



# XINXIN GEM TECHNOLOGY GROUP CORP

FN: 4.0x5.2x0.345mm Product Specification

AFN: JDZJ-PS01

VER: 000



O&E Package Solution

# Product Specification

Spec#: 4.0×5.2×0.345mm (DPC)

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## 1.Product Description

1.1 Specifications: 4.0x5.2x0.345 ALN Product

1.2 Drawing No.: 128-05-G-0102B

## 2.Product Specifications

### 2.1 Substrate Specifications

2.1.1 Material: Aluminum Nitride

2.1.2 Appearance requirement: Ra 0.3-0.5 $\mu$ m

2.1.3 Submount TTV:  $\leq 10\mu$ m

2.1.4 Coefficient of thermal conductivity:  $T_c \geq 170W/m \cdot K$ ,  $200W/m \cdot K$ ,  $230W/m \cdot K$

### 2.2 Finished Product Specification

| Dimension (mm)                         | Thickness (mm)   | Both sides  |
|--|------------------|---|
| 4.0 $\pm$ 0.05 $\times$ 5.2 $\pm$ 0.05 | 0.345 $\pm$ 0.01 | Mount Surface of Chip:<br>thick Cu/Ni/Au in whole area+Local AuSn on metallization area |
|  |                  | Mount Surface of Non-Chip:<br>thick Cu/Ni/Au in whole area+ metallization               |

### 2.3 Spectrum Specifications

2.3.1 Conductive wire area: Ti(0.1 $\mu$ m nom)+Cu(2 $\mu$ m nom)+Ni(2.5 $\pm$ 0.5 $\mu$ m min)+Au(0.5 $\mu$ m min)

2.3.2 Thick film area: Ti(0.1 $\mu$ m nom)+Cu(75 $\mu$ m nom)+Ni(2.5 $\pm$ 0.5 $\mu$ m)+Au(1.0 $\mu$ m min)

2.3.3 AuSn area: Pt(0.2 $\mu$ m min)+AuSn: Au73 $\pm$ 3wt%(3.0 $\pm$ 0.5 $\mu$ m)+Au Flush(0.1 $\mu$ m Typ)



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## 3.Appearance Quality

| Item                       | Criteria                                    | Description   | Instruments                                  |
|----------------------------|---|---|--|
| Scratch                    | 《Inspection Specification》<br>JDZJ-WI-QD-10 | Scratch to the substrate is not allowed;<br>Scratch's width $\leq 10\mu\text{m}$ , negligible;<br>Width 10-40 $\mu\text{m}$ , total scratch length < twice the diagonal length of the product<br>Not allowed $\geq 40\mu\text{m}$ | 20X microscope/<br>Metallographic microscope |
| Metallized gap             |   | 1. The bump in the insulated channel is not allowed to exceed 1/3 of the width of the channel.<br>2. The bump in other areas is not allowed to exceed 100 $\mu\text{m}$ .   | 20X microscope                               |
| Metallized sunken and bump |   | Not allowed $\geq 50\mu\text{m}$  | 20X microscope                               |
| Comtamination              |   | Wipeable dirt is not allowed  | 20X microscope                               |
| Burr                       |   | The maximum is 10 $\mu\text{m}$ in the edge area and 50 $\mu\text{m}$ in the other areas.   | 20X microscope/<br>Metallographic microscope |
| Chipping                   |   | Edge chipping < 50 $\mu\text{m}$ (ceramic)  | 20X microscope/<br>Metallographic microscope |

## 4.Reliability test

| Item                              | Methods   | Criteria   | Sampling | Instruments   |
|-----------------------------------|---|--|----------|---|
| Reliability test of metallization | Gold wire bonding pull:<br>$\Phi 38\mu\text{m}$ gold wire, baked at 275°C/2H, tensile test.   | When the tensile force is greater than 20g, the bonding pad has not fallen off, and the gold wire break is not counted as defective. | Per lot  | tautness meter/ultrasonic gold wire ball bonding wire/high temperature heating platform |
|                                   | Bake at a high temperature of 400°C for 5min  | Requirements are no color, bubbling, shedding  | Per lot  | thrust meter  |
| Reliability test of AuSn          | Gold tin molten state: Place the sliced product on the high-frequency heating platform and click to start heating.  | 1. Appearance: gold tin surface infiltration, no reunion<br>2. Reflux time: > 40s  | Per lot  | 50X industrial camera/high temperature heating platform                                 |
|                                   | Gold-tin bonding force: the product is placed on the 295 °C heating platform, the solder is quickly welded to the product gold and tin, the welding time is 12s, after the welding is completed, the product is placed on the thrust meter for thrust test. | Thrust requirement: > 25N  | Per lot  | thrust meter/<br>high temperature heating platform                                      |

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## 5. Package

- 5.1 The product packaging box uses anti-static materials to ensure the cleanliness of the packaging box and ensure that the materials will not be polluted and corroded.
- 5.2 The boxes are packed into clean bags, filled with desiccant and vacuum baled.
- 5.3 The vacuum packaging bag is attached with a label, which contains: Lot No., product name, quantity, delivery date, and company name.
- 5.4 The packing box needs to have flexible materials such as foam to ensure that the vacuum of the packing box does not fail and is not damp.

## 6. Shipping

- 6.1 The products should be packed in a sturdy box. The box should meet fragile goods transport requirements.
- 6.2 Avoid direct exposure to the rain, snow and mechanical collision during transportation.
- 6.3 Inspection reports should be packed in the packing box and the report should meet the requirements according to the drawings.

## 7. Drawing (128-05-G-0102)

