

UF 158D Diamond Thermal Underfill Product Datasheet

Outstanding Thermal Cycling Performance

Excellent Mechanical Shock Performance

High Thermal Conductivity

Description

UF 158D Diamond thermal underfill is a capillary flow, fast flowing, easily reworkable liquid epoxy underfill which can be used as an underfill for flip chip, chip scale package, ball grid array devices, package on package and land grid array application. It is also suitable for bare chip protection in a variety of advanced packages such as memory cards, chip carriers, hybrid circuits and multi-chip modules. It is designed for high production and friendly environments where process speed and mechanical shock are the key concern. This material is easily dispensed, minimizes induced stresses and provides outstanding reliability performance (e.g. temperature cycling performance) and excellent mechanical resistance. The performance of the drop test has been improved by two orders of magnitude compared with that with the use of solder paste.

Typical Physical Properties

Product Name	UF 158D Underfill
PROPERTIES OF UNCURED MATERIAL	
Appearance	Gray
Specific Gravity (ASTM D 1475-60)	2.8-3.2 g/cc
Viscosity (Brookfield, 0.5 rpm)	5-10k cp
PROPERTIES OF CURED MATERIAL	
Glass Transition Temperature (T _g) (ASTM D3418-82)	149 °C

C.T. E (ASTM E 831), PPM /°C	$\alpha 1 = 5-15$; $\alpha 2 = 50-80$
Young Modulus (GPa)	8-9
Lap Shear Strength (FR4/FR4)	2600 psi
Thermal Conductivity (W/mK)	8-10
Extractable ions (MIL-STD-883E)	
Na+	<5ppm
K+	<5ppm
F-	<5ppm
Cl-	<10ppm
Surface insulation resistance (J-STD-004)	Pass

Recommended Cure Process

2 hours at 130 °C

Note: The curing time includes the time to allow the bond location to reach the desired cure temperature. Alternate cure profiles may be evaluated.

Storage & Shelf Life

6 months provided materials are kept in a sealed original container at –40 °C. Storage beyond this period can produce higher viscosity. Protect from moisture, evaporation and foreign materials. Process ability of these products can be adversely affected by evaporation and contamination.

Safety

UF 158D is a friendly, non-toxic material. However, general hygiene practice is recommended when handling this material. For detail information please consult our SDS.



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Package

UF 158D capillary underfill series are available in 10cc and 30cc. Other packages are available depending upon customer's request. Contact YINCAE for order information.