

UNDERFILL FF35

FEATURES

- Fast Flowing Capillary Action
- Re-workable
- Compatible with No-Clean Flux Residues
- Minimal Voiding
- Favorable Storage Properties
- RoHS Compliant

DESCRIPTION

Underfill FF35 is a low surface tension, one component epoxy resin designed for use as a capillary flow underfill for flip chip, CSP, BGA and uBGA assemblies. Underfill FF35's excellent capillary action forms a thin bond line and complete spread. Underfill FF35 enhances reliability with a high T_G, low CTE, and excellent adhesion. Faster throughput and higher yields are achieved through fast flow characteristics and rapid cure speeds. Underfill FF35 may be reworked at 120°C (250°F). Underfill FF35's viscosity and performance remain stable throughout its shelf life for ease of use.

PHYSICAL PROPERTIES

Parameter	Result
Appearance	Light Yellow
Specific Gravity	1.08 G/cc Typical
Moisture	0.02% Typical
Total Volatiles	< 1% Typical
Viscosity at 25°C (77°F) at 5 RPM	500 cps Typical
Capillary Flow Rate Test	5 mm/1 minute* Typical
T _G	55°C Typical
Extractable Ionic Content	< 10 ppm Typical
T _G , °C	55 Typical
CTE _{UM} /(M°C) Before T _G	47 Typical
CTE _{UM} /(M°C) After T _G	165 Typical

HANDLING & STORAGE

Parameter	Time	Temperature
Frozen Shelf Life	6 months	< 0°C (32°F)
Refrigerated Shelf Life	1 month	0°C-12°C (32°F-54°F)
Unrefrigerated Shelf Life	1 week	< 25°C (77°F)

Do not store near fire or flame. Keep away from sunlight as it may degrade product.

APPLICATION

For best results, the application substrate should be pre-heated to 40°C-50°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 1-2.75 bars (15-40 psi). Dispense speed should also be moderate 0.25-1.25 cm/sec. (0.10-0.50 inch/sec.). In addition, the dispense platform should be able to maintain the dispenser tip approximately 0.025-0.075mm (1-3 mils) above 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 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. Rework flows at 120°C-140°C (250°F-280°F).

Parameter	Result
Cure Time at 100°C (210°F)	8-10 minutes
Cure Time at 125°C (260°F)	4-5 minutes
Cure Time at 150°C (300°F)	1-2 minutes

*Maximum Curing Temperature is 150°C (300°F).

SAFETY

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