Microcirtec
Micro Circuit Technology GmbH

Deutscher Leiterplatten-Hersteller

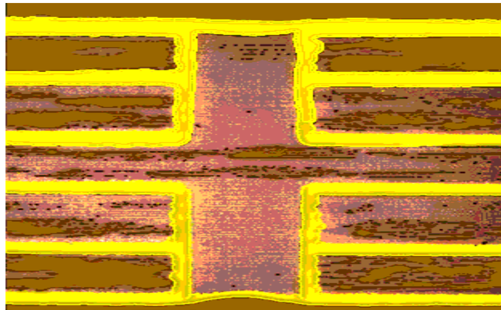
"DMS-E Process"
Direct Metallization System for Printed Circuit Boards

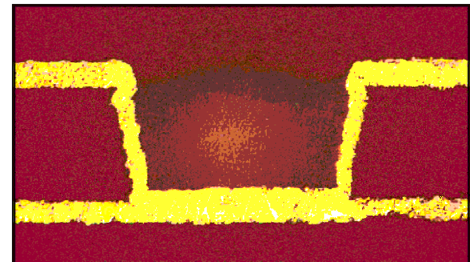
Features/Benefits

- Selective to Dielectric and Glass
- Total Process Cost Reduction
- Environmentally Sound
- Excellent Copper-to-Copper Adhesion and Through-Hole Coverage
- Horizontal and Vertical Process Compatibility
- No Hole Size, MLB Layer Count or Aspect Ratio Limitations
- Suitable for PTH Innerlayer or Microvia Metallization

CHARACTERISTICS:

- excellent copper to copper adhesion
- no additional etching will be necessary for copper-cleaning
- no residuals in blind-micro-Via´s





The DMS-E direct metallization system selectively deposits highly conductive polymer on dielectric resin and glass areas without the use of electroless copper. The formaldehyde-free, environmentally sound technology provides fast and uniform coverage of the plated through-hole.

DMS-E selective catalyzation ensures excellent copper-to-copper adhesion at the innerlayer junctions on multilayers. Innerlayer and outerlayer copper surfaces remain pristine, eliminating the potential for interconnect defects and copper-to-copper adhesion failure. Costly waste treatment and microetch post-treatments are not required. Fully compatible with most electrolytic acid coppers, the system's wide operating window allows for simplified process control and reduced process times.

DMS-E deposits a conductive polymer that may be produced either in the horizontal mode using specially designed horizontal processing equipment or in the vertical mode using a standard immersion type plating line. When choosing a processing method, the following guidelines should be taken into consideration.

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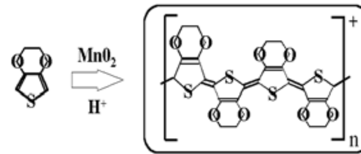
Nach DIN EN ISO 9001 : 2000
Zertifikat-Nummer: 05124-1 aus 2005
MOODY INTERNATIONAL CERTIFICATION
ZERT
Zertifiziertes QM-System



Horizontal processing is recommended under the circumstances noted below.

1. Aspect ratios greater than 5:1
2. Plated through-hole diameters smaller than 0.016 in (0.4 mm)
3. Blind vias
4. Thin, flexible materials

If high aspect ratio and small holes are processed in the vertical mode, vibration is recommended for each processing stage.

The DMS-E process includes no cleaning sequence, therefore copper surfaces should be clean and holes should be free of all drill debris. This may be achieved by chemical cleaning (e.g. ultrasonics) or by brushing with an ultrasonic section to remove the drill debris prior to the DMS-E process.

When processing double-sided panels through a horizontal line using sulfuric acid (e.g. Stabilizer) it is important to ensure that the through-holes are clean. This may be accomplished by introducing a desmear pretreatment.

Used by over 150 PWB fabricators worldwide, the DMS-E system consistently delivers highly reliable plated through-holes on all commonly used laminate materials, PWB complexities and in a variety of operating conditions. Production-proven in both vertical and horizontal process equipment, the versatile system yields *total* process cost reduction.

TEST-RESULTS

Tests	Material	Aspect Ratio	Hole Way Pullaway	Innerlayer Connections	Defects (ohms)	Results
MIL SPEC 55110						
Solder Float	FR4	**1:5**	**<1%**	ok	none	pass
	FR4	**1:8**	**<3%**	ok	none	pass
	PI	**1:5**	**<1%**	ok	none	pass
Thermal Shock	FR4	**1:5**	**<3%**	ok	none	pass
	FR4	**1:8**	**<3%**	ok	none	pass
	PI	**1:5**	**<3%**	ok	none	pass
IPC - TM - 650						
Rework Simulation	FR4	**1:5**	**---**	---	none	pass
Special Tests						
Thermo-Cycle 260°C, 10 Cycles	FR4	**1:5**	**<5%**	ok	none	pass
	FR4	**1:10**	**<10%**	ok	none	pass
Solder Float 320°C, 10 Cycles	FR4	**1:5**	**<5%**	ok	none	pass
	FR4/PI	**1:8**	**<5%**	ok	none	pass
Thermal Shock 1.000 Cycles	FR4	**1:5**	**<3%**	ok	none	pass
	FR4/PI	**1:3**	**<10%**	ok	none	pass
	FR4/PI	**1:5**	**<10%**	ok	none	pass

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