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EPO-TEK® H70E

Technical Data Sheet
For Reference Only
Thermally Conductive, Electrically Insulating Epoxy

Date:	September 2021
Rev:	XV
No. of Components:	Two
Mix Ratio by Weight:	1 : 1
Specific Gravity:	Part A: 1.50 Part B: 2.50
Pot Life:	56 Hours
Shelf Life- Bulk:	One year at room temperature
Shelf Life- Syringe:	One year at -40°C

Recommended Cure: 150°C / 1 Hour

Minimum Alternative Cure(s):
May not achieve performance properties listed below
175°C / 1 Minute
150°C / 5 Minutes
120°C / 15 Minutes

80°C / 90 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® H70E is a two component, thermally conductive, electrically insulating epoxy designed for chip bonding in microelectronic and optoelectronics 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: Grey	Part B: Beige	
* Consistency:	Slightly pourable paste		
* Viscosity (23°C) @ 50 rpm:	4,000 - 7,000	cPs	
Thixotropic Index:	1.2		
* 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:	15	x 10^{-6} in/in°C	
Above Tg:	64	x 10^{-6} in/in°C	
Shore D Hardness:	83		
Lap Shear @ 23°C:	> 2,000	psi	
Die Shear @ 23°C:	≥ 10	Kg	3,556 psi
Degradation Temp:	451	°C	
Weight Loss:			
@ 200°C:	0.24	%	
@ 250°C:	0.75	%	
@ 300°C:	1.60	%	
Suggested Operating Temperature:	< 300	°C (Intermittent)	
Storage Modulus:	787,350	psi	
Ion Content:	Cl^-: 186 ppm		
* Particle Size:	≤ 50	microns	

ELECTRICAL AND THERMAL PROPERTIES:		
Thermal Conductivity:	0.9	W/mK
Volume Resistivity @ 23°C:	≥ 1 x 10^{13}	Ohm-cm
Dielectric Constant (1KHz):	4.22	
Dissipation Factor (1KHz):	0.004	

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® H70E Advantages & Suggested Application Notes:

- Heat-sinking adhesive. It is particularly recommended for thermal management applications where good heat dissipation is necessary.
- The excellent handling characteristics and the long pot life at room temperature for this unique, two component system is obtained without the use of solvents.
- Easy to use. It can be screen printed, machine dispensed, stamped, or hand applied.
- Die-attach adhesive designed to be used in the 300°C range to resist TC wire bonding operations. Meets JEDEC Level III and II packaging criteria.
- Excellent adhesion to ferrous and non-ferrous metals, lead-frame die paddle, glass, ceramic, kovar, and PCB.
- Can be cured very rapidly; excellent material to use for making fast circuit repairs; can be snap-cured for in-line semiconductor die-bonding.
- Passes NASA low outgassing standard ASTM E595 with proper cure - http://outgassing.nasa.gov/.

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