Confidential

# APPROVAL SHEET

| | | |
|---|---|---|
| Customer Name | : | |
| Customer P/N | : | |
| Frequency | : | 8.000000 MHz |
| Aker Approved P/N | : | C3E-8.000-8-1080-A-X1-R |
| Aker MPN | : | |
| Rev. | : | 1 |
| ISSUE DATE | : | Jun.15.2023 |

| APPROVED | CHECKED | PREPARED |
|---|---|---|
| Levi | | Kika |
| APPROVED BY CUSTOMER | | |
| | | |


## AKER TECHNOLOGY CO., LTD.

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**Web: www.aker.com.tw**


**MSL:Level 1**

**RoHS compliant**

**IATF 16949 Certified**

**AEC-Q200 Qualified**

Accurate Kinetic Energy

| | | |
|---|---|---|
| Aker Approved P/N : | C3E-8.000-8-1080-A-X1-R | |
| APPROVED : | Xtal | SHEET : 1 of 8 |
| PREPARED : | Kiku | REV . : 1 |
| | | Confidential |

| Rev. | Date | Reviser | Revise contents |
|---|---|---|---|
| 1 | 2023/6/15 | Kiku | Initial Released |
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# SMD CRYSTAL SPECIFICATION

## 1 . ELECTRICAL CHARACTERISTICS

■ Standard atmospheric conditions

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

Ambient temperature : 25±5℃

Relative humidity : 40%~70%

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

Ambient temperature : 25±3℃

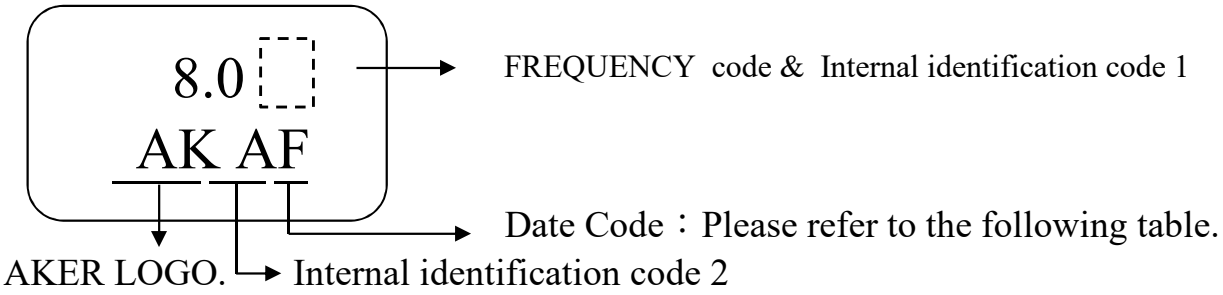
Relative humidity : 40%~70%

- AKER Model : C3E
- Oscillation Mode : Fundamental
- Cutting Mode : AT CUT
- Measurement Equipment : 250B(Measured FL)
- Insulation Resistance : More than 500M ohms at DC 100V

| Parameters | Symbol | Electrical Spec | | | | Notes |
|---|---|---|---|---|---|---|
| | | Min. | Typ. | Max. | Units. | |
| Nominal Frequency | FL | | 8.000000 | | MHz | |
| Frequency Tolerance | | | ±10 | | ppm | at 25℃ ± 3℃ |
| Frequency Stability | | | ±80 | | ppm | Operating Temp (Refer 25℃) |
| Load Capacitance | CL | | 8 | | pF | |
| Aging | | | ±3 | | ppm | First Year at 25℃ |
| Operating Temperature | | -40 | ~ | 125 | ℃ | |
| Storage Temperature Range | | -55 | ~ | 150 | ℃ | |
| Drive Level | DL | | 100 | 200 | uW | |
| Equivalent Series Resistance | ESR | | | 500 | Ω | @Series |
| Shunt Capacitance | C0 | | | 3 | pF | |

*Please kindly be noted that AKER DO NOT guarantee parts quality which involves human security application.*

## 2 . MARKING :

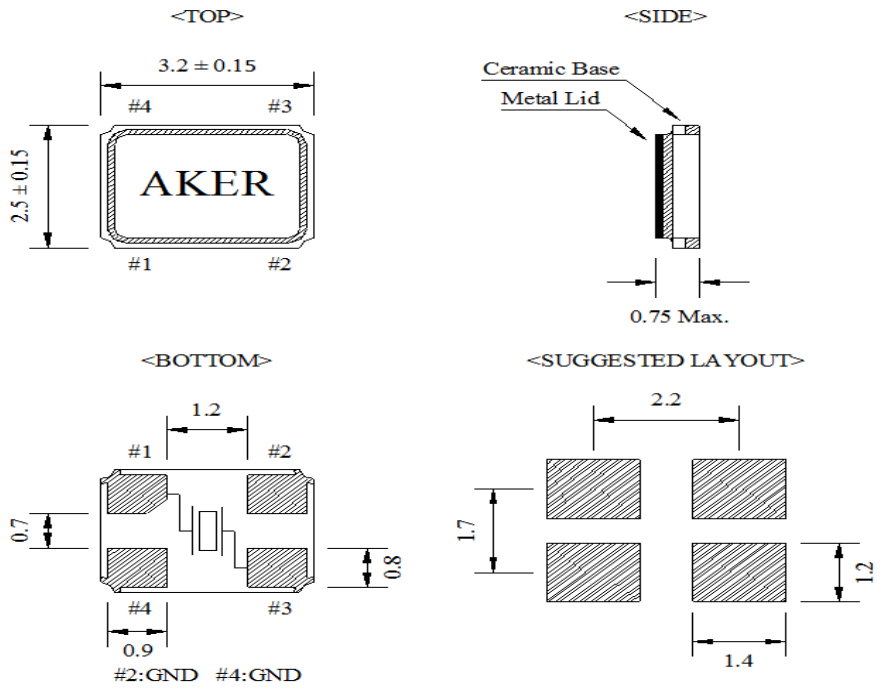



Date Code Table

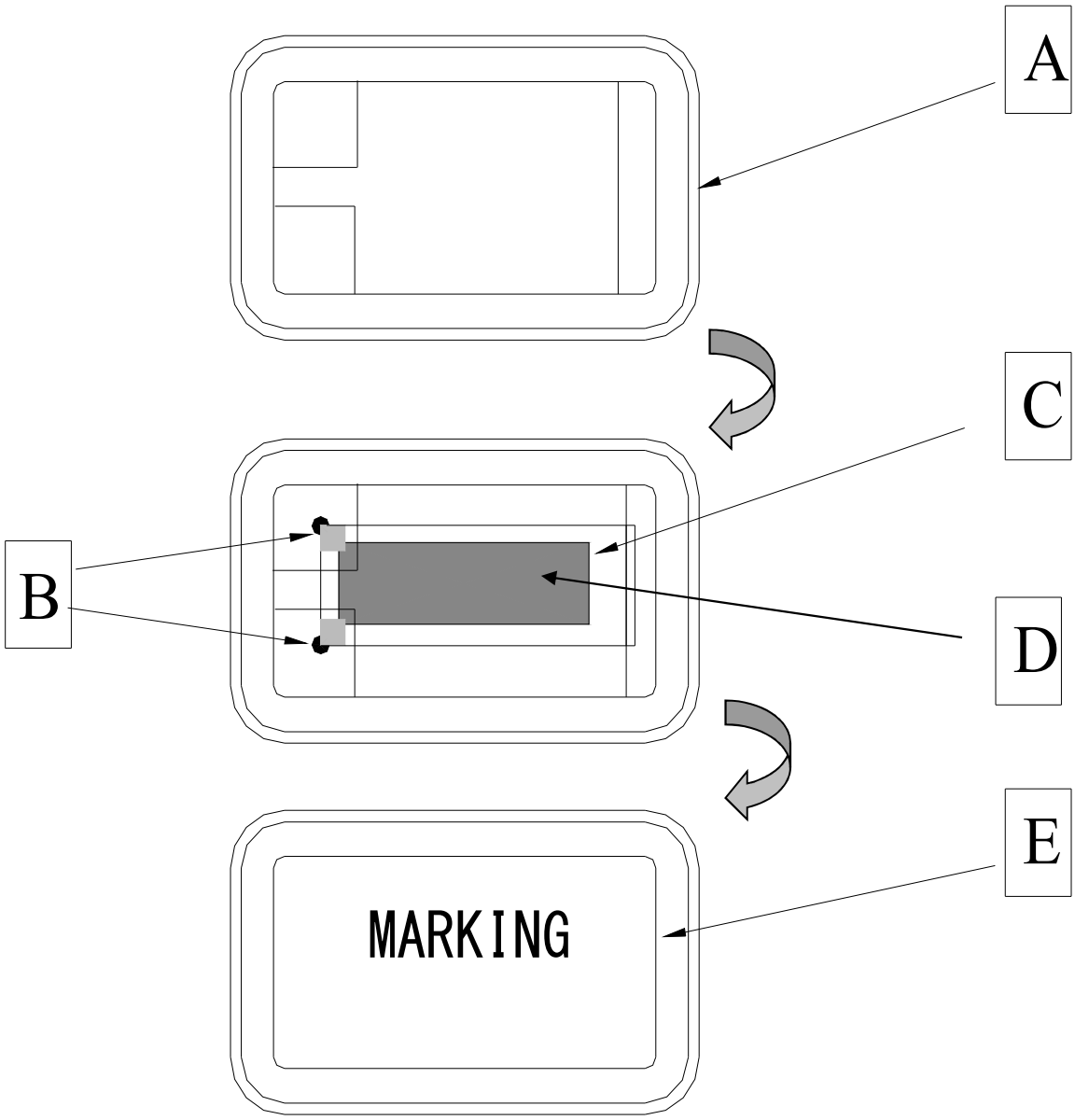
| Month / Year | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | 2023 | (4N+3) | A | B | C | D | E | F | G | H | J | K | L | M |
| 2020 | 2024 | (4N+0) | N | P | Q | R | S | T | U | V | W | X | Y | Z |
| 2021 | 2025 | (4N+1) | a | b | c | d | e | f | g | h | j | k | l | m |
| 2022 | 2026 | (4N+2) | n | p | q | r | s | t | u | v | w | x | y | z |

A cycle every four years

## 3 . DIMENSION : ( Unit : mm )



## 4 . STRUCTURE ILLUSTRATION

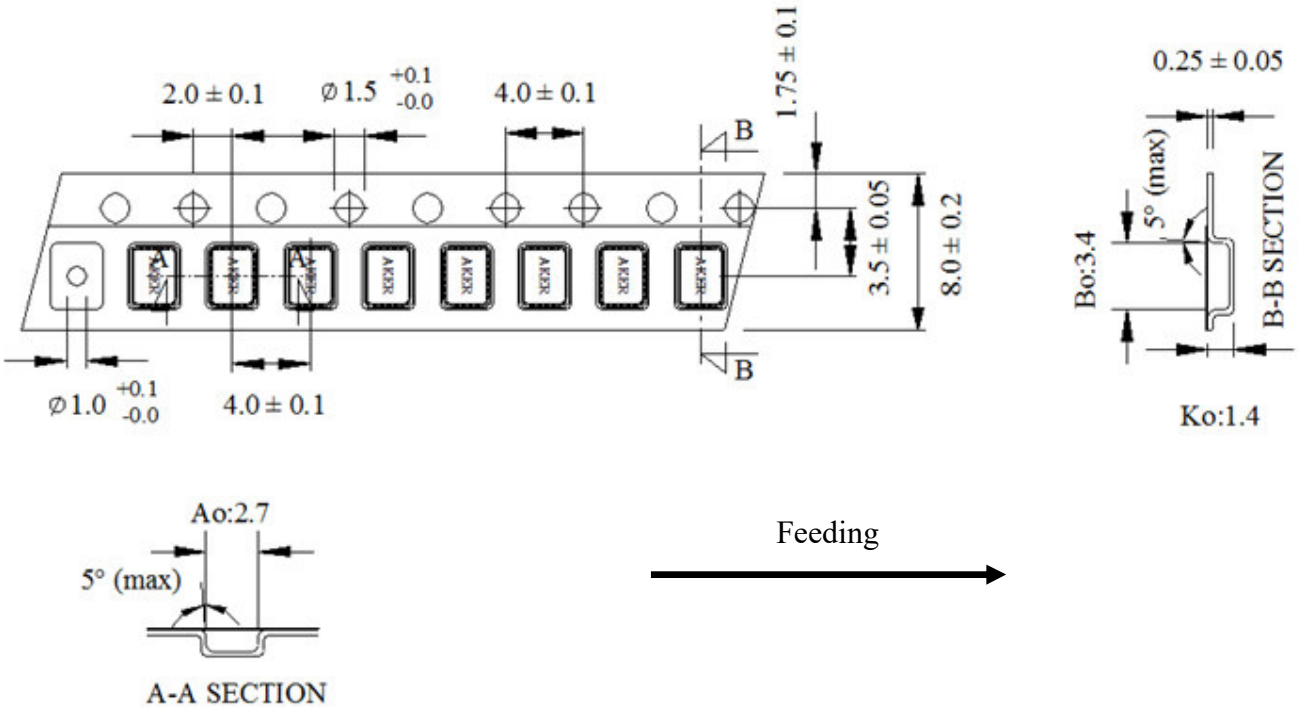



| COMPONENTS | | MATERIALS | COMPONENTS | | MATERIALS |
|---|---|---|---|---|---|
| A | Base (Package) | Ceramic($Al_2O_3$)+Kovar(Fe/Co/Ni) | D | Electrode | Cr / Ag |
| B | Conductive adhesive | Ag / Silicon resin | E | Lid | Fe/Co/Ni |
| C | Crystal blank | $SiO_2$ | | | |

## 5 . PACKING :

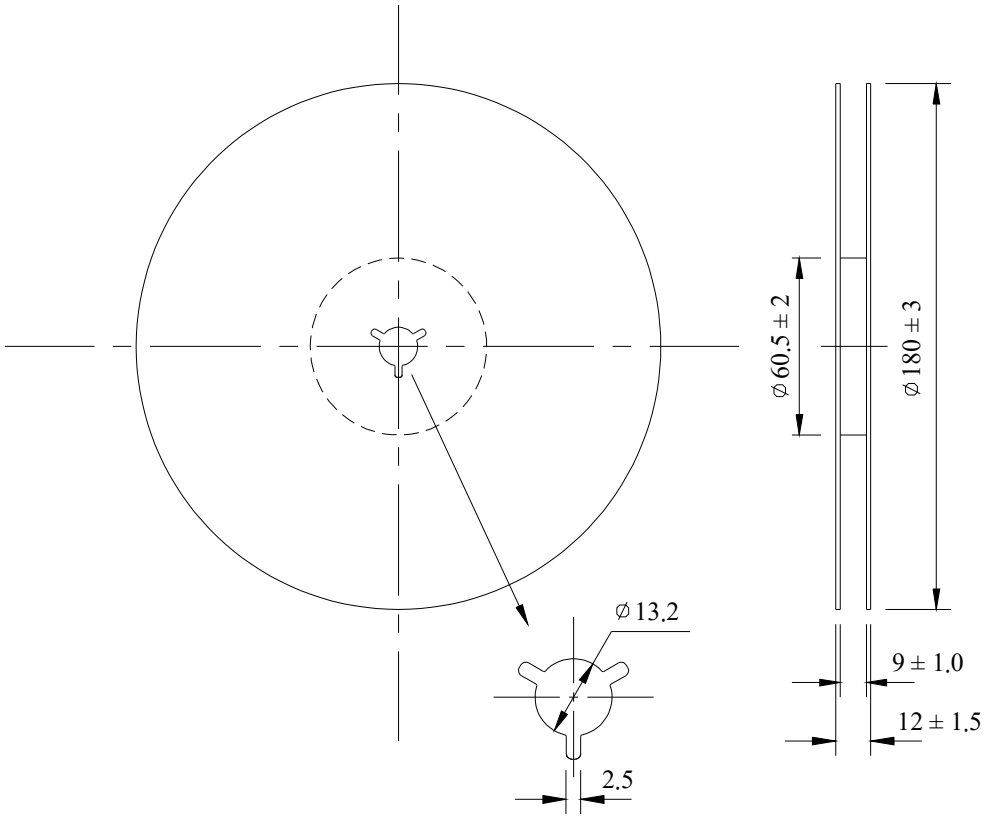
### TAPE SPECIFICATION

**( Unit : mm )**

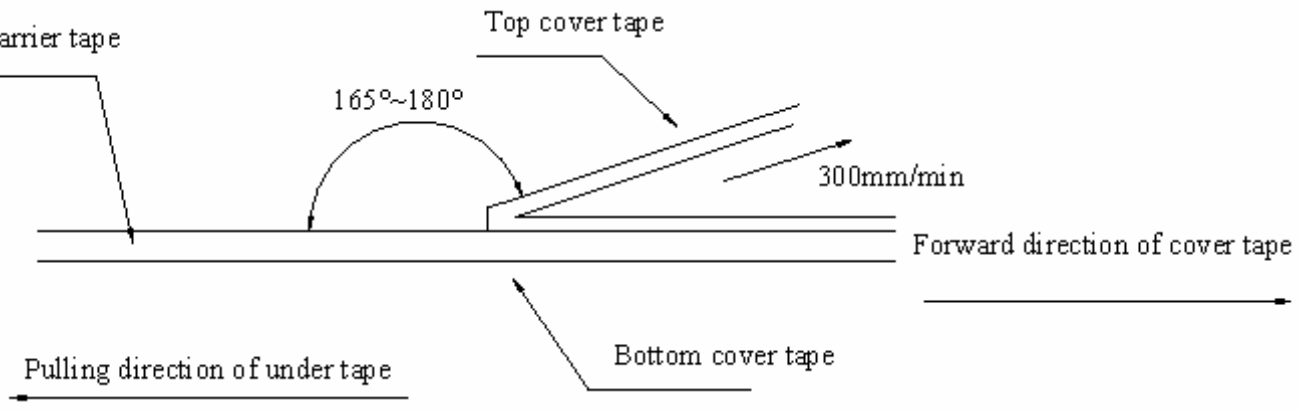



### OUTLINE DIMENSION

**( Unit : mm )**



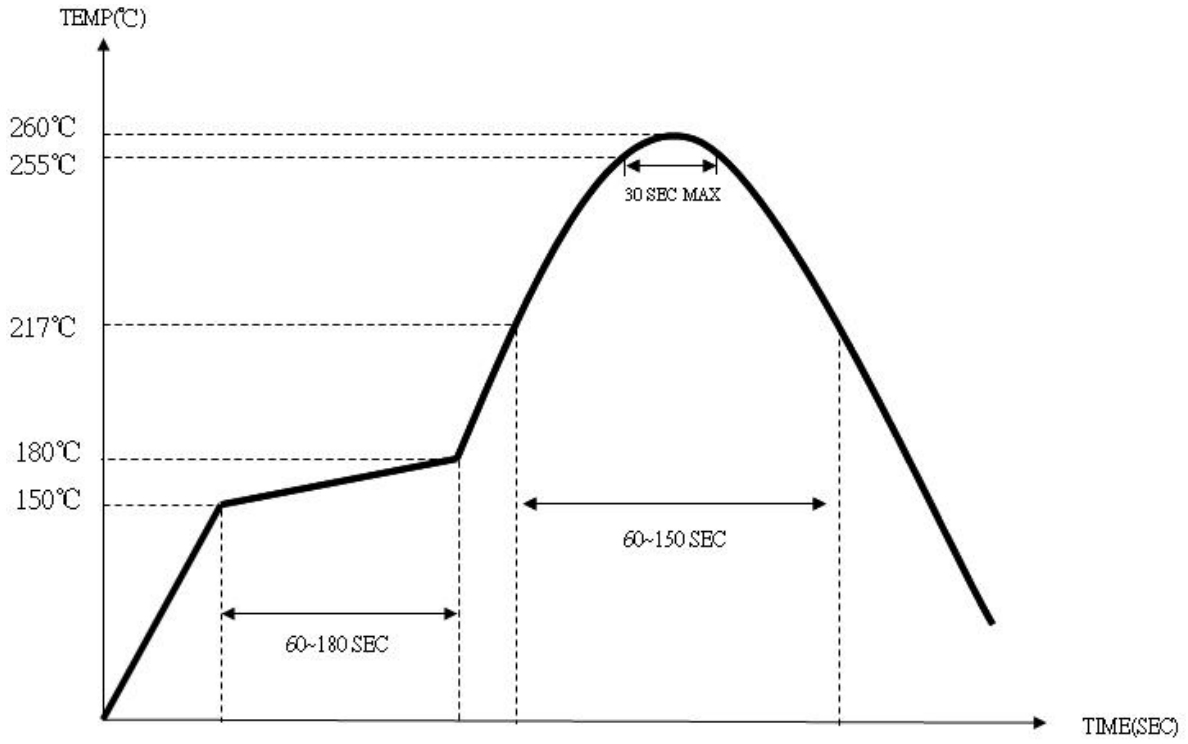
## 6. COVER TAPE ADHESION STRENGTH：



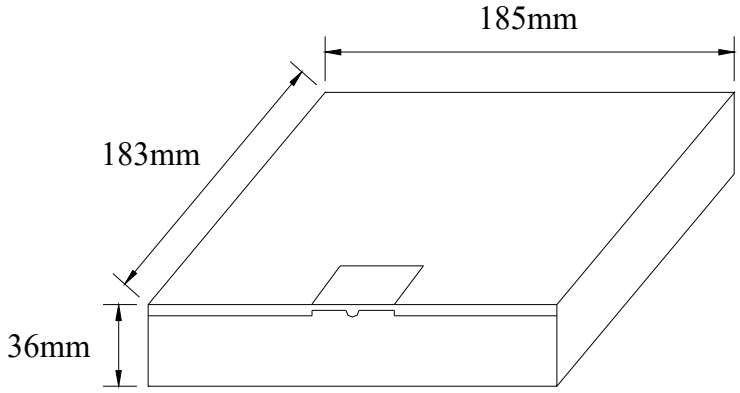

*** In the case, the cover tape is pulled off under the above conditions, the cover tape adhesion strength should be 10.2g~71.4g Plastic tape: 10.2g~71.4g

(Cover tape adhesion strength)

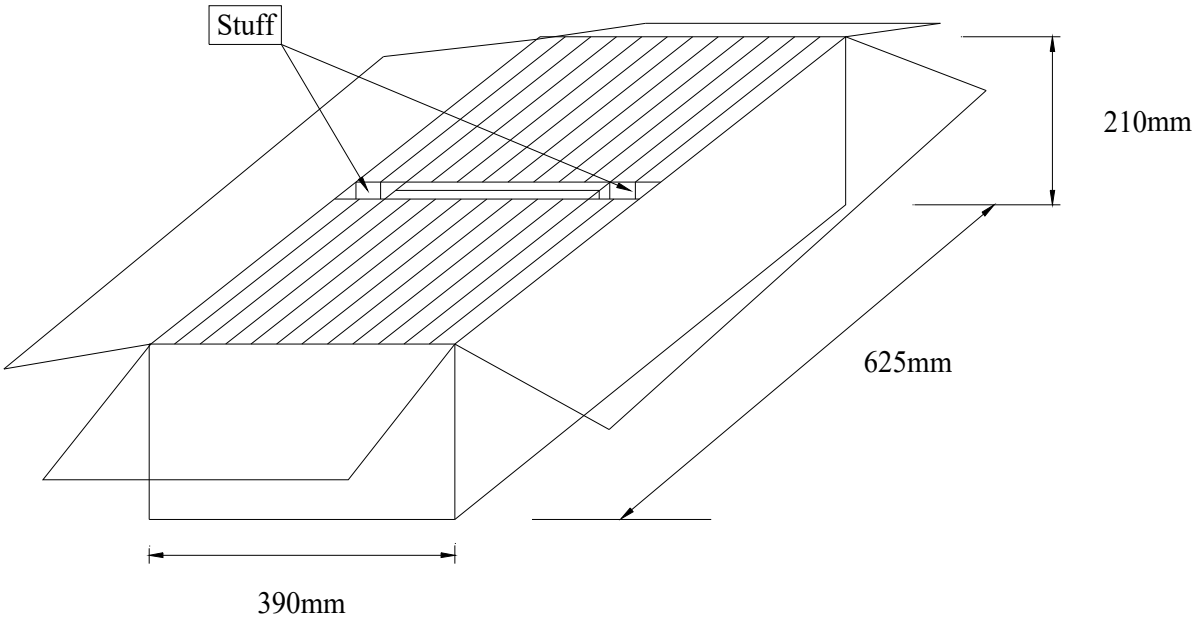
## 7 . SOLDERING REFLOW PROFILE



## 8. PACKING :




BOX = 3000 PCS / REEL(MAX)




SMD product packs 32 BOX=The outside box packs (3000 PCS *32 BOX = 96000 PCS)(MAX)

# 9 . MECHANICAL PERFORMANCE

| TEST ITEMS | TEST METHODS AND TEST CONDITION | PERFORMANCE |
|---|---|---|
| 9.1 Temperature Cycling | -55±3℃/30min maximum~+125±3℃/30min maximum，1000cycles | To satisfy the electrical performance . |
| 9.2 Operational Life | 125℃±3°C，1000hrs±12hrs | |
| 9.3 Biased Humidity | 85°C±5°C&85%±5%R.H.，1000±12hrs | |
| 9.4 Resistance To Soldering Heat Test | Reflow test 2 times. | |
| 9.5 High Temperature Exposure | 150℃±3°C，1000hrs±12hrs | |
| 9.6 Vibration Test | Freq.range: 10~2000Hz，Peak to peak amplitude:1.52mm Peak acceleration:5G (49m/s2)，3 direction(X, Y,Z) ，20min 12cycles each of 3 orientations. | |
| 9.7 Mechanical Shock | 100G，6mS，3 times for each direction(X, Y, Z )，3 cycles | |
| 9.8 Physical Dimension | Verify physical dimensions to the applicable device detail specification. | |
| 9.9 Solderability | 260℃ ，Coated > 95% | |
| 9.10 Board Flex | PCB=100*40(mm)，Bending=2 mm (min)，Duration=60+5/-0 sec | |
| 9.11 External Visual | Inspect device construction and marking. | |
| 9.12 Terminal Strength | A force of 17.7N for 60 seconds. | |