EPOXY TECHNOLOGY

EPO-TEK® H20E-PFC

Technical Data Sheet

For Reference Only

Electrically Conductive, Silver Epoxy

Number of Components:	Two	Minimum Bond Line Cure Schedule*:	
Mix Ratio By Weight:	1:1	175°C	45 Seconds
Specific Gravity:		150°C	5 Minutes
Part A	2.88	120°C	15 Minutes
Part B	3.31	80°C	3 Hours
Pot Life:	3 Days		
Shelf Life:	One year at room temperature		

*Note: Container(s) should be kept closed when not in use. For filled systems, mix contents of each container (A & B) thoroughly before mixing the two together. *Please see Applications Note available on our website.*

Product Description:

EPO-TEK® H20E-PFC is a two component, semiconductor grade epoxy, designed for flip chip interconnects using a solder-free joining method.

EPO-TEK® H20E-PFC Advantages & Application Notes:

- Stencil printing of small dots or “bumps” the size of 4 mil diameter with 8 mil pitch can be achieved.
- Product may be applied at the wafer level or single-chip bumping of prototypes.
- Final system packaging can be hermetic micro-electronic cases or open-faced circuits using potting resin or housing.
- Low temperature cure capable between 70°C – 100°C allows for lower cost plastic substrates / housings to be used.
- Suggested for flip chip packaging applications found in memory devices (SRAM, DRAM), watch modules, RFID tags, smart-cards, military, and medical devices.
- Passes NASA low outgassing standard ASTM E595 with proper cure - http://outgassing.nasa.gov/
- Compatible with Au, Cu, Ag, Ag-Pd component or substrate metallization.
- Recommended to be used with chips or wafers which have UBM layer already deposited.
- Compatible with automated dispensing equipment.

Typical Properties: ***(To be used as a guide only, not as a specification. Data below is not guaranteed. Different batches, conditions and applications yield differing results; Cure condition: 150°C/1 hour; * denotes test on lot acceptance basis)***

Physical Properties:	
***Color:** **Part A:** Silver **Part B:** Silver	**Weight Loss:**
***Consistency:** Smooth thixotropic paste	**@ 200°C:** 0.46%
***Viscosity (@ 100 RPM/23°C):** 3,000 – 4,000 cPs	**@ 250°C:** 1.0%
Thixotropic Index: 6.69	**@ 300°C:** 1.8%
***Glass Transition Temp.(Tg):** ≥ 80°C (Dynamic Cure 20—200°C /ISO 25 Min; Ramp -10—200°C @ 20°C/Min)	**Operating Temp:**
Coefficient of Thermal Expansion (CTE):	**Continuous:** - 55°C to 225°C
	Intermittent: - 55°C to 325°C
Below Tg: 21×10^{-6} in/in/°C	**Storage Modulus @ 23°C:** 315,000 psi
Above Tg: 94×10^{-6} in/in/°C	**Ions:** **Cl^-** 199 ppm
Shore D Hardness: 50	**Na^+** 12 ppm
Lap Shear Strength @ 23°C: 850 psi	**NH_4^+** 349 ppm
Die Shear Strength @ 23°C: ≥ 5 Kg / 1,700 psi	**K^+** 12 ppm
Degradation Temp. (TGA): 407°C	***Particle Size:** ≤ 20 Microns
Electrical Properties:	
***Volume Resistivity @ 23°C:** ≤ 0.0004 Ohm-cm	
Thermal Properties:	
Thermal Conductivity: 3.2 W/mK	

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