DuPont QM34 SILVER/PALLADIUM VIA FILL CONDUCTOR

Product Description
DuPont QM34 silver/palladium (20:1) via fill conductor is part of the DuPont QM System, a silver-based system for low cost multilayer. DuPont QM34 is recommended as a via fill for buried vias. In addition, DuPont QM34 may be used as a top layer via interconnection to silver, silver/platinum, silver/palladium external conductors.

Product Benefits
- Thermal expansion coefficient adjusted for compatibility with DuPont QM44, DuPont QM42 & their variants.
- Crack-free via connections.
- Suitable to fill two dielectric layers with single via print.
- Co-fireable with top silver or silver/palladium conductors.
- Co-fireable with dielectric layer.
- Provides excellent surface planarity for staggered or stacked via arrangements.
- 15x refire capability:
  - Sequential or co-fired (Dielectric/ DuPont QM14)
  - Sequential silver/palladium Top Conductor.

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
Screen-print with a 325-mesh stainless steel screen with a 12.5µm emulsion thickness.

Typical Fired Properties

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistivity (mΩ/sq @ 25 µm)</td>
<td>5 - 10</td>
</tr>
<tr>
<td>Planarity (µm)</td>
<td>&lt; 5</td>
</tr>
<tr>
<td>Via Diameter (µm)</td>
<td>&lt; 125 - 500</td>
</tr>
<tr>
<td>#Stacked Vias (layers)</td>
<td>&lt; 10</td>
</tr>
</tbody>
</table>

Composition Properties

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (Pa.s)</td>
<td>60-90</td>
</tr>
<tr>
<td>(HBT UC&amp;SP, 10rpm @ 25ºC)</td>
<td></td>
</tr>
<tr>
<td>Thinner</td>
<td>DuPont 4553</td>
</tr>
<tr>
<td>Coverage (vias/g) [300µm diameter vias]</td>
<td>106,000</td>
</tr>
</tbody>
</table>

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.
Typical 30-minutes profile

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 the Material Safety Data Sheet (MSDS).

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