EPO-TEK® H70E

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

Date:	November 2019	
Rev:	XIII	
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	

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	

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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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