Epoxy Technology EPO-TEK® H20E Electrically Conductive, Silver Epoxy

Category : Polymer , Thermoset , Epoxy , Epoxy, Electrically Conductive

Material Notes:

Product Description: EPO-TEK® H20E is a two component, 100% solids silver-filled epoxy system designed specifically for chip bonding in microelectronic and optoelectronic applications. It is also used extensively for thermal management applications due to its high thermal conductivity. It has proven itself to be extremely reliable over many years of service and is still the conductive adhesive of choice for new applications. Also available in a single component frozen syringe.Advantages & Application Notes:Processing info: It can be applied by many dispensing, stamping and screen printing techniques.Dispensing: compatible with pressure/time delivery, auger screws, fluid jetting and G27 needles, in a single-component fashion. Screen Printing: best using >200 metal mesh, with polymer squeegee blade with 80D hardness.Stamping: small dots 6 mil in diameter can be realized. Misc / Other notes: Many technical papers written over 30-40 year lifetime. Over 1 trillion chips attached at a single company: no failures, Six Sigma and Certified Parts Supplier award winner.Versatility in curing techniques including box oven, SMT style tunnel oven, heater gun, hot plate, IR, convection, or inductor coil.Many custom modified products available, for the following improvements: viscosity and appearance, flexibility and thermal conductivity. Information Provided by Epoxy Technology

Order this product through the following link:
http://www.lookpolymers.com/polymer_Epoxy-Technology-EPO-TEK-H20E-Electrically-Conductive-Silver-Epoxy.php

Physical Properties	Metric	English	Comments
Specific Gravity	2.03 g/cc	2.03 g/cc	Part A
	3.07 g/cc	3.07 g/cc	Part B
Particle Size	<= 45 µm	<= 45 µm	
Viscosity	220 - 3200 cP @Temperature 23.0 °C	220 - 3200 cP @Temperature 73.4 °F	100 rpm

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	75	75	
Tensile Modulus	5.576 GPa	808.7 ksi	Storage
Shear Strength	10.17 MPa	1475 psi	Lap
	>= 11.7 MPa	>= 1700 psi	Die

Thermal Properties	Metric	English	Comments
CTE, linear	31.0 µm/m-°C	17.2 µin/in-°F	Below Tg
	158 µm/m-°C	87.8 µin/in-°F	Above Tg
Thermal Conductivity	2.50 W/m-K	17.4 BTU-in/hr-ft²-°F	Based on standard method: Laser Flash

Thermal Properties	Metric	English	Comments
	29.0 W/m-K	201 BTU-in/hr-ft²-°F	Conductive Thermal Resistance Data: R = L x K⁻¹x A⁻¹
Maximum Service Temperature, Air	200 °C	392 °F	Continuous
	300 °C	572 °F	Intermittent
Minimum Service Temperature, Air	-55.0 °C	-67.0 °F	Continuous
	-55.0 °C	-67.0 °F	Intermittent
Glass Transition Temp, Tg	>= 80.0 °C	>= 176 °F	Dynamic Cure 20—200°C /ISO 25 Min; Ramp -10—200°C @ 20°C/Min
Decomposition Temperature	425 °C	797 °F	Degradation Temperature

Electrical Properties	Metric	English	Comments
Volume Resistivity	<= 0.00040 ohm-cm	<= 0.00040 ohm-cm	

Chemical Properties	Metric	English	Comments
Ionic Impurities - Na (Sodium)	2.0 ppm	2.0 ppm	
Ionic Impurities - K (Potassium)	3.0 ppm	3.0 ppm	
Ionic Impurities - Cl (Chloride)	73 ppm	73 ppm	

Processing Properties	Metric	English	Comments
Cure Time	5.00 min @Temperature 150 °C	0.0833 hour @Temperature 302 °F	
	15.0 min @Temperature 120 °C	0.250 hour @Temperature 248 °F	
	45.0 min @Temperature 175 °C	0.750 hour @Temperature 347 °F	
Pot Life	3600 min	3600 min	
Shelf Life	12.0 Month @Temperature 23.0 °C	12.0 Month @Temperature 73.4 °F	
	12.0 Month @Temperature -40.0 °C	12.0 Month @Temperature -40.0 °F	

Descriptive Properties	Value	Comments

Descriptive Properties	Value	Comments
Color	Silver	Part A
	Silver	Part B
Consistency	Smooth thixotropic paste	
Ionic Impurities NH4	98 ppm	
Mix Ratio By Weight	1:1	
Number of Components	Two	
Thixotropic Index	4.63	
Weight Loss	0.59%	200°C
	1.09%	250°C
	1.67%	300°C

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