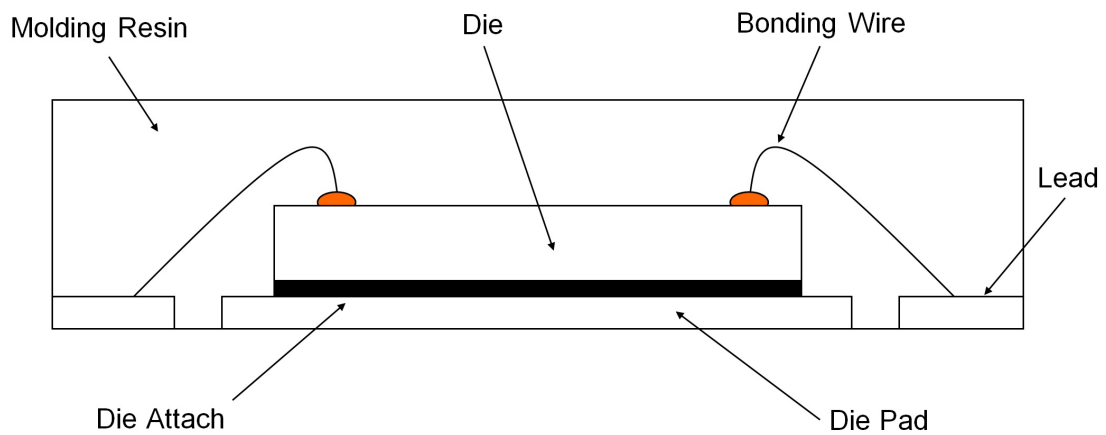


## 1. Package Information

|                    |              |
|--------------------|--------------|
| Package Name       | VQFN048V7070 |
| Type               | QFN          |
| Pin Count          | 48           |
| Outline Dimension  | EX470-5002-1 |
| Drawing No.        |              |
| Package Weight [g] | 0.13         |
| Lead Finish        | Pure Tin     |
| MSL Level          | Level3       |

## 2. Package Structure



3. Packing Specification

3.1 Packing form, Quantity, PIN1 Orientation

|                   |       |           |
|-------------------|-------|-----------|
| Packing Form      |       | Tape&Reel |
| Packing Quantity  | [pcs] | 1500      |
| PIN 1 Orientation |       | E2        |

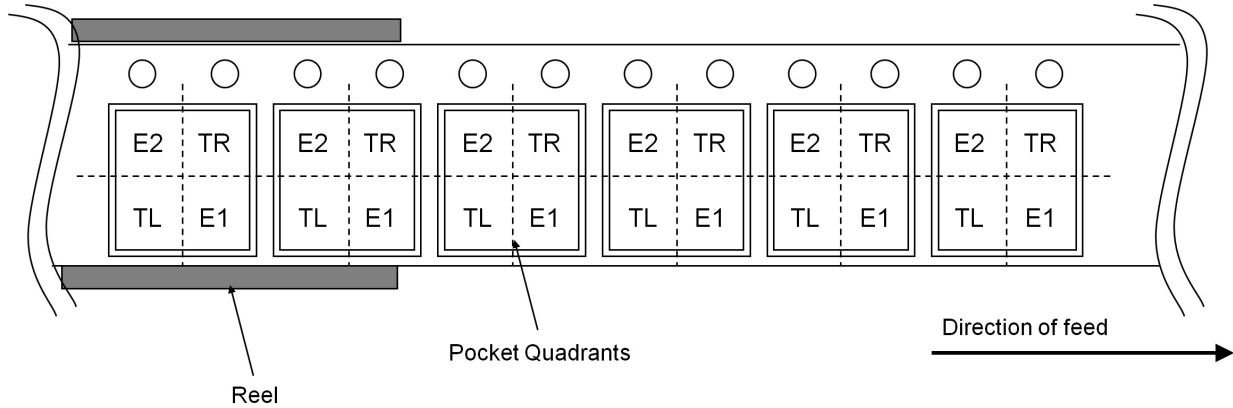


Fig.1 Quadrant Assignments for PIN 1 Orientation in Tape

E2 : PIN1 is placed to the top left corner.

TR : PIN1 is placed to the top right corner.

TL : PIN1 is placed to the lower left.

E1 : PIN1 is placed to the lower right.

3.2 Use material

| Item                  | Material           |
|-----------------------|--------------------|
| Embossed carrier tape | PS                 |
| Cover tape            | PET+PE             |
| Reel                  | PS                 |
| Desiccant             | Silicagel          |
| Envelope              | Aluminum-laminated |
| Unit box              | Cardboard          |
| Shipping box          | Cardboard          |

3.3 Leader specification

No component pockets are 300 mm or more.

3.4 Trailer specification

No component pockets are 120 mm or more. Tape is free from reel.

3.5 Peelback strength

Cover tape peelback strength is 0.2 N to 0.7 N.

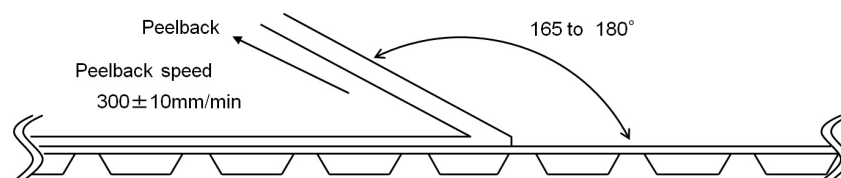


Fig. 2 Test method

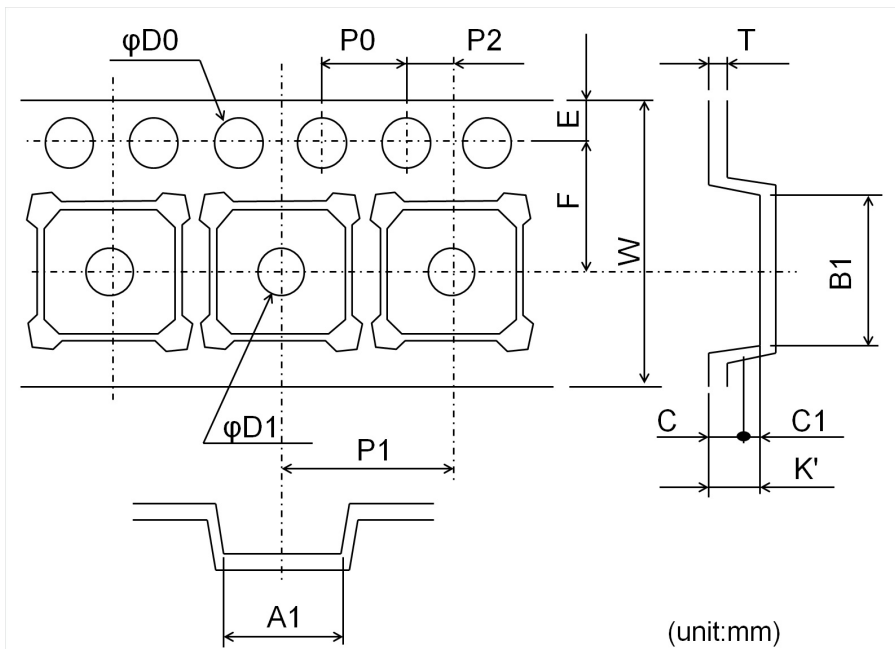
3.6 Missing lcs

(1) No consecutive dropouts.

(2) A maximum 0.1 % of specified number of products in each packing may be missing.

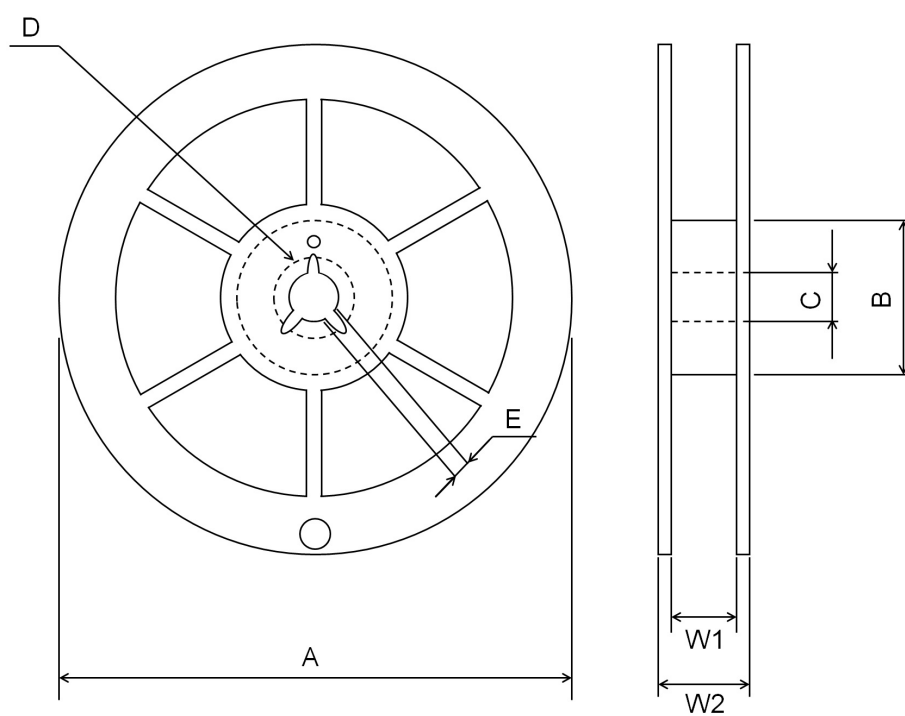
## 3.7 Tape and Reel Specification

## 3.7.1 Tape Dimension



|    | Tape Dimension | Tape Tolerance |
|----|----------------|----------------|
| A1 | 7.20           | $\pm 0.05$     |
| B1 | 7.20           | $\pm 0.05$     |
| C  | 1.15           | -              |
| C1 | 0.65           | -              |
| D0 | $\phi 1.5$     | $+0.1/-0$      |
| D1 | $\phi 1.5$     | $\pm 0.1$      |
| E  | 1.75           | $\pm 0.1$      |
| F  | 7.50           | $\pm 0.1$      |
| K' | 1.80           | $\pm 0.1$      |
| P0 | 4.00           | $\pm 0.1$      |
| P1 | 12.0           | $\pm 0.1$      |
| P2 | 2.00           | $\pm 0.1$      |
| T  | 0.30           | $\pm 0.05$     |
| W  | 16.0           | $\pm 0.3$      |

## 3.7.2 Reel Dimension

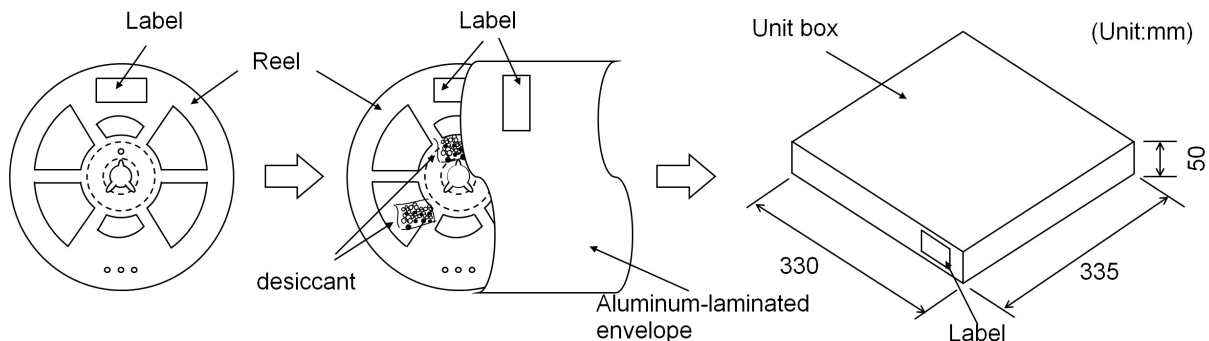


(unit:mm)

|    | Reel Dimension | Reel Tolerance |
|----|----------------|----------------|
| A  | 330            | ±2.0           |
| B  | 80             | ±1.0           |
| C  | 13             | ±0.2           |
| D  | 21             | ±0.8           |
| E  | 2              | ±0.5           |
| W1 | 17.5           | ±1.0           |
| W2 | 21.5           | ±1.0           |

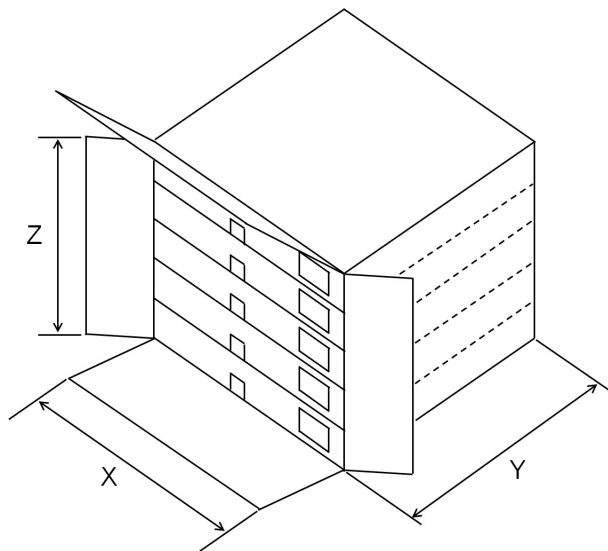
3.8 Packing Method

1 reel(s) or less per unit box



3.9 Packing Style

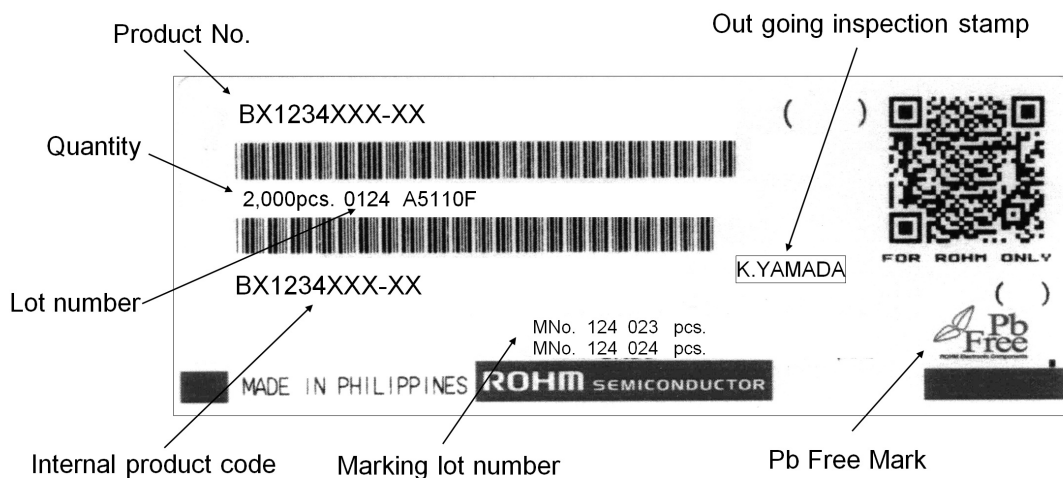
5 unit boxes or less per shipping box



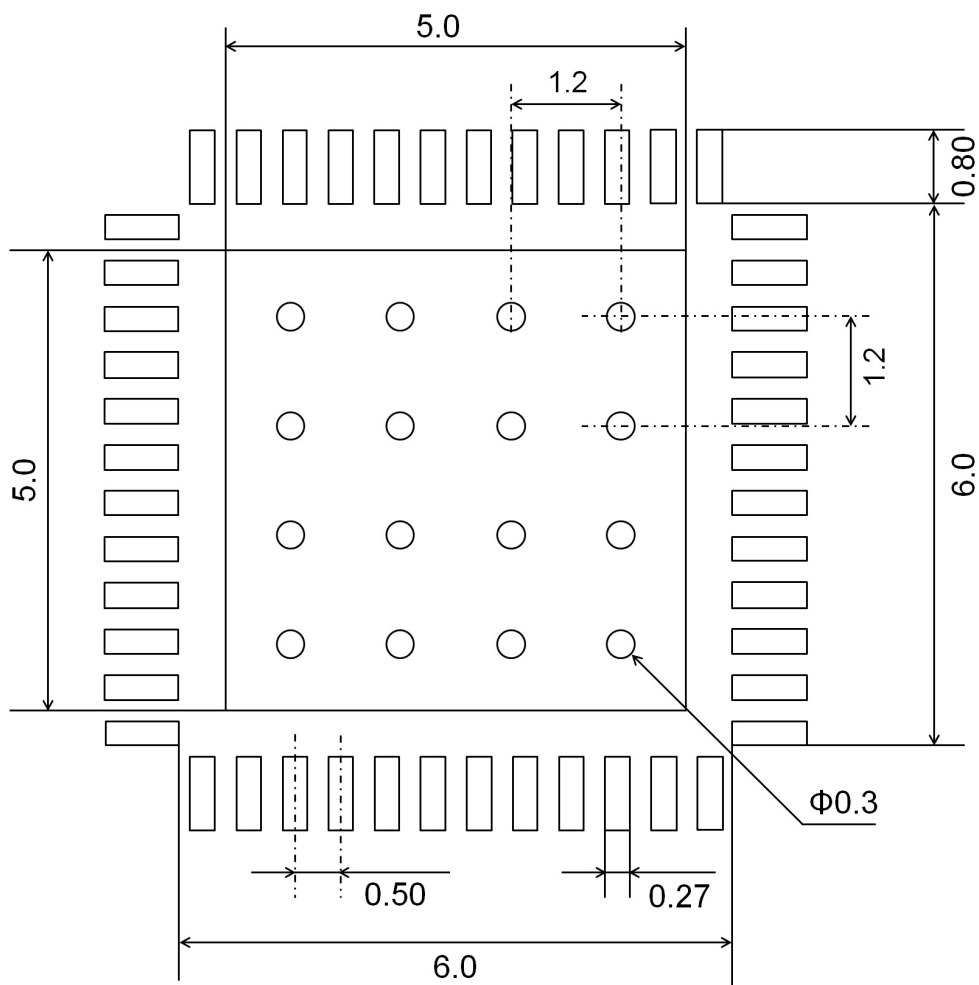
(unit:mm)

| Shipping Box Dimension |     |
|------------------------|-----|
| X                      | 347 |
| Y                      | 353 |
| Z                      | 287 |

3.10 Label Specification



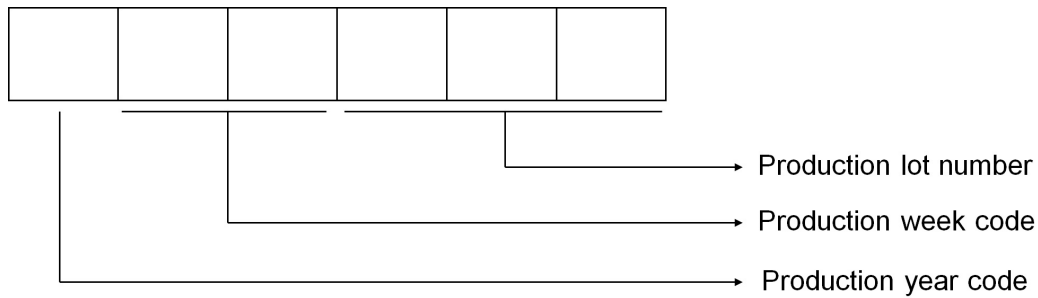
## 4. Footprint dimensions



(unit:mm)

In actual design, please optimize in accordance with the situation of your board design and soldering condition.

5. Marking Specification



6. Storage conditions

6.1 Storage environment

Recommended storage conditions

|             | Min. | Max. | Unit |
|-------------|------|------|------|
| Temperature | 5    | 30   | °C   |
| Humidity    | 40   | 70   | % RH |

6.2 Storage period

|                | Min. | Max. | Unit |
|----------------|------|------|------|
| Storage period | -    | 1    | year |

6.3 Specified storage period until soldering

|                 | Min. | Max. | Unit |
|-----------------|------|------|------|
| Acceptable time | -    | 168  | hour |

The above value is a time from opening the moisture-proof packaging until the soldering.

Cases where it is necessary to perform the drying process is the following.

Case 1 : in excess of the above-mentioned "Acceptable time"

Case 2 : it has passed more than a year not open

Recommended the dry process conditions

|                            | Temperature [°C] | Time [hour] |
|----------------------------|------------------|-------------|
| Reel (Note1)               | 60               | 72          |
| Other Heat-proof container | 125              | 24          |

(Note1) When carrying out the dry process in a "Reel" state, the peelback strength will change.

Please refer to the following values:

|                   | Min. | Max. | Unit |
|-------------------|------|------|------|
| Peelback strength | 0.2  | 0.9  | N    |

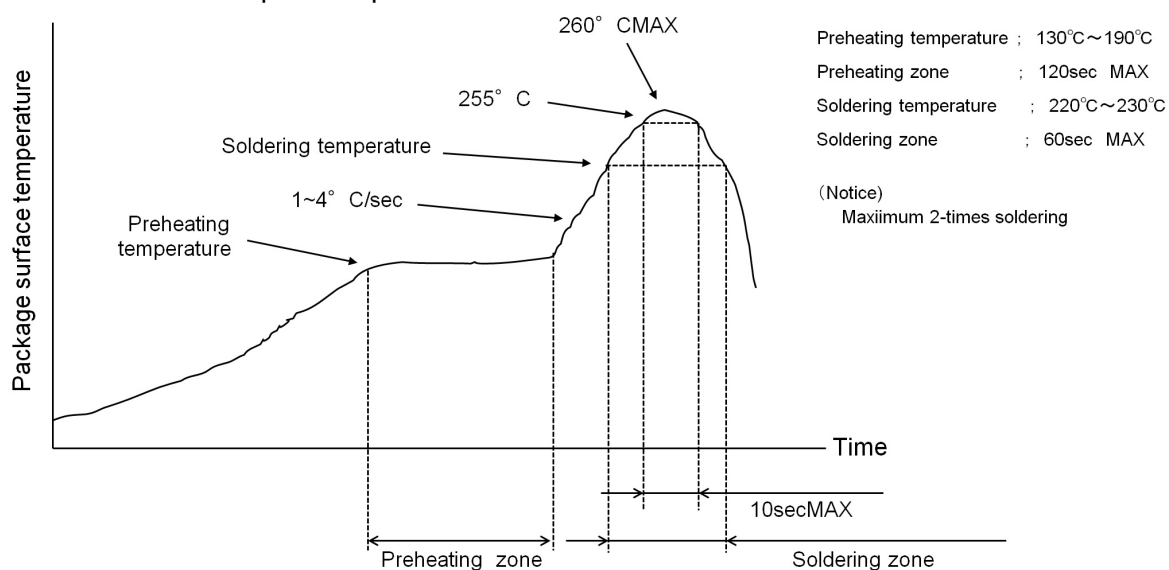
The drying process is the impact on the solderability because the oxidation of the terminal portion will occur. Therefore, specify the maximum times of the dry processing as follows:

Recommended execution count of the dry process

|                 | Min. | Max. | Unit  |
|-----------------|------|------|-------|
| Execution count | -    | 2    | times |

7. Soldering conditions

7.1 Recommended temperature profile for reflow

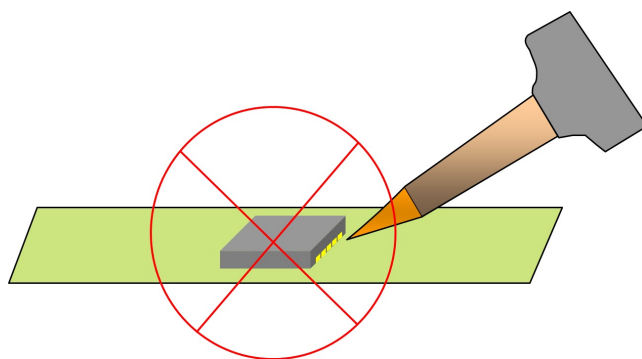


7.2 For wave soldering

The wave soldering method is not supported.

7.3 For solder iron

Rework by soldering iron is not allowed or it may cause mold crack and terminal open.

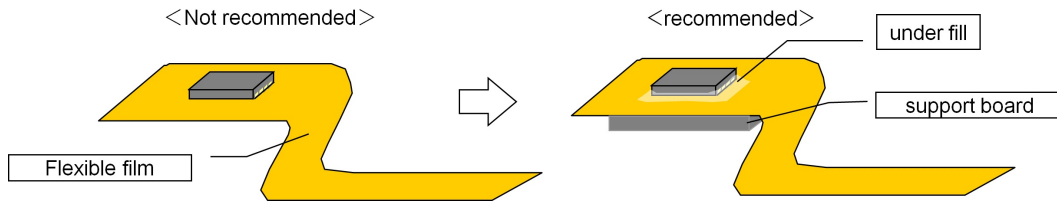




7.4 Caution for solder mounting

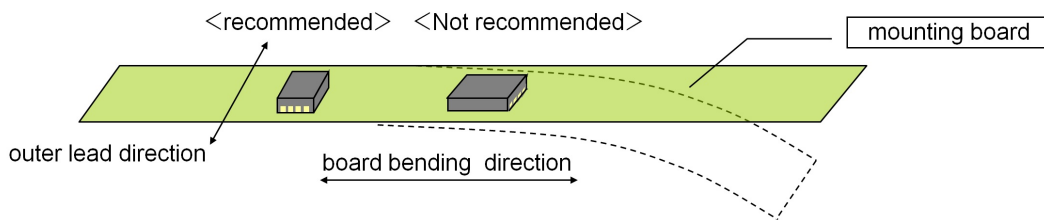
7.4.1 For mounting on flexible film

Mounting on flexible film, film bend may occur lack of lead from package, usage of support board and under fill is recommended.



7.4.2 For Mounting long and narrow board

Mounting on long and narrow board, bending stress may occur a lack of lead from package, bending board direction and outer lead direction is recommended as drawing (vertically layout) and under fill usage is recommended.



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