# EPO-TEK® E3001-HV

**Technical Data Sheet**
**For Reference Only**
*Electrically Conductive, Silver Epoxy*

| | |
|---|---|
| **Date:** | December 2019 |
| **Rev:** | VI |
| **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 |

**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 | |



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

# EPO-TEK® E3001-HV

**Technical Data Sheet**
**For Reference Only**
*Electrically Conductive, Silver Epoxy*

## 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.



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