

EPO-TEK® Recommended Applications Chart

Electrically & Thermally Conductive

Epoxy Adhesives

Epoxy Technology offers a full range of electrically and thermally conductive epoxy adhesives for the semiconductor, optoelectronic, automotive, aerospace and electronic assembly industries. Our extensive product line allows users to easily select the optimal adhesive for their specific application; based on the best combination of physical, electrical and mechanical characteristics.

EPO-TEK electrically conductive epoxies have been used successfully for over 35 years in a wide variety of applications including: IC packaging, hybrid microelectronics and circuit assembly as well as today in solar cell assembly, LEDs and high power management.

Representative examples from our extensive offering:

- **EPO-TEK H20E** – a “standard in the industry”, two component ECA with low outgassing, long pot life, fast curing that is suitable for automatic dispensing with proven long-term reliability (85°C/85% RH for 1000 hours).
- **EPO-TEK EK1000** – a new generation, single component ECA with exceptional thermal conductivity for high power applications with a thermal conductivity value ranging from 12.6 to 22.0 W/m°K.
- **EPO-TEK EJ2189** – a new generation, two component ECA designed for low temperature curing from 23°C (ambient) to 80°C that exhibits superior adhesion to a wide variety of substrates including most metals, ceramics, glass and plastics.

EPO-TEK Applications	E2101	E3001-HV	E3082	E4110	ED1003	ED1021	EJ2189	EJ2189-LV	EK1000	EM127	H20E	H20E- PFC	H20S	H31	H35-175MP	H37-1MP
MCM/Hybrid Die Attach	*		*		*	*	*	*	*		*	*	*	*	*	*
Semiconductor Die Attach	*	*	*		*	*	*		*	*	*	*	*			*
Microwave	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Quartz Crystal Attach											*		*	*	*	
Polymer Flip Chip	*										*	*	*			
Solder Replacement	*			*			*	*			*	*	*		*	*
High Temperature	*		*		*										*	*
MIL-STD 883/5011									*		*				*	*
LED Attach	*	*			*	*			*	*	*		*	*		
LCD Interconnect	*			*			*	*			*		*			
Substrate Attach			*	*	*	*	*	*	*		*		*	*	*	*
NASA Approved	*										*	*			*	*
Low Stress	*		*	*		*	*	*	*		*	*				*
Medical - USP Class VI											*					
Photonics Devices		*		*	*	*	*		*	*	*	*	*	*		*



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EPO-TEK® Electrically & Thermally Conductive Selector Guide

EPO-TEK	NO. OF COMPONENTS	CURE TEMPERATURE (minimal)	VISCOSITY @ 23°C (cPs)	GLASS TRANSITION TEMPERATURE (T _g)	DIE SHEAR STRENGTH @ RT (80 mil X 80 mil)	VOLUME RESISTIVITY (ohm-cm)	THERMAL CONDUCTIVITY (W/m ² K)	MAX. OPER. TEMPERATURE CONTINUOUS	TGA DEGRADATION TEMPERATURE	CTE Below T _g / Above T _g (in/in/°C)	POT LIFE (@ room temp)	SHELF LIFE (@ room temp) or ** @-40°C
E2101	Two	175°C – 15 min 150°C – 1 hour	@ 20 rpm 15,000 – 18,000	≥90°C	≥5kg / 1,700psi	≤0.0005	2.50	200°C	455°C	56 x 10 ⁻⁶ / 131 x 10 ⁻⁶	5 days	1 year
E3001-HV	Single	180°C – 2 min 150°C – 15 min	@ 20 rpm 11,000 – 14,000	≥100°C	≥10kg / 3,400psi	≤0.0005	1.09	200°C	435°C	24 x 10 ⁻⁶ / 77 x 10 ⁻⁶	24 hours	1 year**
E3082	Single	200°C – 1 min 150°C – 30 min	@ 50 rpm 4,000 – 6,500	≥90°C	≥5kg / 1,700psi	≤0.0001	2.80	200°C	361°C	40 x 10 ⁻⁶ / 174 x 10 ⁻⁶	15 hours	1 year**
E4110	Two	150°C – 15 min 80°C – 3 hours	@ 100 rpm 800 – 1,600	≥40°C	≥5kg / 1,700psi	≤0.0005	1.37	150°C	380°C	48 x 10 ⁻⁶ / 150 x 10 ⁻⁶	4 hours	1 year
ED1003	Single	150°C – 1 hour	@ 100 rpm 2,300 – 4,300	169°C	8kg / 2,720psi	≤0.0001	8.46	150°C	326°C	41 x 10 ⁻⁶ / N/A	28 days	1 year**
ED1021	Single	150°C – 30 min 125°C – 1 hour	@ 10 rpm 8,782	48°C	12.4kg / 4,216psi	≤0.0002	3.30	200°C	403°C	52 x 10 ⁻⁶ / 184 x 10 ⁻⁶	3 months	1 year**
EJ2189	Two	150°C – 15 min 23°C – 3 days	@ 1 rpm 55,000 – 90,000	≥30°C	≥9kg / 3,060psi	≤0.009	1.38	160°C	316°C	53 x 10 ⁻⁶ / 107 x 10 ⁻⁶	4 hours	1 year
EJ2189-LV	Two	150°C – 15 min 23°C – 3 days	@ 1 rpm 25,000 – 45,000	≥40°C	≥10kg / 3,400psi	≤0.009	2.00	150°C	340°C	52 x 10 ⁻⁶ / 89 x 10 ⁻⁶	4 hours	1 year
* EK1000	Single	200°C – 30 min	@ 100 rpm 1,800 – 3,600	>80°C	>10kg / 3,400psi	<0.00009	12.60	200°C	357°C	38 x 10 ⁻⁶ / 94 x 10 ⁻⁶	2 weeks	1 year**
EM127	Single	160°C – 30 min 150°C – 1 hour	@ 100 rpm 2,500 – 3,300	≥65°C	≥10kg / 3,400psi	≤0.0009	1.20	200°C	380°C	28 x 10 ⁻⁶ / 117 x 10 ⁻⁶	28 days	1 year**
*‡ H20E	Two	175°C – 45 sec 80°C – 3 hours	@ 100 rpm 2,200 – 3,200	≥80°C	>5kg / 1,700psi	≤0.0004	2.50	200°C	425°C	31 x 10 ⁻⁶ / 158 x 10 ⁻⁶	2.5 days	1 year
H20E-PFC	Two	175°C – 45 sec 80°C – 3 hours	@ 100 rpm 3,000 – 4,000	≥80°C	≥5kg / 1,700psi	≤0.0004	3.20	225°C	407°C	21 x 10 ⁻⁶ / 94 x 10 ⁻⁶	3 days	1 year
‡ H20S	Two	175°C – 45 sec 80°C – 90 min	@ 100 rpm 1,800 – 2,800	≥80°C	≥5kg / 1,700psi	≤0.0005	3.25	200°C	414°C	31 x 10 ⁻⁶ / 120 x 10 ⁻⁶	3 days	1 year
H31	Single	150°C – 1 hour	@ 5 rpm 15,000 – 25,000	≥110°C	≥5kg / 1,700psi	≤0.0005	1.10	200°C	370°C	48 x 10 ⁻⁶ / 201 x 10 ⁻⁶	28 days	3 months
† H35-175MP	Single	180°C – 1 hour 165°C – 1.5 hours	@ 10 rpm 22,000 – 28,000	≥100°C	≥10kg / 3,400psi	≤0.0005	1.50	200°C	372°C	31 x 10 ⁻⁶ / 97 x 10 ⁻⁶	28 days	1 year**
† H37-MP	Single	150°C – 1 hour	@ 10 rpm 22,000 – 26,000	≥90°C	≥10kg / 3,400psi	≤0.0005	1.59	200°C	358°C	52 x 10 ⁻⁶ / 148 x 10 ⁻⁶	28 days	1 year**

* **H20E** also available in “MP” grade (**H20E-MP**), certified to MIL-STD 883/5011

‡ **H20E** also available in “D” grade (**H20E-D**) for added ease of dispensing

* **EK1000** also available in “MP” grade (**EK1000-MP**), certified to MIL-STD 883/5011

‡ **H20S** also available in “D” grade (**H20S-D**) for added ease of dispensing

Note: 23°C denotes RT cure
† MIL-STD 883/5011 certified
** @-40°C