



## TECHNICAL DATA SHEET

*ELECTRA<sup>Ω</sup> D'OR<sup>TM</sup>*

**ED2075**

**CONDUCTIVE VIA HOLE-PLUG**

### PRODUCT DESCRIPTION

**ED2075** is a single component, solvent-free, silver-filled, epoxy system designed for plugging blind or buried via holes with or without through-hole-plating.

Rheological characteristics are optimised to allow effective plugging of aspect ratios up to 6:1 using conventional screen or stencil techniques.

The 100% solids composition prevents shrinkage or voiding of the finished via plug.

### FEATURES & BENEFITS

- Eliminates the need for excessive copper plating processes.
- 100% solids composition allows no shrinkage or solvent entrapment in via holes.
- Excellent screen stability allowing reduced material wastage from excessive clean-up.
- High electrical and thermal conductivity allows good inner layer connection and improved thermal management.
- Excellent adhesion to copper and laminate surfaces
- Compatibility with copper plating techniques allows increased use of real estate through via in pad applications

### PROCESSING

#### **Printing:**

ED2075 can be applied by conventional screen printing methods or by using a stencil made from a thin sheet such as Aluminium drill entry material. The latter method provides improved registration and allows for easier transfer of conductive hole-plug material into the holes.

*Using polyester mesh*

Mesh count    43 - 49T polyester

Squeegee:      60 - 70 Shore. Using a rounded squeegee blade will increase filling efficiency.

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ED2075rev5

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**Print speed:** The print speed should be kept to a minimum to allow enough ED2075 to flow into the vias. A double print stroke should be utilised if the holes are not sufficiently filled on the first pass.

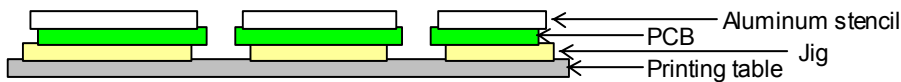
**Snap-off:** Minimum snap-off should be used. This will reduce screen distortion and material smudge. Alternatively a drilled template can be used which is glued to the screen and used with zero snap-off (see below).

*Using aluminium stencil*

An aluminium or stainless steel stencil can be efficiently used instead of polyester mesh for printing.

Apertures in the stencil are drilled slightly larger than the via-hole diameter. It should then be attached with glue to the top of the polyester mesh and the mesh underneath cut out to expose the stencil.

A jig with drilled holes should be placed under the board. This will allow air from the holes to escape and the hole to be fully plugged without risk of smudge on the underside of the board during the plugging (see *cross-section diagram below*).



Other printing parameters should be the same as for polyester mesh.

**Curing:** 60 minutes at 150°C

**Planarisation:**

Prior to plating or build-up all residual material should be removed and the ED2075 surface roughened using a wet deburring scrubber or sander.

It is essential to ensure through rinsing to remove all loose particles from the surface.

**TYPICAL PROPERTIES**

Properties	Typical Values
Resin base	Liquid epoxy
Solids level	100%
Filler type	Silver flake
Density	3gcm <sup>-3</sup>
Viscosity at 25°C	24 Poise (Haake VT-24, PKII, 0.3°)



Properties	Typical Values
Glass transition temperature (DSC)	DSC: 90°C TMA: 60°C
Volume resistivity	$< 1 \times 10^{-4} \Omega\text{cm}^{-1}$
Coefficient of Thermal Expansion (CTE) see figure1	Below Tg: 81 ppm/°C Above Tg: 192 ppm/°C

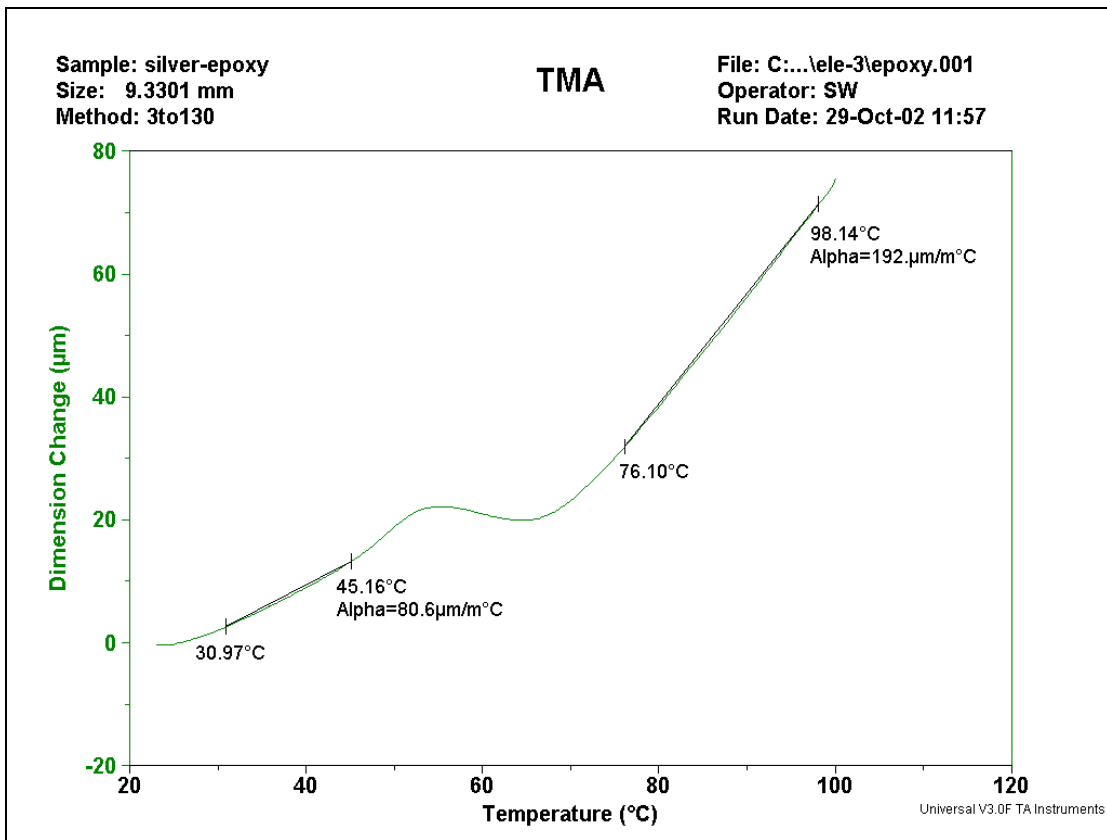


Figure 1 – ED2075 Coefficient of Thermal Expansion

**PACK-SIZE:** 500g pots

**SHELF-LIFE:** 3 months from date of manufacture when stored in cool dry conditions. This may be extended to 6 months if refrigerated.



For further information, contact:

Electra  
Roughway Mill  
Dunk's Green  
Tonbridge  
Kent TN11 9SG  
ENGLAND

Tel: +44 (0)1732 811 118  
[info@electrapolymers.com](mailto:info@electrapolymers.com)

Or visit our Website for details of local offices and Distributors

[www.electrapolymers.com](http://www.electrapolymers.com)

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