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FLIP-CHIP UNDERFILL

UF-MC7883-FP

Low Bondline Underfill
Low Moisture Absorption
Low Ionic Impurities
High Temperature Stability
<10 micron cut-off particle

IDEAL FOR:

- **Flip-chip underfill**
- **Ultra-high temperature encapsulation**
- **Ideal for 20 micron and higher gap underfilling**
- **CTE at 23 ppm/ºC: Ideal for solder-bumps**

DESCRIPTION:

UF-MC7883-FP is a one part, micro-oxide filled cyanate ester flip-chip underfill. It is designed for use in both chip-on-board underfill and standard flip-chip underfill component application to reduce stress. It can withstand temperatures up to 300ºC without thermal degradation. Its unique chemistry results in very low moisture absorption, high strength protection.

UF-MC7883-FP is designed to be dispensed on the edge of flip-chip die for capillary pull-in to fill in the gap before curing. The cured underfill has less than 20 ppm/C in coefficient of thermal expansion and higher than 6 Gpa in modulus.

TYPICAL PROPERTIES*

Electrical Resistivity (ºC/)	**>1X10 ^{14} ohm-cm**
Dielectric Strength (Volts/mil)	**>750**
Glass Transition Temp.(ºC)	**240 ±10%**
Lap-Shear Strength	
Device Push-off Strength	**>5000 psi >34.4 N/mm²**
Hardness (Type)	**95 (D) ±10%**
Cured Density (gm/cc)	**2.5 ±10%**
Thermal Conductivity	**>5.5 Btu-in/hr-ft²-ºF ±10% >0.8 W/m-ºC ±10%**
Linear Thermal Expansion Coeff. (ppm/ºC)	**23 ±10%**
Maximum Continuous Operation Temp. (ºC)	**<300**
Avg. Viscosity(5.0 rpm, 25ºC) (Brookfield DV-1,spindle CP51)	**11,000 cp±15%**

* Properties given are typical values and not intended for use in preparing specifications. The user is advised to evaluate the product in the manner the product is intended to be used in manufacturing and in the final product.

AVAILABILITY:

UF-MC7883-FP is available in syringes for automatic dispense applications.

APPLICATION PROCEDURES:

(1) Thaw to room temperature before opening container.

(2) Dispense underfill onto the adjacent edges of die a suitable pattern to assure full die coverage. Allow the underfill to flow and fill the flip-chip at 60-90ºC.

(3) Cure according to the recommended schedule, i.e. B-Stage followed by a cure schedule.

NOTE: The monomer contained in this product is subject to crystallization even at room temperature. If product is thawed and remains crystallized, simply place in a 40 deg C environment for as long as needed to return product to the liquid state i.e. usually not more that 15 - 20 minutes.

CURE SCHEDULES:

Temperature	Time	Pressure
60-90ºC for	>2min underfilling followed by curing	N/A
150ºC	60min	
175ºC	15min	

Pot life is 5 days @ 25ºC. Defrost and use for the same day production only.

For supper low bondline of less than 20 micron meter underfilling, please select MC-7883-FFP with nanotechnology.

For copper stud bumps applications, use UF-MC7883-CU that is engineered with CTE to match copper at 18 ppm/ºC.

UF-MC7883-FP can also be used for encapsulation application. Full curing from 80ºC for 6 hours or more and less times at higher temperatures.

SHELF LIFE:

Storage temperature	Shelf Life
-40ºC	1yr