

**Date:** December 2017  
**Rev:** VI  
**No. of Components:** Single  
**Mix Ratio by Weight:** N/A  
**Specific Gravity:** 1.37  
**Pot Life:** 28 Days  
**Shelf Life- Bulk:** One year at -40°C

**Recommended Cure:** 150°C / 1 Hour

**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® TZ101 is a single component, electrically insulating, thermally conductive epoxy adhesive designed for heat-sinking of semiconductors, hybrids, electronics, and optics. 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):	White		
* Consistency:	Smooth thixotropic paste		
* Viscosity (23°C) @ 10 rpm:	24,000-30,000	cPs	
Thixotropic Index:	3.7		
* Glass Transition Temp:	≥ 40 °C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)		
Coefficient of Thermal Expansion (CTE):			
Below Tg:	32	x 10 <sup>-6</sup> in/in°C	
Above Tg:	173	x 10 <sup>-6</sup> in/in°C	
Shore D Hardness:	84		
Lap Shear @ 23°C:	1,726	psi	
Die Shear @ 23°C:	≥ 10	Kg	3,556 psi
Degradation Temp:	355 °C		
Weight Loss:			
@ 200°C:	0.40	%	
@ 250°C:	0.90	%	
@ 300°C:	1.86	%	
Suggested Operating Temperature:	< 275 °C (Intermittent)		
Storage Modulus:	513,778	psi	
Ion Content:	Cl:	240 ppm	Na <sup>+</sup> : 188 ppm
	NH <sub>4</sub> <sup>+</sup> :	19 ppm	K <sup>+</sup> : 8 ppm
* Particle Size:	≤ 20 microns		

**ELECTRICAL AND THERMAL PROPERTIES:**

Thermal Conductivity:	0.9	W/mK
Volume Resistivity @ 23°C:	≥ 2 x 10 <sup>13</sup>	Ohm-cm
Dielectric Constant (1KHz):	3.80	
Dissipation Factor (1KHz):	0.004	

**Epoxyes and Adhesives for Demanding Applications™**

**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.**

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## EPO-TEK® TZ101 Advantages & Suggested Application Notes:

- Suggested applications:
  - Electronics:
    - Bonding to Kapton flex PCB circuits.
    - Adhesive for LCP packaging.
  - Semiconductor:
    - Large IC die attach > 500 mil x 500 mil Si chips.
    - Can be used as an underfill for flip chip mounted ICs, BGAs, and SMDs.
  - Opto-electronics:
    - Heat sinking laser diode chips in ceramic, hybrid or TO-can packaging.
    - Bonding to thermally enhanced substrates such as aluminum nitride, Cu/W or Cu-plated BeO.
    - White color after cure makes it attractive for LED, opto-coupler and x-ray scintillator circuits
- Excellent damp heat resistance, via 85°C/85%RH.
- Excellent combination of stress relief and robustness.

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