



O&E Package Solution

Product Specification

Spec#: 4.5x4.5x0.345mm (DPC)

AFN: JDZJ-PS11

VER: 000

1. Product Description

1.1 Specifications : 4.5x4.5x0.345 ALN Product

1.2 Drawing No. : 128-02-G-0101E

2. Product Specifications

2.1 Substrate Specifications

2.1.1 Material : Aluminum Nitride

2.1.2 Appearance requirement : Ra 0.3-0.5 μ 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

| Description(mm) | Thickness (mm) | Coverage area |
|--|------------------|---|
| 4.5 \pm 0.05 \times 4.5 \pm 0.05 | 0.345 \pm 0.01 | Top side for Chip mounting : Thick Cu/Ni/Au plating AuSn according to the drawing |
| | | Bottom side : Thick Cu/Ni/Au in whole area+ metallization |

2.3 Spectrum Specifications

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

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

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

3. Appearance Quality Criteria

| Inspection Document | Item | Inspection Criteria | Instruments |
|---|-----------------------|---|---|
| 《Inspection Specification》 JDZJ-WI-QD-10 | Scratch | Scratch into the substrate is not allowed ; Scratch width ≤ 10μm allowed ; Width 10~40μm, total scratch length < twice the diagonal length of the product Scratch width ≥ 40μm not allowed | 20X microscope Metallographic microscope |
| | Metallized gap | The bump in the insulated channel is not allowed to exceed 1/3 of the width of the channel. The bump in other areas is not allowed to exceed 100μm. | 20X microscope |
| | Bump of metallization | Not allowed ≥ 50μm | 20X microscope |
| | Contamination | Can be removed | 20X microscope |
| | Burr | < 10μm in edge area < 50μm in other areas. | 20X microscope Metallographic microscope |
| | Chipping | Edge chipping < 50μm (ceramic) | 20X microscope Metallographic microscope |

4. Reliability test

| Item | Methods | Criteria | Sampling | Instruments |
|-----------------------------------|--|---|----------|---|
| Reliability test of metallization | Gold wire bonding tension test: Φ38μm gold wire baked at 275°C/2H. | When the tension > 20g, the bonding pad not allowed falling off. Gold wire broken is acceptable. | Per lot | tautness meter/ultrasonic gold wire ball bonding wire/high temperature heating platform |
| | Baking at 400°C for 5min | No hetero color, bubbling, falling off | Per lot | thrust meter |
| Reliability test of AuSn | Gold tin molten state : Heating the sliced product on high frequency heating platform | Gold tin surface infiltration, no aggregation, Reflow time: > 40s | Per lot | 50X industrial camera/high temperature heating platform |
| | Gold-tin bonding strength: After welding the solder to the products till the gold tin out of it under on 295 °C heating in 12 seconds. | Thrust > 25N | Per lot | thrust meter/ high temperature heating platform |

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 (128-02-G-0101E)

