DuPont TH035

GOLD THROUGH-HOLE FILL COMPOSITION

Technical Data Sheet

Product Description

DuPont TH035 is a gold through-hole conductor composition designed to completely fill laser drilled holes in alumina substrates in a single processing step. It creates a highly conductive (electrically & thermally) front-to-back interconnect with reduced capacitance effects associated with coated through-holes in high frequency applications. Hole filling also offers the advantage of increased circuit density.

DuPont TH035 is specifically formulated for minimal shrinkage from the dried to the fired state. Its low shrinkage makes DuPont TH035 ideal for filling 6-25 mil diameter holes in 10-25 mil thick substrates.

Product Benefits

- High Electrical Conductivity
- High Thermal Conductivity
- Dense and Planar Fill (meets surface planarity needs for subsequent thick or thin film etching)
- Single-step processing

Processing

Recommended processing procedures are described in the Design Guideline for Filling Through-holes.

Printing

DuPont TH035 is formulated for use with a screen printer or extrusion bladder filler. A stencil is recommended for achieving a uniform and void free fill.

Drying

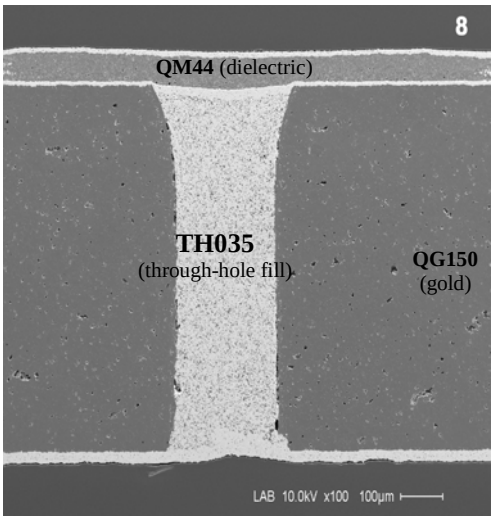
Allow the filled through-holes to level for 5-10 minutes at room temperature, then dry for 10 min. at 150º C in a well ventilated oven or belt dryer. Additional drying time may be needed for large diameter holes or if there is poor airflow in the

Composition Properties

Test	Properties
Viscosity (Pa.s) (Brookfield HBT, 1 rpm, #14 spindle&UC, 25°C)	3,000 - 6,000
Solids (750°C) (%)	94.0 - 96.0
Thinner	DuPont 9450
Resistivity (mΩ/sq@1 mil fired) (850ºC) (980ºC)	17 11

Table 1 shows anticipated typical physical properties for DuPont th035 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

DuPont TH035 though-hole Fill (Cross-section)



(10 mil wide hole/25 mil thick alumina)

Additional Information

In addition to the standard firing profile (850ºC/30 min.) DuPont TH035 has been fired with elevated peak firing temperatures (up to 980ºC.). The higher firing temperature tends to produce a lower resistivity fill, but an increase in the dried-to-fired shrinkage was also noted. While it may be possible to use this composition in an application that requires a higher firing temperature, subsequent firing steps should not exceed the peak firing temperature used for DuPont TH035. Firing the through-hole conductor at a lower peak temperature follow by subsequent firings at higher temperature may cause blisters.

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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