Permabond®
Engineering Adhesives

ADHESIVES FOR ELECTRONICS



Permabond offers a wide range of different adhesive technologies for bonding electronic components.

Adhesives are used in electronics applications such as wire tacking, coil winding, magnet bonding, and much more. They help to provide structural integrity to electronic components while protecting against vibration, impact, and moisture. With electronic components getting ever smaller, adhesives also help to ensure a lightweight and aesthetically pleasing end product.

Permabond has many years of experience manufacturing electronics adhesives for a wide range of applications in the industry. See below for a list of typical applications our products can help with.

TYPICAL APPLICATIONS

- Wire tacking
- Bonding heat sinks
- Bonding of surface mount devices to PCBs
- Potting and encapsulation of electronic components
- Component rigidizing
- Conformal coating to protect electronic components / PCBs
- Applications within batteries and battery packs
- Strain protection for leads/plugs
- Toroid bonding
- Coil winding
- Magnet bonding & electric motor applications
- Bonding electronics housings and enclosures
- Bonding touch screens and keypads
- Sensor bonding / potting
- Electrical transformers
- Power inductors
- Sensor transformers
- Capacitors







IDEAL FOR BONDING:

- ABS
- Acetal
- Acrylic
- Aluminum
- Carbon Fiber
- Copper
- Ferrite
- FRP/GRP/Gelcoat
- Glass
- Laminate
- Magnet
- PCB
- Phenolic
- Polycarbonate*
- Polyethylene*
- Polypropylene*
- PVC
- Silicon
- Steel
- Tungsten
- Zinc

*special grades only on untreated

...and many more!

Permabond® Engineering Adhesives

Adhesives for Electronics

Technical Information	825	920	947	CSA-NF	ES566	ES578	ES5691	ET5441	ET530	MT382	MT3836	PT326	TA4392	TA4590	UV681	UV683
Typical application	SMD Bonding, wire tacking	SMD Bonding, wire tacking, toroid bonding	Wire tacking, bonding housings	Wire tacking, bonding housings	Bonding components, component rigidizing	Bonding heat sinks	Bonding components	Bonding heat sinks and metal components	Potting and coating, coating copper wire coils	Potting and encapsulation	Bonding heat sinks	Potting, bonding components	Magnet bonding, bonding heat sinks	Magnet bonding	Tack-free clear coating	Tack-free doming
Features	Single part, moisture cure cyanoacrylate adhesive. High temperature resistance.	Single part, moisture cure cyanoacrylate adhesive. High temperature resistance.	Single part, moisture cure cyanoacrylate adhesive. Low odor/ non-bloom.	Cyanoacrylate activator. Nonflammable, low residue. Ideal for speeding up cure and for curing excess adhesive.	Single part, heat cure epoxy. Cures at temperatures <100°C. Helps protect temperature-sensitive electronics.	Single part, heat cure epoxy. Good thermal conductivity properties.	Single part, heat cure epoxy. Excellent adhesive strength. Resistance to vibration. Halogen-free formulation.	Two part epoxy. Excellent thermal conductivity and chemical resistance. High temperature resistance. Low CTE.	Two part epoxy. Low viscosity. Cures at room temperature.	Modified two part epoxy. Low viscosity. Self-leveling, soft, slightly flexible.	Modified two part silane polymer. Excellent thermal conductivity. UL94 V-0 fire retardant.	Two part polyurethane adhesive. High peel and impact strength.	Structural acrylic resin + initiator 41. Rapid cure, good thermal conductivity.	Structural acrylic resin + initiator 44. Non-acidic formulation for sensitive electronics.	Single part UV-curing resin. Low viscosity. Ideal for conformal coating.	Single part UV-curing resin. High viscosity. Ideal for doming.
Color	Clear, colorless	Clear, colorless	Clear, colorless	Clear, colorless	Grey	Black	White	Grey	Clear, colorless	Charcoal black	Cream	Grey	White	Blue	Clear, colorless	Clear, colorless
Viscosity (mPa.s = cP)	100-150	70-90	900-1500	1	Thixotropic paste	Thixotropic paste	20 rpm: 200,000 2 rpm: 525,000	Thixotropic paste	550	Mixed: 13,000-30,000	Mixed: Paste	Mixed: 3500-7000	200,000	20rpm: 20,000 2.5rpm: 90,000	80-120	1000-1600
Maximum gap fill (mm) in	(0.15) 0.006	(0.15) 0.006	(0.25) (0.01)	-	(2.0) 0.08	(5.0) 0.2	(5.0) 0.2	(2.0) 0.08	-	(0.5) 0.02	(5.0) 0.2	(5.0) 0.2	(0.5) 0.02	(0.5) 0.02	-	-
Handling time (steel)	10-15 sec.	15-20 sec.	10-15 sec.	-	90°C (175°F): 75 min. 100°C (210°F): 40 min. 120°C (250°F): 25 min. 150°C (300°F): 10 min.	130° C (266°F): 75 min. 150°C (300°F): 60 min. 170°C (338°F): 25 min.	130° C (266°F): 60 min. 150°C (300°F): 50 min. 160°C (320°F): 15 min.	8 hrs	8-12 hrs	105-120 min.	2-3 hrs	60-90 min.	10-30 sec.	30-60 sec.	Normally seconds - depends on UV lamp intensity, output spectra, and distance from substrate	
Full strength (cured at 23°C)	24 hrs	24 hrs	24 hrs	-				7 days	72 hrs	72 hrs	>72 hrs	4-5 days	24 hrs	24 hrs		
Shear strength Steel (MPa) psi	(15-20) 2175-2900	(19-23) 2800-3300	(16-20) 2300-2900	-	(5-10) 750-1500 cured at 90°C (18-22) 2600-3200 cured at >100°C	(27-41) 4000-6000	(27-41) 4000-6000	(20-25) 2900-3600	(10-12) 1450-1700	(4-7) 600-1000	(2-2.5) 290-360 Stainless Steel	(12-20) 1700-2900	(16-20) 2300-2900	(20-25) 2900-3600	-	-
Service temperature range (°C)°F	(-55 to +200) -65 to +390	(-55 to +250) -65 to +482*	(-55 to +80) -65 to +180	-	(-40 to +180) -40 to +356	(-40 to +180) -40 to +356	(-40 to +180) -40 to +356	(-40 to +200) -40 to +390	(-40 to +100) -40 to +215	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-40 to +120) -40 to +250	(-55 to +165) -65 to +329	(-55 to +165) -65 to +329	(-55 to +120) -65 to +250	(-55 to +120) -65 to +250
Dielectric strength kV/mm	25		25	-	-	40-45	18	22	18	-	19	-	25-30	30-50	-	-
Thermal conductivity W/ (m.K)	0.1	0.1	0.1	-	0.38	1.0	0.3	1.1	0.31	-	1.05	-	1.111	0.1	-	-

** Product cured at 150 °C for 2 hours*

Application: Coil Winding

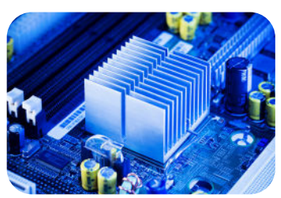
Loudspeaker coil winding runs through an epoxy “bath” and is coiled before the epoxy sets.

- Excellent optical clarity
- Low viscosity for good penetration and coverage

Adhesive used: Permabond ET530



Application: Bonding SMDs



Permabond adhesive is used to secure components that may later need to go through a solder reflow process.

- High wet strength
- Good thermal conductivity
- Good electrical resistance

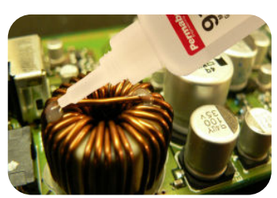
Adhesive used: Permabond ES578

Application: Bonding Toroids

Adhesive is applied to bond copper wire to the ferrite core of a toroid.

- Improved durability
- Improved vibration and temperature resistance

Adhesive used: Permabond 920

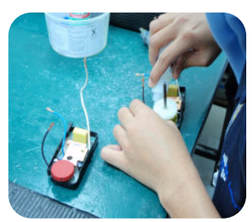


Application: Wire Tacking

Permabond cyanoacrylates are used to tack wires inside electronic devices.

- Improved handling throughout assembly process
- Secure routing of surface wires
- Neat appearance

Adhesive used: Permabond 825



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Permabond adhesives and sealants are available worldwide through authorized distributors.

Contact us for technical support or a distributor in your area!



PERMABOND.COM

Authorized distributor stamp:

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The information given and the recommendations made herein are based on our experience and are believed to be accurate. No guarantee as to, or responsibility for, their accuracy can be given or accepted, however, and no statement herein is to be treated as a representation or warranty. In every case we urge and recommend that purchasers, before using any product, make their own tests to determine, to their own satisfaction, its suitability for their particular purposes under their own operating conditions. Always refer to current product technical datasheet for most recent and accurate technical information.