Dry film Resist – Mega part : 500-024

Description

Film resists are designed to be developed and stripped in mildly alkaline solutions.
They order superior performance and resistance to leaching in all the most commonly used plating baths used in printed circuit manufacturing. Our Dry Film Resist is highly resistant to acid etching processes.

Our Dry Film Resist is extremely flexible, ensuring reliable tenting performance even on large tooling holes; good tenting performance can be achieved with resists of 40 micron and thicker.

The Dry Film has excellent adhesion and definition characteristics producing very high yields on fine line technologies.

Recommended usages

TYPE	THICKNESS	USE
500-024	40 microns 1.5mils.	Tenting, Copper, Tin. Tin / Lead Plating, Acid Etching.

Packaging

TYPE	STANDARD		
	Length	Core	Box
500-024	150M	3" cardboard	2 rolls

Storage should be in U.V. free conditions with temperature of 20–25°C (59-68°F) and a relative humidity of 40-70% .

Pre-lamination Cleaning

We recommend good surface cleaning in order to get optimal performance from our Dry Film Resist.
A well cleaned board should be able to keep a water film for at least 20 seconds

Mechanical Methods

With pumice:
Pumice grade: FFF
Concentration : 10-15%
A good rising is necessary to remove pumice residues

With brush:
Brush Type: lipprite S8-S9 or equivalent to achieve regular and compact micro roughness with
Rz 1.5 – 3.0 µm
Ra 0.10 – 0.30µm

Chemical Methods

Microetch with Etch Rate > 1.0 µm

Lamination

The panels must be thoroughly dry prior to lamination.
Preheating is recommended and should give a board temperature > 35°C (95°F)

Hot roll temperature	105 – 125°C (221 – 257°F)
Hot roll pressure	2.5 – 3.5 BAR (35 – 50 Psi)
Lamination speed	1 – 3m / min (3 – 10 fee / min)
Board exit temperature	> 50°C (122°F)

Hold Time

Minimum: hold time necessary to allow panels to cool down to room temperature
Maximum: 15 days; to maintain the best tenting performances a maximum hold time of 7 days is recommended.

Exposure

We recommend using U.V. Lamps with peak emissions at 360 – 380 nm.

Sensitivity / Resolution

	Part 500-024
* SST	6 – 9
mJ	35 – 100
Lines µm	40
Space µm	50

* Using a 21 step Stouffer Step Tablet, placed under a transparent area of the photographic master, exposure levels should be optimised with the above range.

Dry Film Resist has a very good printout after exposure useful for the registration of the boards.

Description	**Before Exposure Optical density**	**After Exposure Optical Density**
500-024	0.14	0.35

Exposure energy: 55 mJ
From Light Blue to dark blue.
The colour contrast of exposed image was determined using transmission Densitometer manufacture by CO.FO.ME.GRA. Model DTP642
Comparative measurements were made before and after exposure.

Hold Time

We recommend a minimum hold time after exposure of 10 minutes
Maximum hold time 3 days.

Development

DEVELOPER	Na_2CO_3		K_2CO_3	
Concentrate	0.8 – 1.2%	Opt 0.9%	0.6 – 1.0%	Opt 0.8%
Temperature	26 – 32°C 80 - 90°F	Opt 29°C 85°F	26 – 30°C 80 - 86°F	Opt 28°C 82°F
Spray Pressure	1.2 – 1.8 Bar 17-25 Psi			Opt 1.5 bar 22Psi
Break Point	50 – 65 %			
ORDYL ANTIFOAM C	500 ppm			

Developing time (B.P 60%)

	500-024
DeV Time	35 sec.
D.F. Load	0.15 m^2/ l 6 $feet^2$/gal

We recommend a rinse module with a length of at least ¾ of the developing module.
The rinse water temperature should preferably, be above 20°C (68°F)

Tenting

The following tables refer to tests carried out using a board of 1.6mm (-.063) thick, and measuring the pressure applied to a sphere of 2.2mm (0.086) diameter when placed on a 6mm hole tented with dry-film resist.

Tenting Resistance

	GRAMS	OZ
After exposure	578	20.39
After developing	525	18.52
After etching	550	19.40

Stripping

STRIPPER	NAOH		KOH	
Concentrate	1.5 – 3.5%	Opt 2.5%	2– 4 %	Opt 3%
Temperature	40 60°C 104 – 140°F	Opt 50°C 122°F	40 – 60°C 104 - 140°F	Opt 50°C 122°F
Spray Pressure	1.5 – 4 Bar 22-58 Psi			Opt 3 bar 43 Psi
Break Point	40 – 60 %			
ORDYL ANTIFOAM C	500 - 1000 ppm			

Typical stripping times in optimal conditions are the following:

	500-024
NaOH	95 seconds
KOH	110 seconds

Proprietary strippers

Can be used for
Smaller flakes, higher strip speed, reduced copper oxidation and Tin or Tin / Lead attack.

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