Micromax™ 4597R

Microcircuit and Component Materials

Solderable Conductor

Micromax™ 4597R is a phthalate and cadmium-free* solderable platinum/palladium/gold conductor for high density single and multilayer hybrids. It has excellent tin/lead solderability and exhibits high leach resistance on both alumina and dielectric.

Product benefits

When used on alumina or with Micromax™ multilayer dielectrics, Micromax™ 4597R offers the following benefits:
- Phthalate and Cadmium free* solderable
- Excellent solder acceptance
- Improved backlight density
- High circuit density
- High reliability

*Phthalate and cadmium “free” as used herein means that these are not intentionally added to the referenced product. Trace amounts however may be present.

Product information

Solvent or thinner	Micromax™ 9180R
Solid content	80.1 - 81.4[1] %

[1]: 1050°C

Rheological properties

Viscosity	180 - 280[2] Pa.s

[2]: Brookfield HBT, SC04 14/6R [UC&SP], 10 RPM, 25°C

Application technique

Mask mesh	200[3]
Mask emulsion	12 µm
Drying time	15 min
Drying temperature	150 °C
Theoretical coverage	60 - 70 cm^2/g
Recommended film thickness, fired	13 - 17 µm
Print resolution, lines	150 µm
Print resolution, spaces	100 µm
Leveling time	10 - 15 min

[3]: Screen Types: Stainless steel

Micromax™ 4597R

Microcircuit and Component Materials

Electrical properties

Surface resistivity	30 - 100[4]	mOhm per square

[4]: @10µm fired thickness

Storage and stability

Shelf life	6[5]	months

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

Additional information

How to use

Processing

- Substrates
  - Properties are based on test using 96% alumina substrates. Substrates of other compositions and from various manufacturers may result in variations in performance properties.
- Printing
  - A 200-mesh stainless steel screen with a 12µm (0.5 mil) emulsion thickness is recommended. Printing speeds up to 30 cm/s (12in/s) can be used.
- Drying
  - Allow the wet print to level at room temperature and then dried.
- Firing
  - Dried prints should be fired in a belt furnace. Use a 60-minutes cycle with a peak temperature of 850°C.

Properties

Typical Fired Properties

Test	Properties
Line Resolution (µm) lines/spaces	150/100
Initial Adhesion*1 (N)	≥ 20
Aged*2 Adhesion (N)	≥ 14
Solder Acceptance (%) on Micromax™ 5704	≥ 97
Solder Acceptance (%) on Alumina	≥ 95
Resistance to Solder Leaching*3 on Alumina	≥ 15

Micromax™ 4597R

Microcircuit and Component Materials

*1 (3x850°C fires/5sec dip/63Sn/37/Pb @240°C)
*2 At 150°C for 48 hrs
*3 10 sec dips @ 240ºC 63Sn37Pb solder

Information in this datasheet shows anticipated typical physical properties for Micromax™ 4597R 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).

Revised: 2022-09-22 Source: Celanese Materials Database

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