

Micromax™ QM42

Electronic Inks and Pastes

Dielectric

Micromax™ QM42 dielectric is part of the Micromax™ QM System, a silver-based system for low cost multilayer. Micromax™ QM42 has been designed to give outstanding electrical properties when combined with silver conductors and also enables silver/palladium and gold to be used on top of the dielectric for soldered component attachment and wire bonding.

Product benefits

- Dense, hermetic dielectric.
- High resistance to E.M.F. (electro-motive force) effects.
- High yields with silver conductors.
- Ability to mix conductor metallurgies on the same circuit.
- Designed for trimming of top resistors.
- Fireable in 30-minute profile.

Product information

Solvent or thinner Micromax™ 9179

Rheological properties

Viscosity 200 - 270^[1] Pa.s

[1]: Brookfield HBT, UC&SP, SC4-14/6R, 10 rpm, 25°C ± 0.2°C

Application technique

Mask mesh	200 - 325
Drying time	10 - 15 min
Drying temperature	150 °C
Theoretical coverage	110 - 130 ^[2] cm ² /g
Recommended film thickness, fired	≥35 μm
Leveling time	5 - 10 min

[2]: based on fired thickness of 17.5μm

[3]: between conducting layers

Electrical properties

Dielectric Constant	9 - 11
Dissipation Factor	≤0.5 %
Insulation Resistance, DC	≥1E11 ^[4] Ohm
Breakdown Voltage	≥1500 ^[5] V

[4]: at 100 VDC recommended thickness

[5]: VDC at 35μm

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Storage and stability

Shelf life

6^[6] months

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

Additional information

How to use

Processing

- **Substrates**
 - Properties are based on tests on 96% alumina substrates. Substrates of other compositions and from various manufacturers may result in variations in performance properties.
- **Printing**
 - Printing should be carried out in a clean and well ventilated area. Print individual layers with a 200-325 (recommended) mesh stainless steel screen.
 - The total thickness of the fired dielectric should be at least 35µm between conducting layers. This can generally be achieved with 2 prints of the dielectric (if 325-mesh screens are used then 3 prints will be necessary). Use of double wet pass (print/print mode) of the squeegee may help to minimize pinholes when printing the dielectric, although at the expense of via resolution.
- **Drying**
 - Allow prints to level for 5-10 minutes at room temperature. Then dry for 10-15 minutes at 150 °C
- **Firing**
 - Fire in well-ventilated moving conveyor furnace, in air with a 30-minute cycle, to a peak temperature of 850 °C.
- **Resistance to battery effects number of refires without blistering**
 - Configuration : Micromax™ QM21 silver/palladium top conductors/Micromax™ QM42 dielectric/Micromax™ QM14 silver bottom conductor
 - ≥20 at 35µm

Properties

- Information in this datasheet shows anticipated typical physical properties for Micromax™ QM42 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

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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).