Celanese
The chemistry inside innovation™

Micromax™ 6142D

Microcircuit and Component Materials

Silver Cofireable Conductor

Micromax™ 6142D co-fired silver conductor, part of the Micromax™ GreenTape™ 951 low temperature co-fired ceramic system, is ideally suited for signal lines, ground planes, and capacitor electrodes.

Product benefits

When used with Micromax™ GreenTape™ 951 and compatible via fill pastes, Micromax™ 6142D offers the following benefits:

- Low cost, high conductivity metallization
- High circuit density
- Cofire processing

Product information

Solvent or thinner	Micromax™ 8250

Rheological properties

Viscosity	180 - 270[1]	Pa.s

[1]: Brookfield 2xHAT, SC4-14/6R, 10 rpm, 25°C

Application technique

Mask mesh	325	
Mask emulsion	12	µm
Drying time	5	min
Drying temperature	120	°C
Recommended film thickness, fired	7 - 9	µm
Print resolution, lines	125[2]	µm
Print resolution, spaces	125[2]	µm

[2]: Dried Line Resolution

Electrical properties

Surface resistivity	3.3[3]	mOhm per square

[3]: at 9µm fired thickness

Storage and stability

Shelf life	6[4]	months

[4]: in unopened containers, from date of shipment, at temperature <25° C

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Additional information

How to use

Design & compatibility

- Design
  - For detailed recommendations on the use of Micromax™ GreenTape™ 951 and conductors such as Micromax™ 6142D, see the Micromax™ GreenTape™ 951 Design Guide and Product Data Sheet. For compatible thick film compositions and their recommended use, see the Micromax™ GreenTape™ 951 Product Selector Guide.

Processing

- Printing
  - The composition should be thoroughly mixed before use. This is best achieved by slow, gentle hand stirring with a clean burr-free spatula (flexible plastic or stainless steel) for 1-2 minutes. Care must be taken to avoid air entrapment.
  - Printing should be performed in a clean and well-ventilated area. Optimum printing characteristics are generally achieved at a room temperature of 20-23°C. Viscosity, and therefore printability, of thick film compositions can be affected by ambient temperatures.
  - Print Micromax™ 6142D directly onto Micromax™ GreenTape™ 951 green sheets using thick film printing methods and a vacuum stone or other support structure that uniformly distributes vacuum to the sheets. Printing is typically performed using a 325 mesh stainless steel screen with 12µm emulsion thickness.
- Thinning
  - Thinning thick film compositions is not recommended as material is supplied formulated for optimal performance. Improper thinning may affect printing characteristics. Thinner may be added to replenish solvent lost during normal usage, but care should be taken to not over-thin.
- Clean-up solvent
  - 1-Propoxy-2-Propanol
- Drying
  - Dry in air in a well-ventilated oven or conveyor dryer for 5 minutes at 120°C. Do not over-dry.
- Lamination and firing
  - Laminate multiple sheets of the printed circuit patterns according to the processing parameters detailed in the Micromax™ GreenTape™ 951 Design Guide and Product Data Sheet. Also

reference these documents for details on the recommended firing profiles.
- Air flows and extraction rates should be optimized to ensure that oxidizing conditions exist within the muffle and that no exhaust gases enter the room.

Properties

- Information in this datasheet shows anticipated typical physical properties for Micromax™ 6142D based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

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).