

Micromax™ DA511

Microcircuit and Component Materials

Ag Sinter Paste For Power Semiconductor Die Attach

Micromax™ DA511 silver sinter paste is a lead free die attach material designed for high reliability power semiconductor chip assembly.

Product benefits

- Pressure-assisted, low temperature sintered silver paste
- Applicable for SiC or high power Si power modules (~175°C)
- Stable at room temperature
- Short sintering process time
- Air or N2 atmosphere sintering
- Bond to Au, Ag and Cu
- Adjusted for off contact deposition (jetting)
- Applicable for die top attach interconnect

Product information

Solvent or thinner

Micromax™ 9450

Rheological properties

Viscosity

70 - 90^[1] Pa.s

[1]: Brookfield HAT, 10rpm, 25°C ± 0.2°C

Application technique

Mask emulsion

150 µm

Drying time

5 - 30 min

Drying temperature

80 - 120 °C

Thermal properties

Thermal conductivity

≥200 W/(m K)

Storage and stability

Shelf life

6^[2] months

[2]: in unopened containers, from date of shipment, at room temperature (<25°C)

Additional information

How to use

Design & compatibility

• Compatibility

- Whilst Micromax™ has tested this composition with the materials

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specified above and the recommended processing conditions, it is impossible or impractical to cover every combination of materials, customer processing conditions and circuit layouts. It is therefore essential that customers thoroughly evaluate the material in their specific situations in order to completely satisfy themselves with the overall quality and suitability of the composition for its intended application(s).

Processing

- **Screen type**
 - 150um thick metal stencil mask
- **Printing**
 - The composition should be thoroughly mixed and de-bubbled before use. This is best achieved by 1000rpm, 30sec mixing with a mixer. Care must be taken to avoid air entrapment during paste settlement on to the mask. Printing should be performed in a well ventilated area.
 - Note: optimum printing characteristics are generally achieved in the room temperature range of 20 °C - 23 °C. It is therefore important that the material, in its container, is at this temperature prior to commencement of printing.
- **Thinning**
 - Micromax™ DA511 composition is optimized for screen printing and thinning is not normally required. Use the Micromax™ recommended thinner for slight adjustments to viscosity or to replace evaporation losses. The use of too much thinner or the use of a nonrecommended thinner may affect the rheological behavior of the material and its printing characteristics.
- **Drying**
 - Allow prints to level at room temperature, then dry in a wellventilated oven or conveyor dryer.
- **Chip mounting**
 - Place the chip on top of dried layer.
 - Chip mount temp: 150 °C to 175 °C
 - Chip mount pressure: 1MPa to 5MPa
 - Chip mount time: 5sec to 15sec
- **Sintering**
 - Sintering should be held under pressure with die bonder.
 - Sintering temp: 250 °C to 280 °C
 - Sintering pressure: >10MPa
 - Sintering time: 1min to 15min

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Properties

Typical Sintered Properties

Test	Properties
CTE (ppm/°C)	20.6

Information in this datasheet shows anticipated typical physical properties for Micromax™ DA511 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

General

Performance will depend to a large degree on care exercised in screen printing. Scrupulous care should be taken to keep the composition, printing screens and other tools free of metal contamination. Dust, lint and other particulate matter may also contribute to poor yields.

Storage and shelf life

Containers should be stored, tightly sealed, in a clean, stable environment at room temperature (<25°C). Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

Safety and handling

For safety and handling information pertaining to this product, read Safety Data Sheet (SDS).