

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

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

Material Notes:

Product Description: EPO-TEK® H20E-MP 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: Designed specifically to meet the requirements pertaining to MIL-STD 883/Test Method 5011 for military hybrids.
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.
 Information Provided by Epoxy Technology

Order this product through the following link:

http://www.lookpolymers.com/polymer_Epoxy-Technology-EPO-TEK-H20E-MP-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	2200 - 3200 cP	2200 - 3200 cP	100 rpm
	@Temperature 23.0 °C	@Temperature 73.4 °F	

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
			Based on Thermal Resistance Data: R

Thermal Properties	29.0 W/m-K Metric	201 BTU-in/hr-ft ² -°F English	1 x K ⁻¹ x A ^{sup>} Comments
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)	<= 50 ppm	<= 50 ppm	
Ionic Impurities - K (Potassium)	<= 50 ppm	<= 50 ppm	
Ionic Impurities - Cl (Chloride)	<= 200 ppm	<= 200 ppm	

Processing Properties	Metric	English	Comments
Cure Time	5.00 min	0.0833 hour	Minimum Bond Line
	@Temperature 150 °C	@Temperature 302 °F	
Pot Life	2880 min	2880 min	
Shelf Life	6.00 Month	6.00 Month	
	@Temperature 25.0 °C	@Temperature 77.0 °F	

Descriptive Properties	Value	Comments
Color	Silver	Part A
	Silver	Part B
Consistency	Smooth paste	
Ionic Impurities NH4	126 ppm	
Mix Ratio By Weight	1:1	
Number of Components	Two	

Thixotropic Index Descriptive Properties	4.63 Value	Comments
Weight Loss	0.59%	200°C
	1.09%	250°C
	1.67%	300°C

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