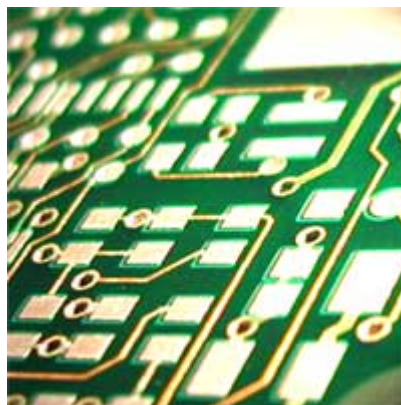


ESM – 100

The Universal Surface Finishing for Printed Wire Boards

ESM100 is based on a break-through technology that sets new standards for PWB surface finishing.

Having performance similar to costly gold-processes, while having a price setting lower than traditional techniques such as HASL, is ESM100 outperforming competition in a vast range of application areas for PWB's.



Why ESM100?

ESM100 is an autocatalytic silver-plating process. The autocatalytic nature of the process is a world-unique feature, which means that the silver-film can be engineered to any desired thickness. ESM100 therefore yields a surface finishing with crucial advantages compared to traditional techniques.

Lead Free

Environmental concern is on top of the agenda as the electronics industry is moving towards July 2006. ESM100 is a lead free process and is well suited for replacement of HASL.

Multi Solderable

Absolutely conformal coatings of thick silver-films allows for multiple solder cycles.

Bondable

ESM-100 is bondable with both gold and aluminium wire.

Fine Pitch Surface Mount

The dense layer and the extremely flat topography of the silver film makes ESM100 well suited for fine pitch components.

Easy Processing

ESM100 only consists of 2 process steps. The process is designed for easy implementation in fully automated plants.

Re-Processing

No special procedures have to be taken if the need for re-fabrication of the surface finish should arise. Just etch the damaged or old surface and re-plate the PWB.

Shelf Life

ESM100 has a shelf life between 1 and 2 years, depending on film thickness.

Technical Performance of ESM100: A Comparison

The table below is a compilation of fundamental characteristics of the most commonly used surface treatments for PWB's. ESM100 is as good or better than competing technologies *on every point*.

| | Ni/Pd/Au | ENIG | IMMER-SION SILVER | HASL | IMMER-SION TIN | ESM 100 | OSP |
|--|-------------|-------------|-------------------|---------------|----------------|------------------|-------------|
| TOPOGRAPHY | Excellent | Excellent | Good | Poor | Medium | Excellent | Medium |
| MULTIPLE SOLDERABILITY | Excellent | Excellent | Good | Very good | Good | Excellent | Good |
| BONDING WITH ALUMINUM WIRE | Yes | Yes | Yes | No | No | Yes | No |
| BONDING WITH GOLD WIRE | Yes | No | No | No | No | Yes | No |
| COMPATIBILITY WITH SOLDER MASKS | Problematic | Problematic | Excellent | Good | Excellent | Excellent | Problematic |
| DETRIMENT TO PWB INTEGRITY | None | None | None | Thermal shock | None | None | None |
| FINE PITCH SURFACE MOUNT | Yes | Yes | Yes | No | No | Yes | Yes |
| SHELF LIFE | 2 years | 2 years | 6 months | 2 years | 1 year | 2 years | 6 months |
| PROCESSING COMPLEXITY | Very High | High | Medium | Medium | Medium | Low | Medium |
| ETCH AND REPLATE | Impossible | Impossible | Impossible | Difficult | Possible | Possible | Possible |

Table 1. A comparison of technical performance between different technologies for PWB surface finishes.

Specializing in high performing plating processes, Polymer Kompositer AB offers several unique technologies. Apart from ESM-100, our processes include two other ESM processes, developed for microwave components and solar cells. In addition, we have extensive experience in plating of plastics and composite materials, as well as manufacturing of microwave components. For more information you are welcome to visit our website www.polykomp.com or contact us by phone or mail.