EPOXY TECHNOLOGY

EPO-TEK® H27D

Technical Data Sheet
For Reference Only
Electrically Conductive, Silver Epoxy

Date:	November 2019	
Rev:	VIII	
No. of Components:	Two	
Mix Ratio by Weight:	10 : 1	
Specific Gravity:	Part A: 3.79	Part B: 1.22
Pot Life:	8 Hours	
Shelf Life- Bulk:	One year at room temperature	

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.
- Syringe packaging will impact initial viscosity and effective pot life, potentially beyond stated parameters.

Product Description: EPO-TEK® H27D is a two component, silver-filled epoxy adhesive designed for semiconductor and hybrid-microelectronic packaging 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: Amber	
* Consistency:		Smooth paste			
* Viscosity (23°C) @ 100 rpm:			2,500 - 4,000	cPs	
Thixotropic Index:			1.3		
* Glass Transition Temp:			≥ 80	°C (Dynamic Cure: 20-200°C/ISO 25 Min; Ramp -10-200°C @20°C/Min)	
Coefficient of Thermal Expansion (CTE):					
	Below Tg:		29	x 10^{-6} in/in°C	
	Above Tg:		116	x 10^{-6} in/in°C	
Shore D Hardness:			55		
Lap Shear @ 23°C:			1,288	psi	
Die Shear @ 23°C:			≥ 15	Kg	5,334 psi
Degradation Temp:			413	°C	
Weight Loss:					
	@ 200°C:		0.49	%	
	@ 250°C:		0.50	%	
	@ 300°C:		0.63	%	
Suggested Operating Temperature:			< 325	°C (Intermittent)	
Storage Modulus:			539,400	psi	
Ion Content:		Cl^-:	8 ppm	Na^+:	25 ppm
		NH_4^+:	7 ppm	K^+:	10 ppm
* Particle Size:			≤ 45	microns	

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	1.2	W/mK
* Volume Resistivity @ 23°C:	≤ 0.0005	Ohm-cm

Epoxies 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.

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EPO-TEK® H27D Advantages & Suggested Application Notes:

- Rheology provides a smooth paste with excellent handling characteristics and a reasonable pot life. It can be machine-dispensed, screen printed, stamped, or applied by hand using spatula, toothpick, or many other applicators.
- Suggested for the following:
  - Semiconductor applications such as Au-plated chips, Si, GaAs, Cu or Ag based lead-frames and die-paddles, JEDEC plastic IC packaging using transfer molded encapsulation processes.
  - Hybrid micro-electronics; active and passive SMDs on ceramic substrates, Au and Ag-Pd contact pads, chip caps and resistors, inductors, quartz crystals, oscillators, making or repairing conductive traces on the PCB, EMI/RF shielding of the package, near-hermetic sealing, component or package grounding. Packages like DIP, or TO-can format.
  - PCB level; COB die attach, substrates can be rigid like FR4 and BT, or flex like Kapton.
- Passes NASA low outgassing standard ASTM E595 with proper cure - http://outgassing.nasa.gov/.
- Designed to withstand TC wire bonding temperatures, or hybrid lid-seal processes exceeding 300°C.

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