EPOXY TECHNOLOGY

EPO-TEK® E2101

Technical Data Sheet
For Reference Only
Electrically Conductive, Silver Epoxy

Date:	September 2017	
Rev:	VIII	
No. of Components:	Two	
Mix Ratio by Weight:	3 : 1	
Specific Gravity:	Part A: 2.35	Part B: 4.58
Pot Life:	5 Days	
Shelf Life- Bulk:	One year at room temperature	

Recommended Cure: 150°C / 1 Hour

Minimum Alternative Cure(s):
May not achieve performance properties listed below
175°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® E2101 is a two component, thixotropic, electrically conductive adhesive. It may be used for circuit assembly and semiconductor applications.

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):	Part A: Silver		Part B: Silver	
* Consistency:	Smooth thixotropic paste			
* Viscosity (23°C) @ 20 rpm:		15,000-18,000	cPs	
Thixotropic Index:		3.9		
* Glass Transition Temp:		≥ 90	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):				
Below Tg:		48	x 10^{-6} in/in°C	
Above Tg:		192	x 10^{-6} in/in°C	
Shore D Hardness:		68		
Lap Shear @ 23°C:		952	psi	
Die Shear @ 23°C:		≥ 5	Kg	1,778 psi
Degradation Temp:		401	°C	
Weight Loss:				
@ 200°C:		0.37	%	
@ 250°C:		0.61	%	
@ 300°C:		0.90	%	
Suggested Operating Temperature:		< 300	°C (Intermittent)	
Storage Modulus:		1,052,430	psi	
Ion Content:	Cl^-:	27 ppm	Na^+:	10 ppm
	NH_4^+:	80 ppm	K^+:	1 ppm
* Particle Size:		≤ 20	microns	

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	2.5	W/mK
* Volume Resistivity @ 23°C:	≤ 0.0005	Ohm-cm

Epoxies and Adhesives for Demanding Applications™
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EPO-TEK® E2101 Advantages & Suggested Application Notes:

- Thixotropic paste allows for application by stencil or screen printing. SMD caps and resistors as small as the 0402 format have been mounted to PCB without silver bridging between the 2 electrodes.
- Capable of adhering to PCB metals like Au, Cu, OSP / Cu, Ag, Ag-Pd.
- Used for making electrical connections to PZT electrodes in ink-jetting or medical / ultrasound applications.
- Suitable for low temperature flip chip packaging. “Bumps” of E2101 may be used instead of Sn/Pb solder balls.
- Suited for high speed automated syringe dispensing techniques.
- Low flow, low resin bleedout on gold surfaces.
- Passes NASA low outgassing standard ASTM E595 with proper cure - http://outgassing.nasa.gov/
- JEDEC Level III and II semiconductor packaging material

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