>2</sub>
3	Blank	SiO <sub>2</sub> (Quartz)
4	Lid(Cover)	kovar
5	Conductive Epoxy	Silver
6	Gold wire	Au(99.99%)
7	Electrode	Ag(99.99%)

## 8. Notices

### 8.1 ESD Level : Class2(2000V ~ 4000V)

TEST ITEM	TEST METHOD	
	REFERENCE STANDARD	CONDITION
Electrostatic Discharges (ESD)	JEITA EIAJ ED-4701/304 (MM)	C=200pF, R=0Ω,5times
	MIL-STD-883D 3015.7 (HBM)	C=100pF, R=1.5KΩ,3times

※ Be satisfied ESD condition on the table.

※ This product with a built-in C-MOS IC. Do not exposure excess ESD.

### 8.2 MSL LEVEL 1 (JEDEC J-STD-020C)

No	Floor Life		Soak Requirements	
	Time	Conditions	Time	Conditions
1	Unlimited	= < 30°C/85%RH	168+5/-0	= < 85°C/85%RH

→ Be satisfied "MSL 1" test condition on the table.

### 8.3 NOISE

For stable operating against ripple voltage variation, attach 0.01uF~0.1uF capacitor between VDD and GND

※ available value of ripple voltage: 200mV P-P MAX

### 8.4 SHOCK

Oscillator has a CRYSTAL RESONATOR.

Do not drop in a reel or single product. It can be damaged

## 9. Packing

### 9.1 Reel, carrier tape material and surface resistance

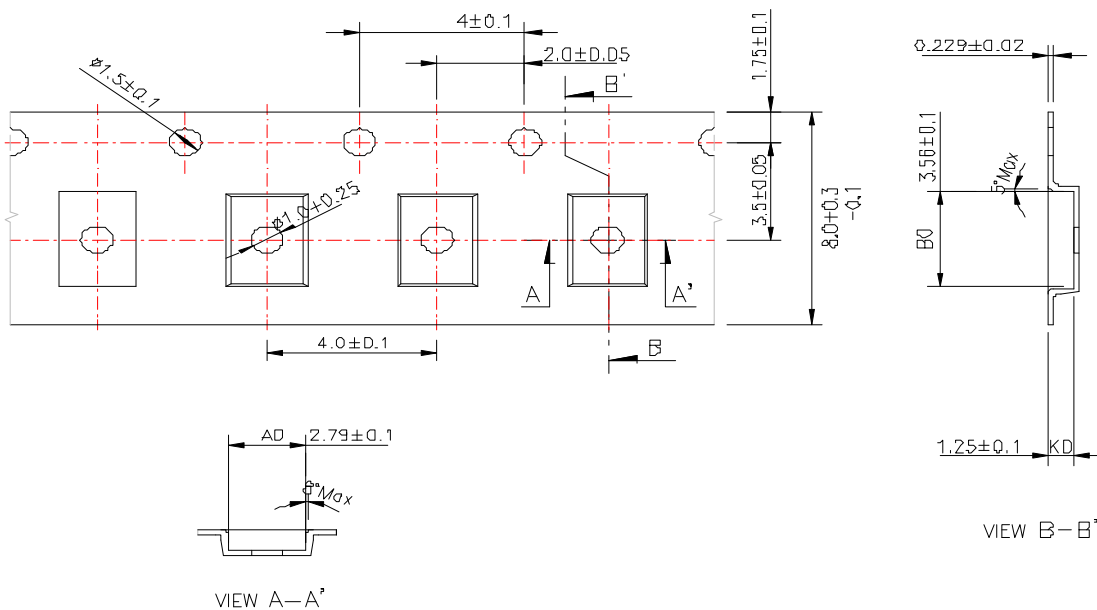
item	Material
Cover Tape	PE (polyester film)
Carrier Tape	PC (Poly Carbonate +Carbon) or CPC (Clear Poly Carbonate)
Reel	PS (Poly Styrene)

### 9.2 inner Box :1 reel/inner box and 2000 Oscillators/1 reel.

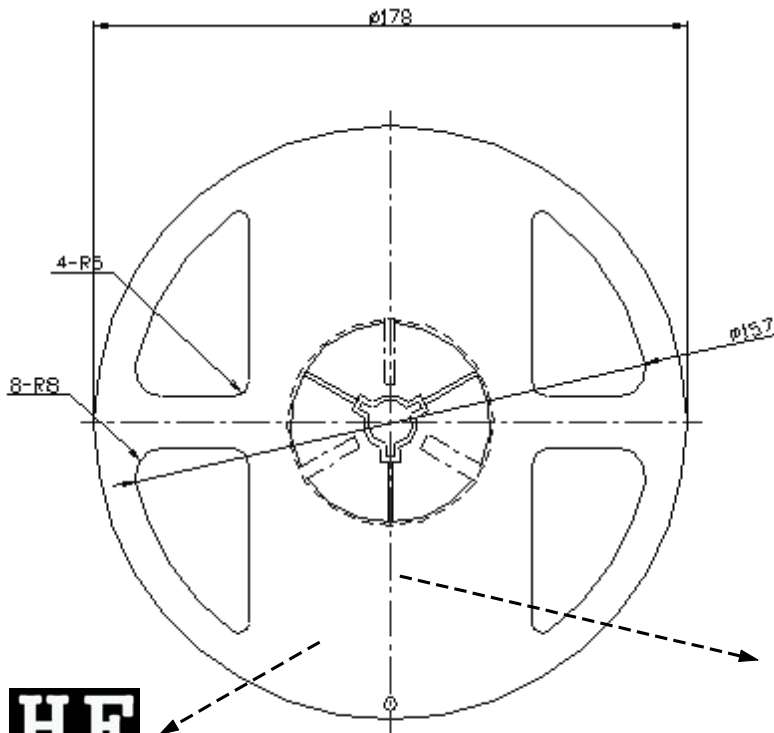
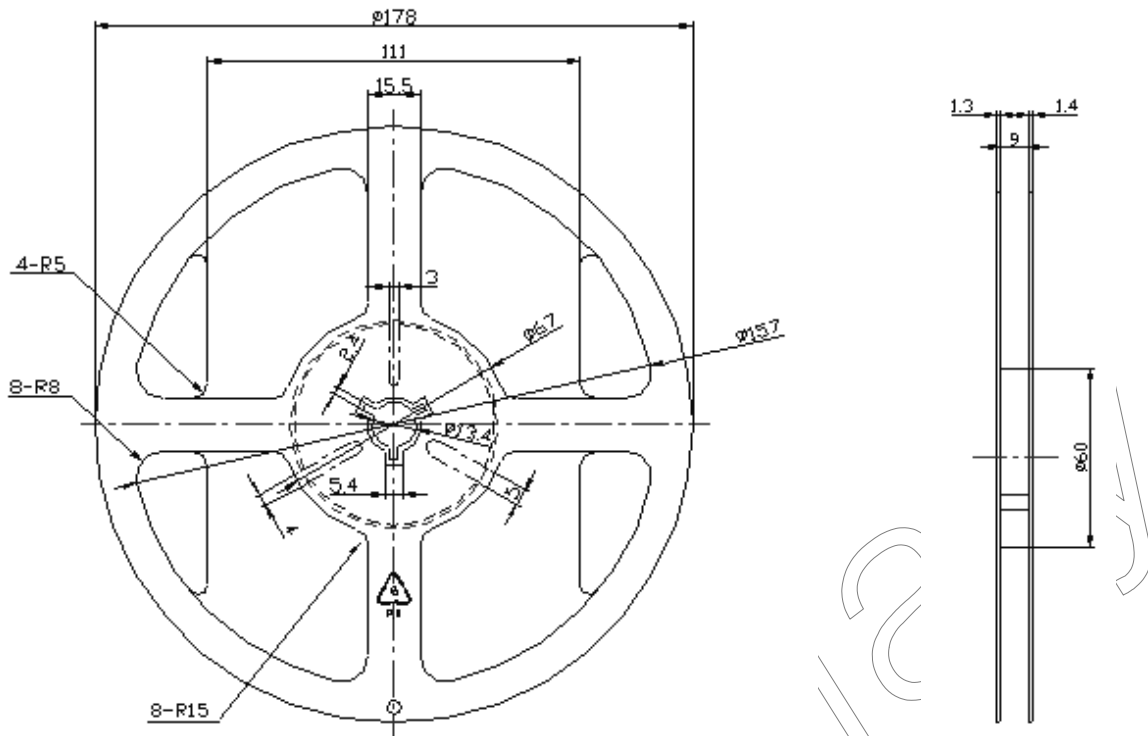
### 9.3 Outer Box : 10 inner boxes/Outer Box

Total 20,000 Oscillators are packed in a 1 out box

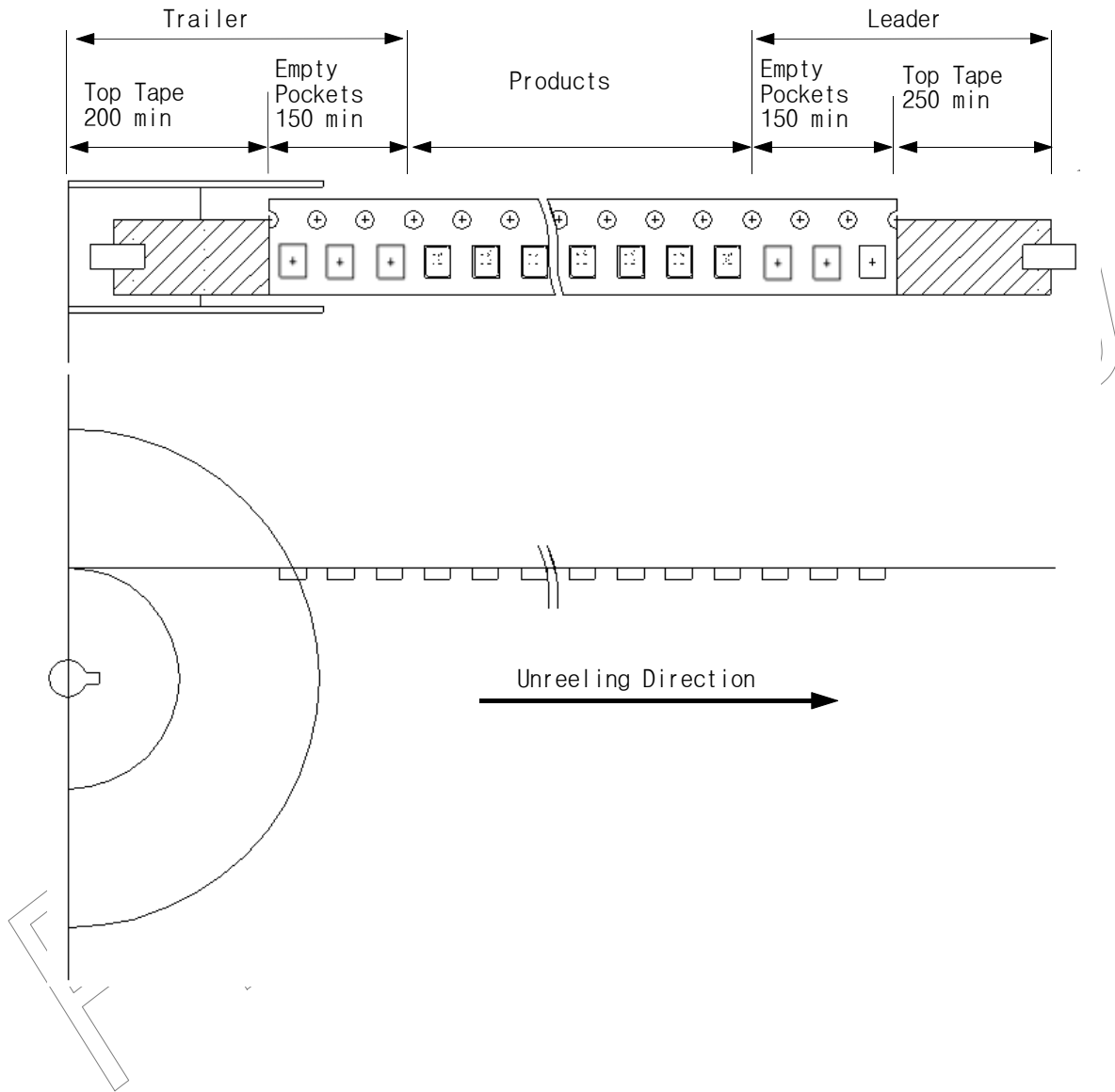
### 9.4 Reel and Carrier tape dimensions(unit : mm)



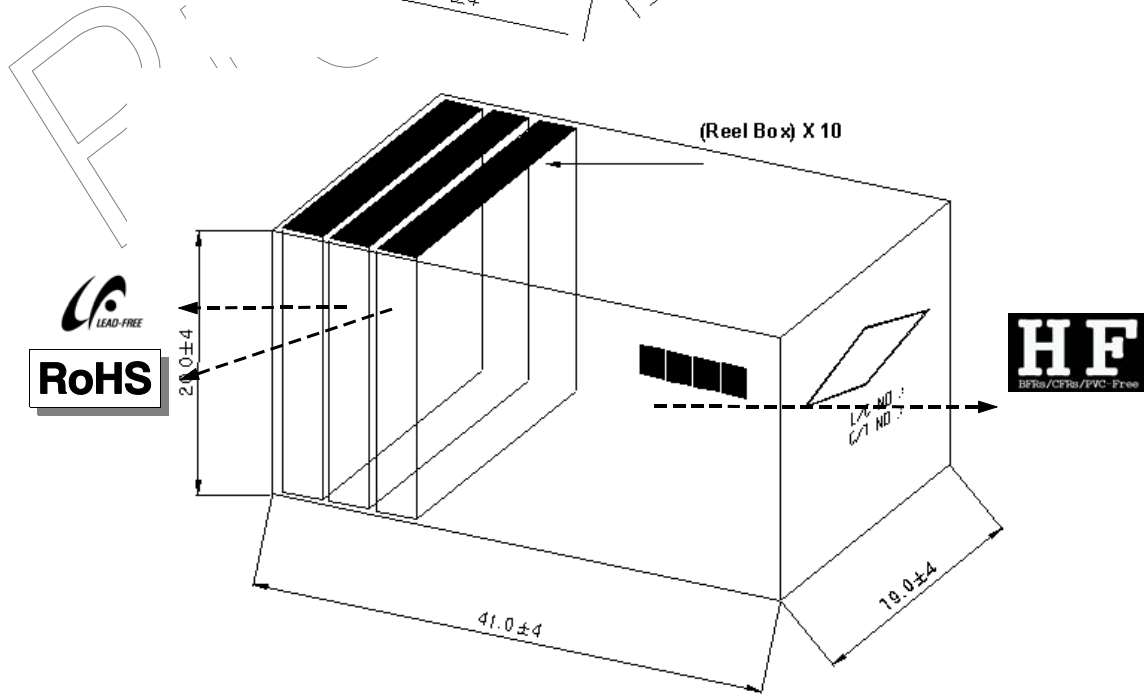
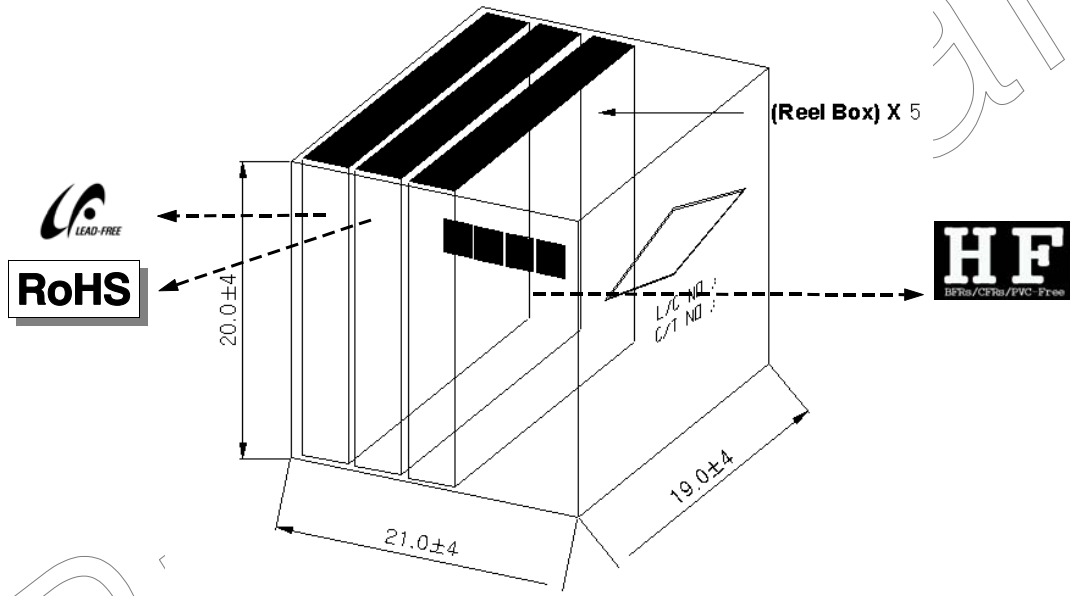
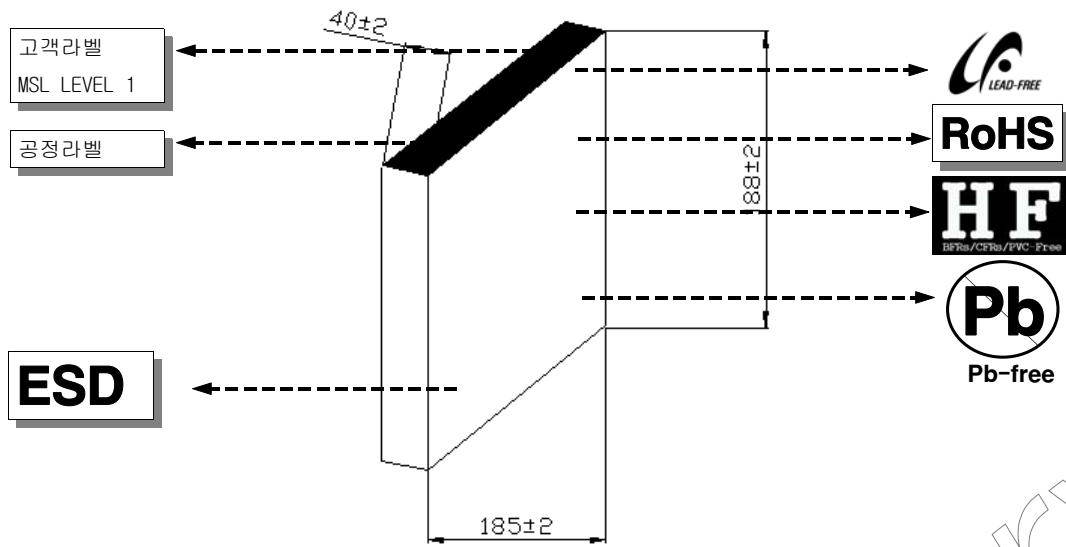
9.5 Reel Dimensions (unit : mm)



### 9.6 Tape and Reel



9.7 Inner, outer box Dimensions (unit : mm)







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