

Epoxy Technology EPO-TEK® H31D Electrically Conductive, Silver Epoxy

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

Material Notes:

Product Description: EPO-TEK® H31D is a single component, electrically conductive silver epoxy designed for die-bonding of semiconductors, including IC's, resistors, capacitors, transistors, and diodes which may be found in opto-electronics packaging or hybrid micro-electronics. **Advantages & Application Notes:** Rheology provides a soft, smooth, thixotropic paste. The epoxy can be screen printed or applied by hand or spatula. Ideal for screen printing applications. Designed for use in machine dispensing where dot sizes as small as 8 mils can be readily deposited. Available in lower viscosity versions. Thermal resistance is nearly equivalent to solder die-attach. Suitable for laser diode attach, TE Coolers, and heatsinking in general. Reliability report summarized in Technical Paper #2 from Epoxy Technology

Information Provided by Epoxy Technology

Order this product through the following link:

http://www.lookpolymers.com/polymer_Epoxy-Technology-EPO-TEK-H31D-Electrically-Conductive-Silver-Epoxy.php

Physical Properties	Metric	English	Comments
Specific Gravity	2.85 g/cc	2.85 g/cc	
Particle Size	<= 20 µm	<= 20 µm	
Viscosity	40000 - 70000 cP @Temperature 23.0 °C	40000 - 70000 cP @Temperature 73.4 °F	5 rpm

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	85	85	
Tensile Modulus	6.25 GPa	906 ksi	Storage
Shear Strength	7.943 MPa	1152 psi	Lap
	>= 11.7 MPa	>= 1700 psi	Die

Thermal Properties	Metric	English	Comments
CTE, linear	42.0 µm/m-°C	23.3 µin/in-°F	Below Tg
	178 µm/m-°C	98.9 µin/in-°F	Above Tg
Thermal Conductivity	3.48 W/m-K	24.2 BTU-in/hr-ft²-°F	
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

Thermal Properties	Metric	English	Comments
Glass Transition Temp, Tg	150 °C	302 °F	ISO 2276:2010, 20–200 °C /ISO 25 Min; Ramp – 10–250 °C @ 20 °C/Min
Decomposition Temperature	350 °C	662 °F	Degradation Temperature

Electrical Properties	Metric	English	Comments
Volume Resistivity	<= 0.00050 ohm-cm	<= 0.00050 ohm-cm	

Chemical Properties	Metric	English	Comments
Ionic Impurities - Na (Sodium)	222 ppm	222 ppm	
Ionic Impurities - K (Potassium)	36 ppm	36 ppm	
Ionic Impurities - Cl (Chloride)	19 ppm	19 ppm	

Processing Properties	Metric	English	Comments
Cure Time	60.0 min @Temperature 150 °C	1.00 hour @Temperature 302 °F	Minimum Bond Line
Pot Life	129600 min	129600 min	
Shelf Life	6.00 Month @Temperature -40.0 °C	6.00 Month @Temperature -40.0 °F	

Descriptive Properties	Value	Comments
Color	Silver	
Consistency	Smooth thixotropic paste	
Number of Components	Single	
Thixotropic Index	3.9	
Weight Loss	0.08%	200°C
	0.18%	250°C
	0.43%	300°C

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