Underfill 623

Underfill

Features:

- Excellent Capillary Function for Fast Flow
- Reworkable at 120°C
- Compatible with No-Clean Flux Residues
- Good Storage Properties
- No Voiding
- Odorless During Printing and Curing

Description:

Underfill 623 is a non-odorous, low surface tension, one component epoxy resin designed for use as a capillary flow underfill for flip chip, CSP, BGA and uBGA assemblies. Underfill 623 offers excellent capillary action for flat, fast and complete spread. Underfill 623 offers superior reliability through high Tg, low CTE, good fill, no voiding, compatibility with no-clean flux residues and excellent adhesion. Faster throughput and higher yields are achieved through excellent capillary action, faster flow characteristics and rapid cure speeds. Underfill 623 may be reworked at 120°C (250°F). The viscosity of Underfill 623 remains stable throughout its shelf life. This product is suitable for bare chip protection in a broad variety of small die applications.

Application:

- Underfill 623 has a work life of 1 day at 22°C - 23°C (70° -77°F) and 30% RH.
- For best results, the application substrate should be pre-heated to 40-50º C (100°F-120°F). Although not required, the dispense nozzle may be preheated in order to decrease viscosity/increase flow speed.
- System pressure should be moderate 1 to 2.75 bars (15 to 40 psi). Dispense speed should also be moderate 0.25 to 1.25 cm/sec. (0.10 to 0.50 inch/sec.). In addition, the dispense platform should be able to maintain the needle tip approximately 0.025 – 0.075mm (1-3 mils) off the substrate surface and 0.025-0.075mm (1-3 mils) offset from the chip edge. This will ensure maximum underfill flow consistency.
- The dispense pattern for small die applications 0.65mm (1/4") is typically single side or single corner only, with no secondary dispense or final perimeter bead required. The low viscosity and excellent wetting characteristics of this product allow the material to "self-fillet" along the opposite edge of the die.
- The dispense pattern for larger die applications is typically an "L" pattern along 2 sides, focused at the corner. The flow pattern should be designed to start at the location farthest away from the chip center, which helps assure a void free fill underneath the die. In addition, the dispense pattern may require a 2nd or 3rd bead with time delay for flow underneath the chip. A final perimeter bead/fillet may be dispensed to ensure uniform stress distribution at the chip edges.
- Underfill 623 is reworkable by heat. The suggested rework procedure is to heat the part to be removed to its standard reflow temperature and removing it with a flat spatula.

CURE TIME @ 100°C (210° F)	CURE TIME @ 120°C (260° F)	CURE TIME @ 150°C (300° F)
<10 MINUTES	< 7 MINUTES	<5MINUTES

Physical Properties:

APPEARANCE	SPECIFIC GRAVITY	MOISTURE	TOTAL VOLATILES	VISCOSITY AT 25° C (77° F) AT 5 RPM	CAPILLARY FLOW RATE TEST	TG	EXTRACTABLE IONIC CONTENT
Light Yellow Liquid	1.08 G/CC	0.02%	<1%	10,000 CPS	5MM/ 3MINUTES*	~125 °C	<10PPM

*Actual flow depends upon environmental and application conditions.

Handling and Storage:

Shelf Life – Stability:

Temp°C	Time:
25	N/R
4	1 month
≤ -22	6 months

Packaging:

-Underfill 623 is non-hygroscopic and therefore can be packaged in syringes, jars, bottles, and cartridges.

Safety:

- Use with adequate ventilation and proper personal protective equipment.
- Refer to the accompanying Material Safety Data Sheet for any specific emergency information.
- Do not dispose of any hazardous materials in non-approved containers.

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