520 SERIES

Thermal 2 Pack Solder Resists

Mega Part Nos:

41-SR765 (SOLDER RESIST INK 520 GREEN - WITHOUT CATALYST)

&

41-SR765-2 (CATALYST 525 FOR SOLDER RESIST 520)

REVISION No 3
ISSUE DATE: 16/09/2008

PRODUCT CHARACTERISTICS

The Special Solder Electronic Grade Resists are formulated using high performance resins to offer the following characteristics:

- Suitable for use on single, double sided, P.T.H. and multilayer PCB's.
- Exceptional resistance to heat and most solvents and cleaners used in the electronics industry.
- Excellent electrical/mechanical properties for long term protection.
- Adheres to all metals and alloys commonly used in PCB production, including tin/lead.
- Suitable for all types of solder methods and flux removal systems, aqueous and solvent based.
- Meets the requirements of many specs in the Military, Medical and Telecom. Industries.
- Can be printed using automatic and semi-automatic machines as well as on hand beds.
- Fully RoHS Compliant

PRODUCT RANGE AND SELECTION

520/530 Series resists are two pack systems, consisting of ink and catalyst.

Ink

Choice of ink will be determined by the substrate the resist is being applied to:

Standard Inks

The standard type of solder resist can be used on both copper and tin/lead PCB's where the Sn/Pb is confined to relatively fine tracks.

Tin / Lead Inks

For larger areas of tin/lead ie: ground planes, T/L type resists should be used. These resists give a tougher cured film, which will help to contain molten tin/lead during reflow and soldering processes. T/L resists have a more matt finish than the standard type.

Standard Resists		Tin / Lead Resists	
Solder Resist Green	**520**	T/L Solder Resist Green	**531**
Solder Resist Black	**520B**	T/L Solder Resist Blue	**533**
Solder Resist Clear	**523**	T/L Solder Resist Black	**543**
Solder Resist Red	**524**		
Solder Resist Blue	**541**		
		Catalyst	
		Catalyst	**525**

The floss of any resist may be reduced by using Matt Thinners 957 at a 2-3% ratio.

Mixing Ratios

	Finish Required			
	Gloss or **Satin**		**Matt**	
	Resist	525/525S	Resist	525m
Standard Type	2	1	3	2
Tin / Lead Type	3	1	5	2

The ratios are by weight. The mixed resist should be stable for to 8 hours at room temperature.

Viscosity
All resists are supplied 5-10% above printing viscosity. A range of thinners are available:

Thinner 3N -Normal drying
Thinner 10S -Slow drying
Matt Paste Thinner 957.

Packaging
Available in 1 and 5kg containers.

Shelf Life
More than 12 months in sealed containers.

PROCESSING

Board Pre-treatment
All boards should be free from traces of particulates, oils, greases and other chemicals prior to the application of the solder resist. Boards should be cleaned with a silicone carbide brush or pumice scrub and if heavy contamination is present, a micro etch can be used before mechanical cleaning.

Tin/lead boards should be degreased with a detergent based cleaning solution.

For P.T.H. circuit boards, ionic residues can be removed by rinsing in warm de-ionised water followed by drying. Degreasing is recommended just prior to the application of solder resist.

Mesh Types
Polyester meshes with 50-62 strands per cm. are ideal. Meshes finer than 77T should not be used.

Stencils
Most types of photo-stencil are suitable. For fine definition the Protokote direct/indirect system is recommended.

Squeegee
All types are suitable, but 75-85 shore hardness polyurethane is recommended.

Stoving
As a guide:

Infra red Conveyor Ovens	5-15 minutes	120°C - 130°C
Air Convection Box Ovens	30-45 minutes	120°C

It is recommended that customers ensure the degree or cure obtained is adequate before commencing production. Degree of cure may be checked by rubbing the stoved print with a cloth soaked with MEK or Screenwash 80. When using short wave I.R., solvent entrapment in the resist film must be avoided. This is caused by sealing the resist too quickly and will result in poor adhesion.

Screen Cleaning and Wet Resist Removal

Protokote General Purpose Screenwash 80.

Detailed Health and Safety data sheets are available on request.

SPECIFICATION DATA 520/530 SERIES – Thermally Cured Solder Resists

Typical electrical constants at film thickness of 25-30 microns:

UL FILE NUMBER	E83246
FLAMMABILITY RATINGS **520, 523, 531, 533, 541** **522, 524, 529, 531, 533**	 **94V-1** **94V-0**
DIELTRIC CONSTANT 25°C 50 Hz **1 Khz** **1 Mhz**	 **4.00** **3.90** **3.50**
LOSS TANGENT **50 Hz** **1 Khz** **1mhz**	 **0.008** **0.015** **0.030**
SURFACE RESISTIVITY **(1000V, 22°C, 60% RH)**	**6 X 10^{15} Ohms**
VOLUME RESISTIVITY **(1000V, 22°C, 60% RH)**	**2.5 X 10^{16} Ohms**
INSULATION RESISTANCE **(1000V, 22°C, 60% RH)**	**3 X 10^{15} Ohms**

Although every effort has been taken to ensure the above information, gathered from production experience and laboratory testing, is correct we recommend that customers satisfy themselves that the product performs adequately under their conditions before commencing production. We cannot predict or control the conditions under which individual customers will use the product and therefore cannot guarantee product performance. All sales are subject to our standard terms and conditions of sale.

Mega Electronics Ltd.,
Mega House, Grip Industrial Estate, Linton, Cambridge. England. CB21 4XN
Telephone: +44 (0) 1223 893900 Fax: +44 (0) 1223 893894
email: sales@megauk.com web: www.megauk.com