APPROVAL SHEET

PRODUCT NAME	SMD CRYSTAL OSCILLATOR		
USER NAME			
USER PART NO.			
Provider	PARTRON		
PARTRON MODEL	CSC6S000328EEVRS00		
CUSTOMER	Issued by	Checked by	Approved by
PARTRON	Issued by	Checked by	Approved by
	이종영	정남식	김재명
In Charge	L.J.Y.	M.N.S.	K.J.M.
Division	R & D	Q C	R & D

MSL	LEAD FREE	Halogen-Free
MSL LEVEL 1	LEAD-FREE	HF BFRs/CFRs/PVC-Free

	Case
Fab	China/Yantai/Partron
Assembly	China/Yantai/Partron
Final Test & Packing	China/Yantai/Partron

※ Please return one copy with approval to PARTRON

2012. 07. 05

22-6, Seokwoo-dong, Hwaseong-si, Gyeonggi-do, Korea 445-170
TEL : 82-31-201-7750

Contents

1. Revision History

Rev.	Date	Rev. page	Revision Content and Reason	Remark
V1.0	'12.07.05	All Page	First-edition	

2. Specification

Item		Symbol	Content
Frequency		fo	32.7680 KHz
Supply voltage		VDD	1.6V ~ 3.6V (Typical 2.6V)
Temperature range	Storage	T_{STG}	-40 to 85℃
	Operating	T_{OPR}	-30 to 80℃
Frequency stability(*Note 1) CTQ		Δf/fo	±20ppm
Current consumption		Iop	1mA max
Duty cycle		tw/t	50%±5%
Output voltage	High	V_{OH}	VDD-10%VDD min
	Low	V_{OL}	10%VDD max
Rise and fall time		tR/tF	10ns max
Output load condition		C_L	15pF
Aging		fa	±3ppm/3year
Start up time		t_{osc}	50ms max
Pin 1 Tri-state	VDD ±0.5V		Enable (*Note 2)
	0.3V MAX		Disable

[REMARK]

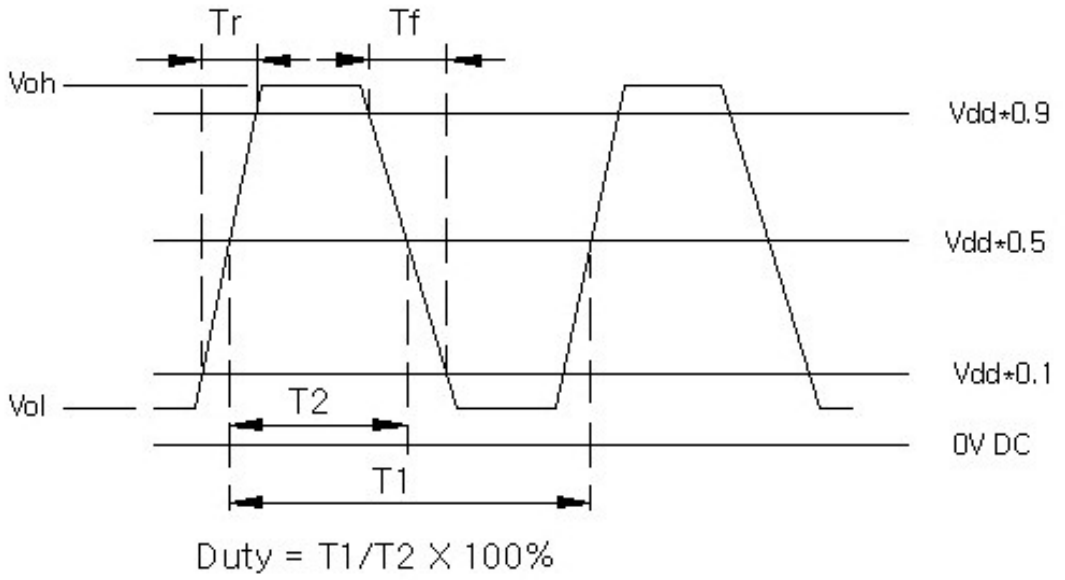
*Note 1

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

*Note 2

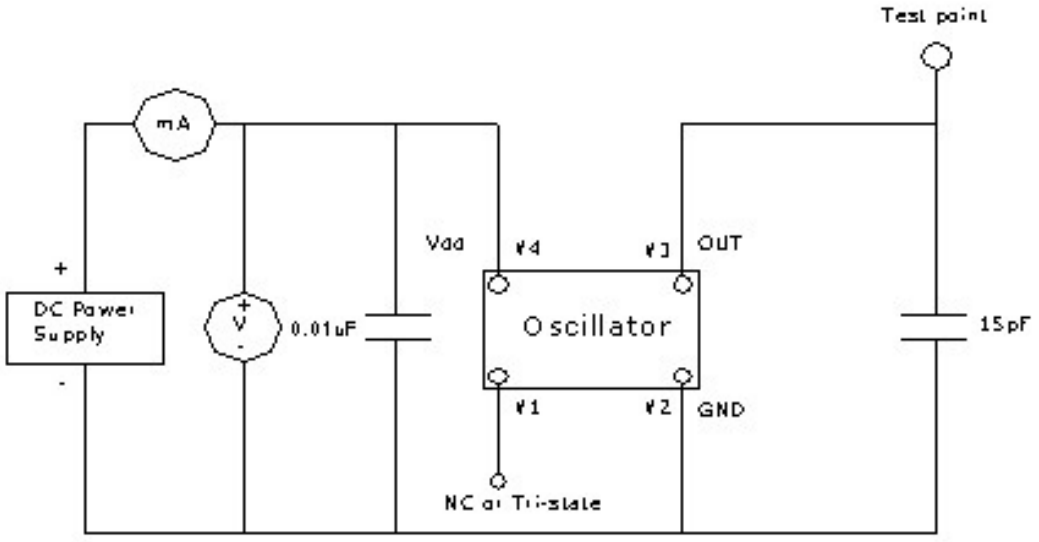
If tri-state level is higher than VDD +0.5V, no oscillation or abnormal oscillation

Output wave form



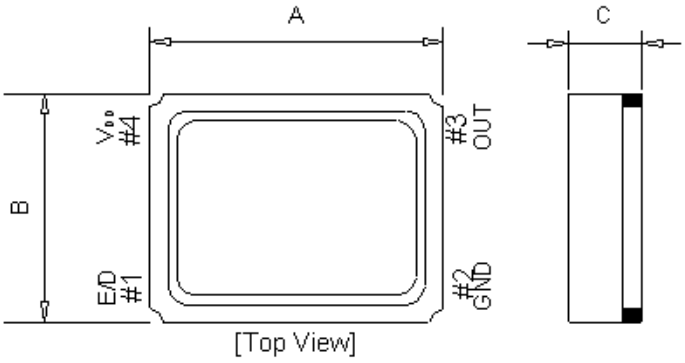
Duty = T1/T2 X 100%

Measurement circuit

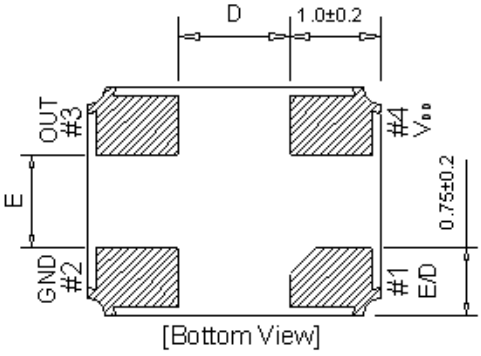


3. Appearance

3-1 Outline Dimensions and PIN CONNECTIONS



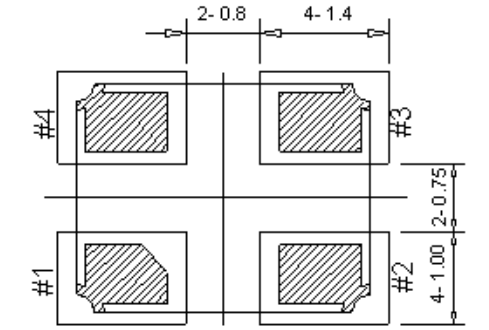
[Top View]



[Bottom View]

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

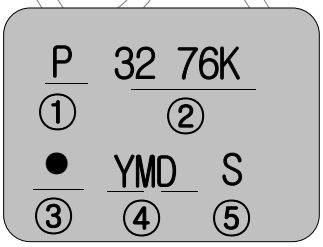
Pin connections	
#1	Tri-state or Open
#2	GND
#3	Output
#4	V_{DD}



[Recommanded solder pattern (Top View)]

[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)	△f/ fo (ppm)	Iop (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

5. Reliability test

5.1 Environment Test

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

5.2 Thermal shock , Reflow Test

Contents	Condition	Remark
Thermal shock	-40℃±5℃,+85℃±5℃, 30min, 32 cycle	*Testing is complete, leave at room temperature for 24 hours, and Measure.(25℃±5℃) * Be satisfied with contents No 2. Specification
REFLOW	Pre Heating 200±5℃ , 30～60 sec Peak Heating 260℃±5℃ , 30sec Max	

5.3 Mechanical Test

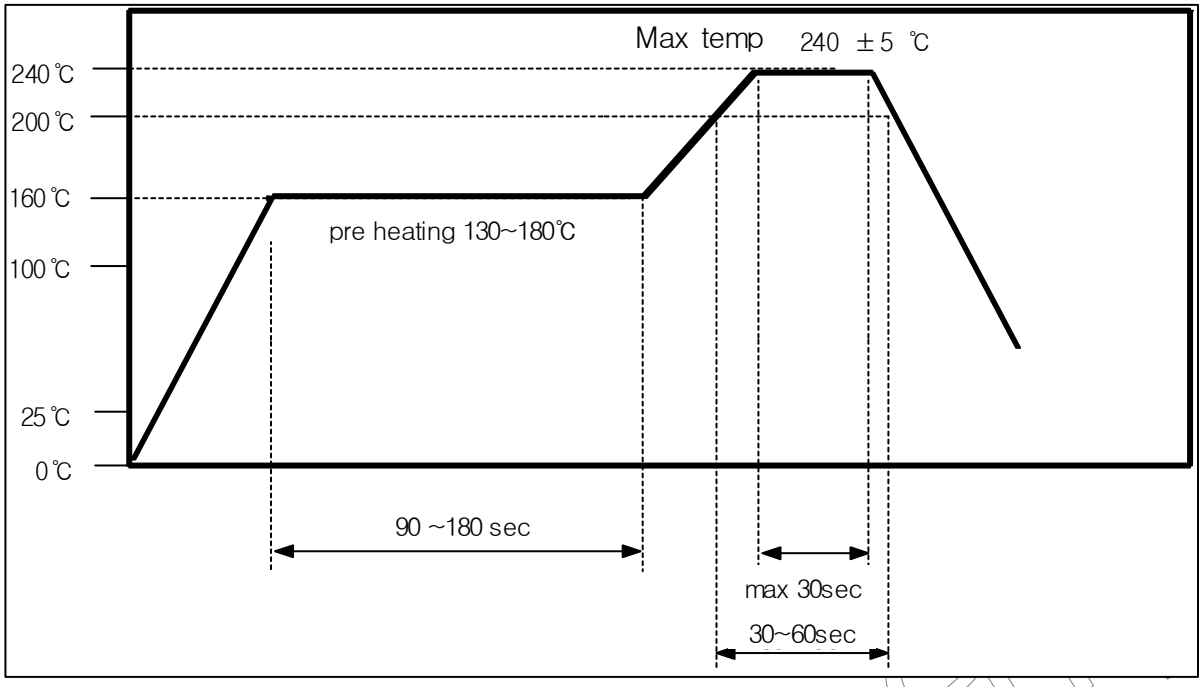
Contents	Condition	Remark
Vibration	Frequency : 10~500Hz, 10 ×9.8㎨(G) Sweep time 15min ,X.Y.Z each 5 times	*Testing is complete, leave at room temperature for 1 hours, and Measure.(25℃±5℃) * Be satisfied with contents No 2. Specification
Drop test	12 times falling at a 152cm height (falling with jig)	

5.4 Table

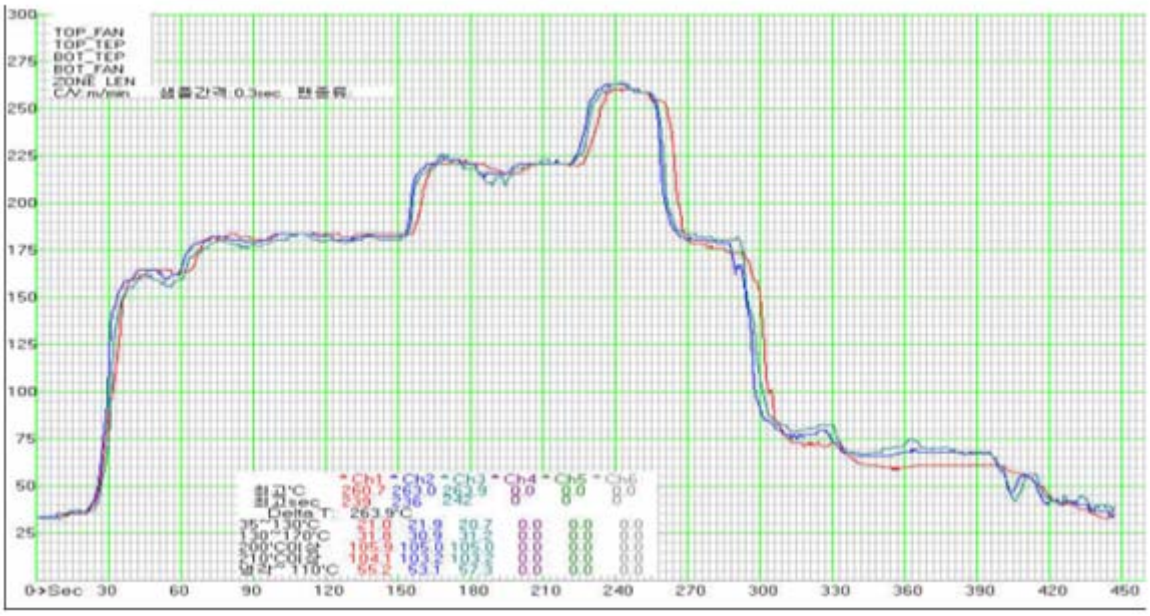
Frequency change permitted	±5ppm Max.

6. Soldering Condition

6.1 Standard Reflow soldering condition



6.2 The maximum temperature guarantees to the 260℃(10sec Max)

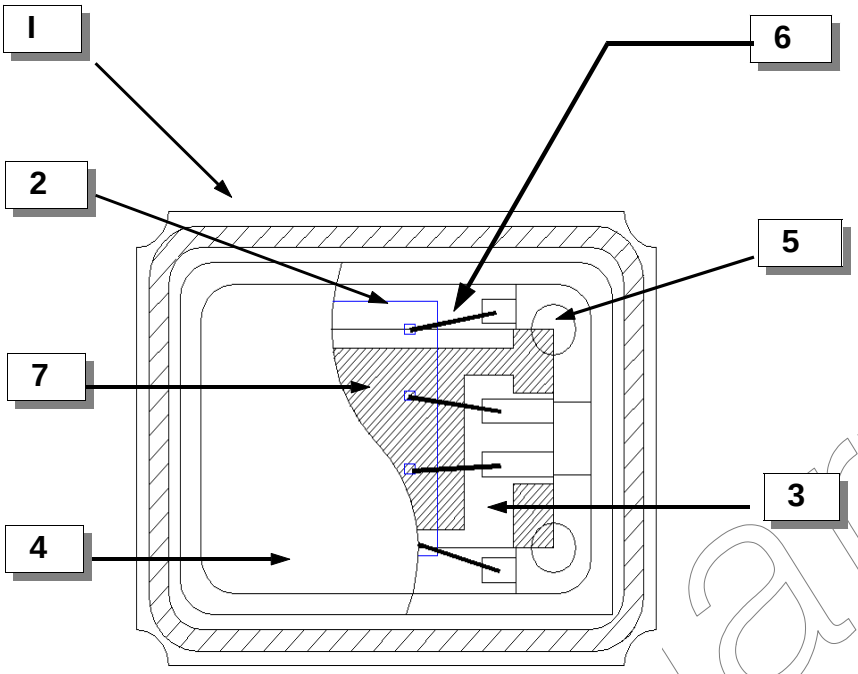


6.3 Soldering Iron Method

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

7. Construction and Materials

7.1 Constructions



7.2 Product Materials

No	item	main material
1	Ceramic Package	Al_2O_3 + gold-plating
2	IC	SiO_2
3	Blank	SiO_2 (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=OΩ,5times
	MIL-STD-883D 3015.7 (HBM)	C=100pF, R=1.5KOΩ,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℃/85%RH	168+5/-0	=< 85℃/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

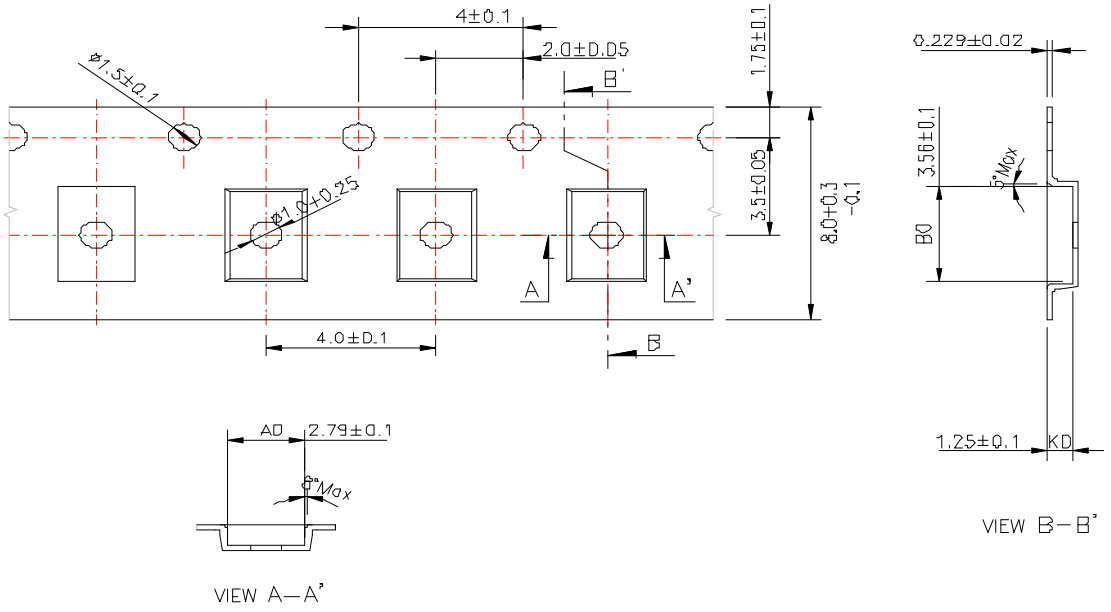
item	Material
Cover Tape	PE (polyester film)
Carrier Tape	PC (Poly Carbonate +Carbon) or CPC (Clear Poly Carbonate)
Reel	PS (Poly Styrene)

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

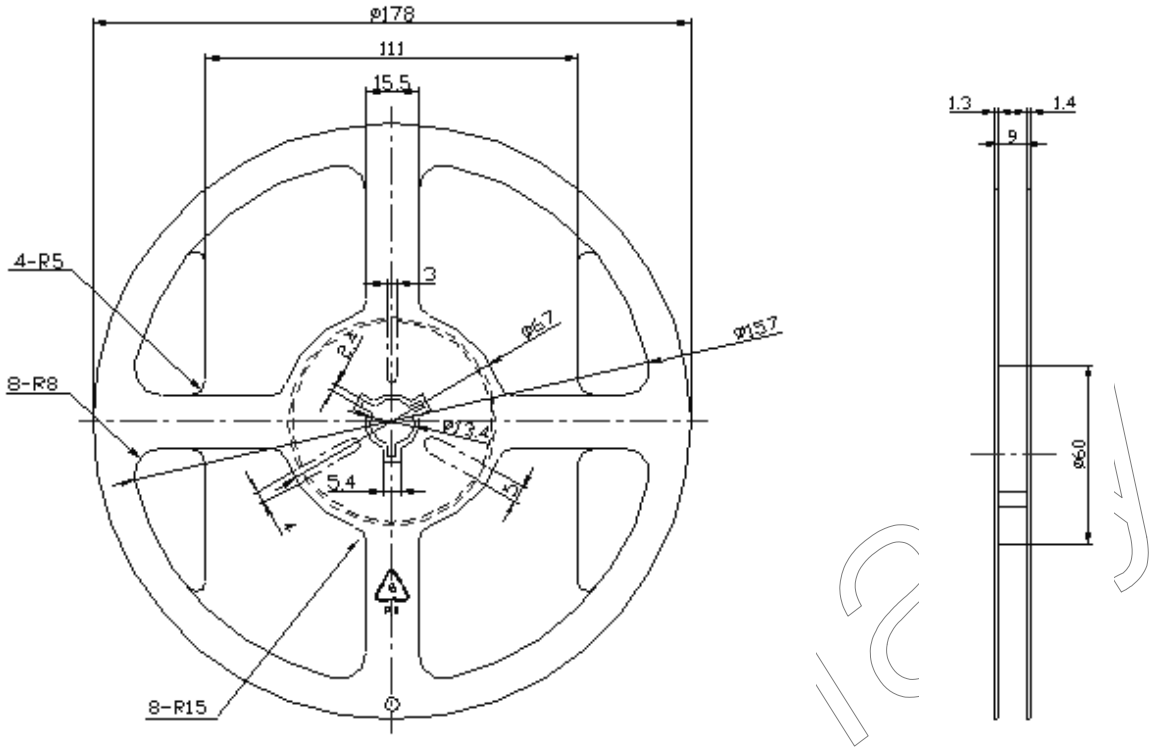
9.3 Outer Box : 10 inner boxes/Outer Box

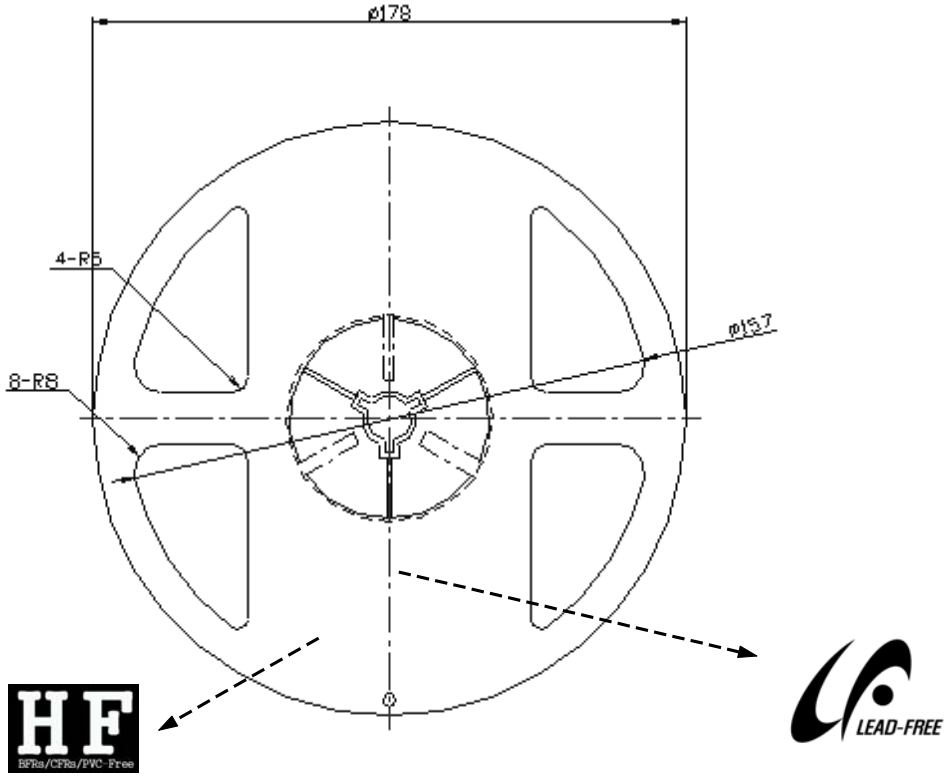
Total 20,000 Oscillators are packed in a 1 out box

9.4 Reel and Carrier tape dimensions(unit : mm)

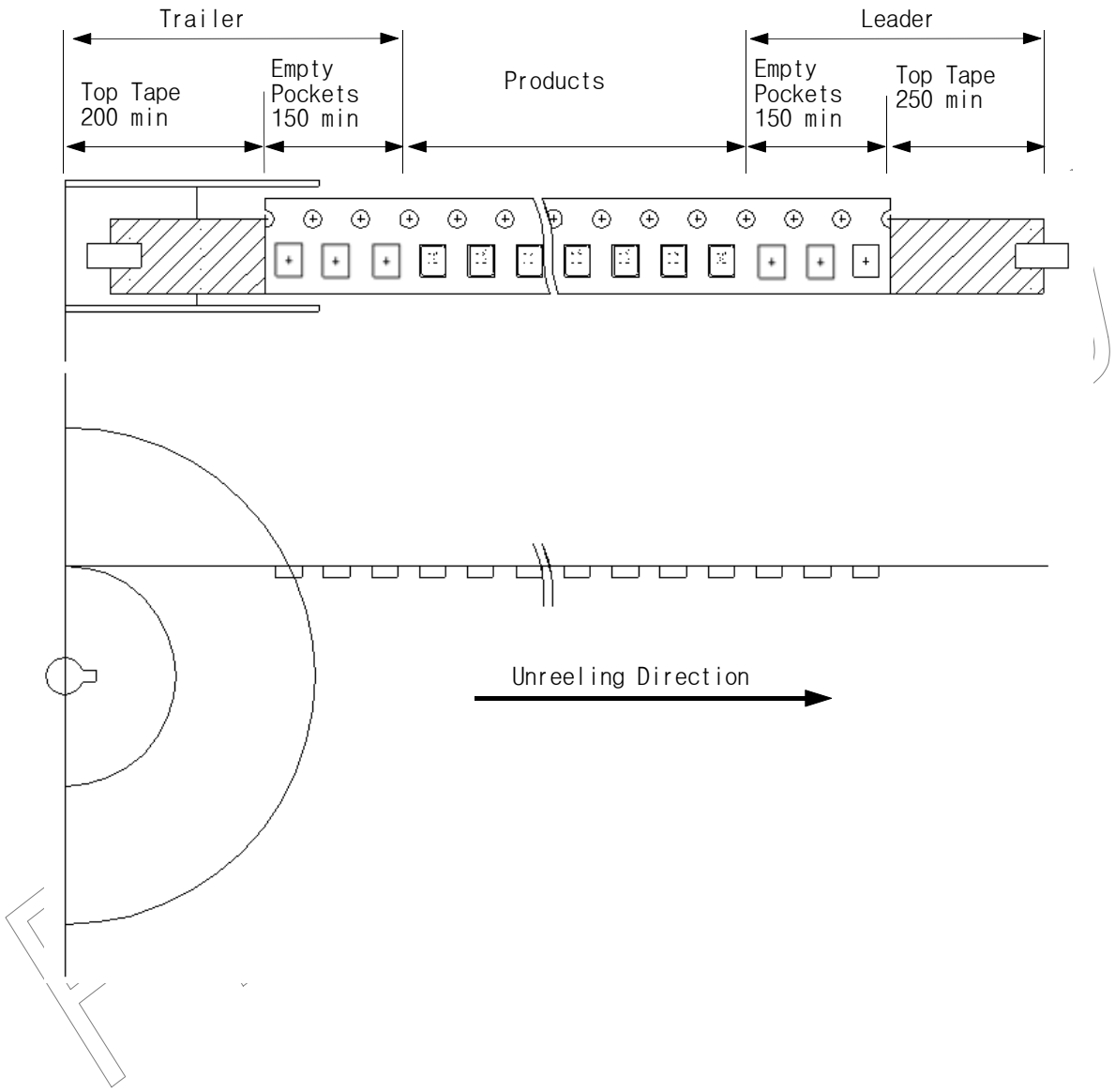


9.5 Reel Dimensions (unit : mm)





9.6 Tape and Reel



9.7 Inner, outer box Dimensions (unit : mm)