



**SMD Non-Conductive Epoxy** refers to electrically insulating adhesives and are used at the PCB level for gluing SMDs to the PCB. **EPO-TEK®** SMD epoxies ensure component placement onto the PCBs during solder reflow, structural integrity for high reliability circuits that are subjected to severe conditions such as: constant acceleration/G-shocks found in military, avionics or aerospace applications. The adhesive can act as a **dielectric dam** or solder mask, and is sometimes referred to as the **underfill**.

In some cases, the material may be cured in the same step as the electrically conductive adhesive (ECA). Ideally, the SMD epoxy and ECA use a matching chemistry, so that curing kinetics and thermo-mechanical stresses are minimized on the PCB.

EPO-TEK	NO. of COMPONENTS	COLOR Before/After CURE (thin film)	CURE TEMPERATURE (minimal)	VISCOSITY @ 23°C	GLASS TRANSITION TEMPERATURE (Tg)	DIE SHEAR STRENGTH @ RT (80mil x 80mil)	INDEX OF REFRACTION (Nd)	SPECTRAL TRANSMISSION	TGA DEGRADATION TEMPERATURE	CTE Below Tg/ Above Tg (in/in/°C)	POT LIFE (@ room temp.)	SHELF LIFE (@ room temp.)
H61	One	Grey/Grey	150°C – 30 min 120°C – 1 hour	40,000-60,000 cPs @ 5 rpm	≥110°C	≥20 kg/6,800 psi	N/A	N/A	425°C	17 x 10 <sup>-6</sup> 95 x 10 <sup>-6</sup>	25 days	6 month refrigerated
H63	One	Black/Black	150°C – 30 min 120°C – 1 hour	25,000-35,000 cPs @ 10 rpm	≥120°C	≥10 kg/3,400 psi	N/A	N/A	418°C	27 x 10 <sup>-6</sup> 125 x 10 <sup>-6</sup>	28 days	1 year refrigerated
H65-175MP	One	Ivory/Ivory	180°C – 1 hour	80,000-120,000 cPs @ 2.5 rpm	≥100°C	≥20 kg/6,800 psi	N/A	N/A	397°C	38 x 10 <sup>-6</sup> 136 x 10 <sup>-6</sup>	28 days	1 year @ -40°C
H67-MP	One	Ivory/Ivory	150°C – 1 hour	300,000-400,000 cPs @ 1 rpm	≥90°C	≥10 kg/3,400 psi	N/A	N/A	350°C	16 x 10 <sup>-6</sup> 68 x 10 <sup>-6</sup>	28 days	1 year @ -40°C
H70E	Two	Grey/Grey	175°C – 1 min 80°C – 90 minutes	4,000-7,000 cPs @ 50 rpm	≥80°C	≥10 kg/3,400 psi	N/A	N/A	451°C	15 x 10 <sup>-6</sup> 64 x 10 <sup>-6</sup>	56 hours	1 year
H70E-4	Two	Dark Grey/	120°C – 15 min 50°C – 12 hours	20,000-40,000 cPs @ 10rpm	≥80°C	≥5 kg/1,700 psi	N/A	N/A	432°C	17 x 10 <sup>-6</sup> 77 x 10 <sup>-6</sup>	2.5 days	1 year
H74	Two	Grey/Dark Grey	150°C – 5 min 100°C – 20 min	45,000-65,000 cPs @ 5 rpm	≥100°C	≥15 kg/5,100 psi	N/A	N/A	425°C	21 x 10 <sup>-6</sup> 95 x 10 <sup>-6</sup>	2 hours	1 year
OG116-31	One	White/White	100mW/cm <sup>2</sup> for >2 min @ 320-500 nm	20,000-30,000 cPs @ 10 rpm	≥115°C	≥10 kg/3,400 psi	1.5662	>96% @ 660-1640 nm >92% @ 500 nm	409°C	41 x 10 <sup>-6</sup> 170 x 10 <sup>-6</sup>	N/A	1 year
OG133-8	One	Cloudy colorless/ Cloudy colorless	100mW/cm <sup>2</sup> for 2-3 min @ 320-500 nm	1000-1500 cPs @ 100 rpm	≤10°C	3.2 kg	1.5050	>90% @ 640 nm 95% @ 900 nm	353°C	43 x 10 <sup>-6</sup> 222 x 10 <sup>-6</sup>	N/A	1 year
OG147-7	One	White/White	100mW/cm <sup>2</sup> for 3 min @ 320-500 nm	30,000-40,000 cPs @ 10 rpm	≥70°C	≥20 kg/6,800 psi	1.5690	>83% @ 800-2000 nm >78% @ 580-800 nm >56% @ 400-580 nm	414°C	45 x 10 <sup>-6</sup> 190 x 10 <sup>-6</sup>	N/A	1 year
323LP	Two	Amber/Brown	90°C – 30 min	3,500-5,000 cPs @ 50 rpm	>100°C	≥20 kg/6,800 psi	1.5703	>94% @ 820-1620 nm >90% @ 640-800 nm	413°C	31 x 10 <sup>-6</sup> 132 x 10 <sup>-6</sup>	24 hours	1 year
OD2002	Two	Cloudy/Ivory	150°C – 5 min 100°C – 30 min	24,000-42,000 cPs @ 2.5 rpm	>140°C	≥10 kg/3,400 psi	1.5728	>98% @ 800-1640 nm 69% @ 600 nm	443°C	45 x 10 <sup>-6</sup> 187 x 10 <sup>-6</sup>	4 hours	1 year
353ND-T	Two	Tan / Dark Red	150°C – 1 min 80°C – 30 min	9,000-15,000 cPs @ 20 rpm	≥90°C	≥15 kg/5,100 psi	N/A	N/A	409°C	43 x 10 <sup>-6</sup> 231 x 10 <sup>-6</sup>	3 hours	1 year
730	Two	Tan / Tan	150°C – 1 hour 80°C – 2 hours 23°C – 24 hours	80,000-120,000 cPs @ 2.5 rpm	≥55°C	≥10 kg/3,400 psi	N/A	N/A	364°C	66 x 10 <sup>-6</sup> 248 x 10 <sup>-6</sup>	1 hour	1 year
GE116	One	Red/Red	150°C – 5 min 120°C – 15 min	200,000-300,000 cPs @ 1 rpm	≥65°C	≥5 kg/1,700 psi	N/A	N/A	344°C	41 x 10 <sup>-6</sup> 218 x 10 <sup>-6</sup>	28 days	1 year @ -40°C
H74F	Two	Dark Grey/Dark Grey	150°C – 5 min 80°C – 2 hours	45,000-75,000 cPs @ 5 rpm	≥90°C	≥15 kg/5,100 psi	N/A	N/A	486°C	33 x 10 <sup>-6</sup> 108 x 10 <sup>-6</sup>	3 hours	1 year

N/A - not applicable, as these are filled systems

SMD CAPACITORS AND RESISTORS

FOUR CORNER EDGE BONDING

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