EPOXY TECHNOLOGY

EPO-TEK® E3001-HV

Technical Data Sheet
For Reference Only
Electrically Conductive, Silver Epoxy

Date:	July 2019
Rev:	V
No. of Components:	Single
Mix Ratio by Weight:	N/A
Specific Gravity:	2.84
Pot Life:	24 Hours
Shelf Life- Bulk:	One year at -40°C
Shelf Life- Syringe:	Six months at -40°C

Recommended Cure: 150°C / 1 Hour

Minimum Alternative Cure(s):
May not achieve performance properties listed below
180°C / 2 Minutes
150°C / 15 Minutes

NOTES:

- Container(s) should be kept closed when not in use.
- Filled systems should be stirred thoroughly before mixing and prior to use.
- Performance properties (rheology, conductivity, others) of the product may vary from those stated on the data sheet when bi-pak/syringe packaging or post-processing of any kind is performed. Epoxy's warranties shall not apply to any products that have been reprocessed or repackaged from Epoxy's delivered status/container into any other containers of any kind, including but not limited to syringes, bi-paks, cartridges, pouches, tubes, capsules, films or other packages.

Product Description: EPO-TEK® E3001-HV is a snap cure, single component, silver-filled die attach adhesive for semiconductor plastic IC packaging. Also available in a frozen syringe.

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

PHYSICAL PROPERTIES:				
* Color (before cure):	Silver			
* Consistency:	Smooth thixotropic paste			
* Viscosity (23°C) @ 20 rpm:		11,000-14,000	cPs	
Thixotropic Index:		3.9		
* Glass Transition Temp:		≥ 100	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):				
Below Tg:		24	$x 10^{-6}$ in/in°C	
Above Tg:		77	$x 10^{-6}$ in/in°C	
Shore D Hardness:		80		
Lap Shear @ 23°C:		1,488	psi	
Die Shear @ 23°C:		≥ 10	Kg	3,556 psi
Degradation Temp:		435	°C	
Weight Loss:				
@ 300°C:		0.23	%	
Suggested Operating Temperature:		< 300	°C (Intermittent)	
Storage Modulus:		311,866	psi	
Ion Content:	Cl^-:	125 ppm	Na^+:	6 ppm
	NH_4^+:	27 ppm	K^+:	4 ppm
* Particle Size:		≤ 20	microns	

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	1.1	W/mK
* Volume Resistivity @ 23°C:	≤ 0.0005	Ohm-cm
Dielectric Constant (1KHz):	N/A	
Dissipation Factor (1KHz):	N/A	

This information is based on data and tests believed to be accurate. Epoxy Technology, Inc. makes no warranties (expressed or implied) as to its accuracy and assumes no liability in connection with any use of this product.

EPOXY TECHNOLOGY, INC.
14 FORTUNE DRIVE, BILLERICA, MA 01821 (978) 667-3805, FAX (978) 663-9782
www.epotek.com

EPO-TEK® E3001-HV Advantages & Suggested Application Notes:

- Snap cure adhesive or fast-cure; chips can be cured in-line < 90 seconds travel time; or lead-frames can be loaded into magazines for box oven curing <15 minutes travel time at 180°C or higher; a traditional box-oven cure for several hours may also be used.
- Excellent adhesion to die-paddle on lead-frames including Cu, Alloy 42, or Ag spot ring.
- Bright and shiny silver epoxy after cure; suggested for LED die-attach packaging.
- Compatible with COB die-attach process on Au plated PCB, Au plated ceramic PCB in hybrid packages or opto-electronic packaging using hybrids
- 24 hour pot-life for automated syringe dispensing; compatible with many dispensing methods: air pressure, positive displacement, and auger screws.
- Soft and creamy thixotropic behavior. Rheology allows for high speed dispensing of dots, dot arrays, shower head dispensing, or the writing-pen method.
- Suggested for JEDEC Level II packaging of semiconductor devices.

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