MASTER BOND MICROELECTRONIC APPLICATION SELECTOR GUIDE

Selected Adhesives, Sealants, Coatings, Encapsulants & Potting Compounds Specially Formulated for Microelectronic Applications
Partial Listing Only —— Other Grades Available

I. ADHESIVES/SEALANTS

Electrically Insulating —

Master Bond Grade	Type of System	Mix Ratio by weight	Viscosity RT, cps	Set-Up Time Minutes, RT	Cure Schedule Temp/Time, °F	Service Temp Range, °F	Applications
EP21	2 part epoxy	100/100	50,000-60,000	60-90	24-48 hrs @ RT 2 hrs @ 200°F	-60 to +250°F	High performance general purpose adhesive/sealant. Can alter mix ratio to vary toughness and flexibility.
EP21ND	2 part epoxy	100/100	paste	45-60	24-48 hrs @ RT 2 hrs @ 200°F	-60 to +250°F	Non-drip version of EP21. Excellent physical & electrical properties. Convenient handling.
EP21TDCHT	2 part epoxy	100/100	100,000-120,000	60-90	48 hrs @ RT 2-3 hrs @ 200°F	-100 to +350°F	High temperature resistant general purpose system. Excellent adhesion to a wide variety of substrates.
EP21TDC-2	2 part epoxy	33/100	70,000-80,000	75-90	72 hrs @ RT 2-3 hrs @ 200°F	4°K to +250°F	Highly flexible with exceptional thermal and mechanical shock resistance. Suitable for cryogenic applications.
EP30-1	2 part epoxy	100/25	1,500-1,600	25-30	24-48 hrs @ RT 1-2 hrs @ 200°F	-60 to +250°F	Low viscosity. Transparent. Exceptionally low shrinkage. Superior physical strength & chemical resistance properties.
EP30LTE	2 part epoxy	100/10	15,000-20,000	30-40	24-48 hrs @ RT 2-3 hrs @ 200°F	-60 to +250°F	Remarkably low coefficient of expansion. Exceptionally low shrinkage. Very high dimensional stability.
EP33	2 part epoxy	100/70	50,000-60,000	50-60	24-48 hrs @ RT 1-2 hrs @ 200°F	-60 to +450°F	High temperature resistance. Good physical strength properties & dielectrics. Can resist high radiation levels.
EP42LV	2 part epoxy	100/40	2,000-2,300	25-35	24-36 hrs @ RT 2-3 hrs @ 200°F	-60 to +300°F	Low viscosity, highly chemically resistant system. Good bond strength to a wide variety of substrates.
EP65HT-1	2 part epoxy	100/10	60,000-70,000	3-5 min	20-30 min @ RT	-60 to +400°F	Ultra-fast curing, high strength system. Superb heat resistance. NASA low outgassing approved.
EP45HT	2 part epoxy	100/30	40,000-50,000	12-24 hrs	1 hr @ 150°F plus 2-3 hrs @ 300°F	-80 to +500°F	High temperature & chemically resistant structural adhesive & sealant. MMM-A-132 type III. ***Requires heat cure***.
Supreme 3HT	1 part epoxy	1 part	120,000-135,000	30-60 sec @ 300°F	20-30 min @ 250°F 5-10 min @ 300°F	-100 to +350°F	Toughened system. Superior thermal cycling properties as well as excellent mechanical & thermal shock resistance.
Supreme 10HT	1 part epoxy	1 part	>250,000	3-5 min @ 300°F	60 min @ 250°F 45 min @ 300°F	4°K to +400°F	Ultra-high strength (shear & peel), NASA low outgassing approved. Outstanding toughness & durability.
Supreme 10HTND-2	1 part epoxy	1 part	paste	3-5 min @ 300°F	60 min @ 250°F 45 min @ 300°F	-100 to +400°F	Non-drip version of Supreme 10HT with similar physical & mechanical properties. Will not flow when heat cured.
MB297FL	cyanoacrylate	1 part	1,500-1,800	45-60 sec humidity dependant	5 min @ RT	-40 to +250°F	Moderate viscosity, toughened system with superior impact and shock resistance.
MB302	cyanoacrylate	1 part	75-100	15-20 sec humidity dependant	2-3 min @ RT	-40 to +250°F	Low viscosity with excellent adhesion to metals, plastics, rubbers and ceramics.
MasterSil 702	1 part silicone	1 part	paste	30-45 sec depends on depth of cure & humidity	24-48 hrs @ RT	-75 to +400°F	Non-corrosive type system. Excellent bond strength. Superior electrical insulation properties.
MasterSil 711	1 part silicone	1 part	60,000	3-5 min depends on depth of cure & humidity	4-6 hrs @ RT	-75 to +400°F	Exceptionally fast curing, non-corrosive system. Flowable. For manufacturing and repair applications.
UV10	UV curable	1 part	300-400	not applicable depends on depth of cure & light intensity	5-30 sec	-60 to +250°F	Low viscosity general purpose system. Cures rigid. Excellent resistance to water and other chemicals.
UV15-7DC	UV curable	1 part	2,500-5,000	10-45 sec plus 15-30 min @ 250°F depends on depth of cure & light intensity		-60 to +300°F	Dual cure UV. Will cure in shadowed out areas by adding heat (250°F). Excellent physical & electrical properties.

Electrically Insulating —

Master Bond Grade	Type of System	Mix Ratio by weight	Viscosity RT, cps	Set-Up Time Minutes, RT	Cure Schedule Temp/Time, °F	Service Temp Range, °F	Applications
UV15-7TK1A	UV curable	1 part	paste	not applicable	5-30 sec depends on depth of cure & light intensity	-60 to +300°F	Non-drip system. Low shrinkage & good dimensional stability. Ideal for specialized sealing & bonding applications.
UV15X-5	UV curable	1 part	120,000	not applicable	5-30 sec depends on depth of cure & light intensity	-80 to +250°F	High flexibility. Superb thermal cycling properties. Excellent peel strength and abrasion resistance.

Thermally Conductive/Electrically Insulating —

Master Bond Grade	Type of System	Mix Ratio by weight	Viscosity RT, cps	Set-Up Time Minutes, RT	Cure Schedule Temp/Time, °F	Service Temp Range, °F	Applications
EP21AO	2 part epoxy	100/100	light paste	45-60	24-48 hrs @ RT 2-3 hrs @ 200°F	-60 to +250°F	High strength, general purpose system. Widely used for bonding heat sinks. Convenient handling.
EP21TDC-2AO	2 part epoxy	33/100	paste	90-120	48-72 hrs @ RT 3 hrs @ 200°F	-100 to +250°F	Excellent flexibility. Superb for bonding substrates with greatly differing coefficients of expansion.
EP21ANHT	2 part epoxy	100/100	paste	60-80	24-48 hrs @ RT 1-2 hrs @ 200°F	-60 to +400°F	High thermal conductivity (22 BTU•in/ft^2 •hr•°F at 75°F). Excellent for bonding heat sinks and thermistors.
Supreme 11AOHT	2 part epoxy	100/100	paste	25-50	24-36 hrs @ RT 1 hr @ 200°F	-100 to +400°F	Good heat resistance. Excellent thermal cycling properties with dissimilar substrates. Superior insulation properties.
Supreme 3AOHT	1 part epoxy	1 part	paste	1 min @ 300°F	20-30 min @ 250°F 5-10 min @ 300°F	-100 to +350°F	Rapid curing. Good mechanical & electrical insulation properties. Bonds well to dissimilar substrates.
Supreme 10ANHT	1 part epoxy	1 part	paste	5-7 min @ 300°F	60 min @ 250°F 45 min @ 300°F	-100 to +400°F	High thermally conductivity (22 BTU•in/ft^2 •hr•°F at 75°F). Excellent strength profile. Superb thermal cycling properties.
FL901AO	1 part epoxy	1 part	film	5-10 min @ 300°F	1 hr @ 250°F 30-40 min@300°F	-100 to +400°F	Thermally conductive film. Remarkable strength properties. Standard size is 2"x6"x3 mils thick. Other sizes available.
MasterSil 705TC	1 part silicone	1 part	paste	20-30	24-48 hrs @ RT depends on depth of cure & humidity	-75 to +400°F	High conductivity (15 BTU•in/ft^2 •hr•°F at 75°F). No-mix system with high heat resistance and superb flexibility.

Electrically Conductive —

Master Bond Grade	Type of System	Mix Ratio by weight	Viscosity RT, cps	Set-Up Time Minutes, RT	Cure Schedule Temp/Time, °F	Service Temp Range, °F	Volume Resistivity ohm-cm	Applications
EP21TDCS	2 part epoxy	100/100	paste	30-40	24-36 hrs @ RT 1-2 hrs @ 200°F	4°K to +275°F	$<10^{-3}$	High performance, silver filled system (resistance < 1 milli-ohm). Easy to use. Excellent physical strength properties.
EP77M-F	2 part epoxy	100/100	paste	5-10	4-6 hrs @ RT	-60 to +250°F	$<10^{-3}$	Fast setting, silver filled system. Convenient handling. Widely used in manufacturing & circuit board repair.
EP21TDCSFL	2 part epoxy	100/100	paste	45-60	24-48 hrs @ RT 2-3 hrs @ 200°F	4°K to +250°F	$<10^{-3}$	High flexibility version of EP21TDCS. Very high peel strength. Cryogenic serviceability. Easily repairable.
EP76M	2 part epoxy	100/100	paste	45-60	24-48 hrs @ RT 2 hrs @ 200°F	-60 to +250°F	5-10	Easy to use, 1 to 1 type, nickel filled system. Excellent physical and mechanical strength properties.
Supreme 10HTS	1 part epoxy	1 part	paste	5-7 min @ 300°F	1 hr @ 250°F 45 min @ 300°F	4°K to +400°F	$<10^{-3}$	Silver filled. Wide service temperature range. NASA low outgassing approved. Excellent shear & peel strength.
FL901S	1 part epoxy	1 part	film	5-10 min @ 300°F	1 hr @ 250°F 30-40 min @ 300°F	-100 to +400°F	<0.0002	High performance, silver filled film. Standard size is 2" x 6" x 3 mils thick. Other sizes and die cuts available.

II. POTTING & ENCAPSULATION SYSTEMS

Master Bond Grade	Type of System	Mix Ratio by weight	Viscosity RT, cps	Set-Up Time Minutes, RT	Cure Schedule Temp/Time, °F	Service Temp Range, °F	Applications
EP21LV	2 part epoxy	100/100	6,000-8,000	60-90	24-48 hrs @ RT 1-2 hrs @ 200°F	-60 to +250°F	Easy to use. Excellent physical properties and chemical resistance. For small and moderate size potting.
EP30	2 part epoxy	100/25	400-500	25-30	18-24 hrs @ RT 1-2 hrs @ 200°F	-60 to +250°F	Optically clear. Low viscosity. Superb physical strength & electrical insulation properties. Minimal shrinkage.
EP30AO	2 part epoxy	100/10	15,000-20,000	30-40	24-36 hrs @ RT 1-2 hr @ 200°F	-60 to +250°F	Thermally conductive, electrically isolating. Low viscosity. Good dimensional stability. Very low shrinkage.
EP30FL	2 part epoxy	100/25	2,000-3,000	25-30	24 hrs @ RT 1-2 hrs @ 200°F	4°K to +250°F	Flexible. Marvelous thermal shock resistance. Excellent thermal cycling durability. Cryogenically serviceable.
EP30HT	2 part epoxy	100/25	35,000-45,000	25-35	24 hrs @ RT 1-2 hrs @ 200°F	-60 to +400°F	High temperature resistance. Transparent. Extraordinary physical strength and chemical resistance properties.
EP30LTE	2 part epoxy	100/10	15,000-20,000	30-40	24-48 hrs @ RT 2-3 hrs @ 200°F	-60 to +250°F	Exceptionally low coefficient of expansion system. Features very low shrinkage and high dimensional stability.
EP37-3FLFAO	2 part epoxy	100/100	18,000-22,000	3 hrs	4-5 days @ RT 4-6 hrs @ 200°F	4°K to +250°F	Thermally conductive. Electrically insulating. High flexibility & low viscosity. Readily repairable.
EP41S-4	2 part epoxy	100/25	3,000-4,000	15-20	24 hrs @ RT 1-2 hrs @ 200°F	-60 to +300°F	Superb resistance to chlorinated solvents & acids. Offers outstanding protection for high security potting applications.
EP3FL	1 part epoxy	1 part	60,000-70,000	45-60 sec @ 300°F	20-30 min @ 250°F 5-10 min @ 300°F	4°K to 250°F	Cryogenically serviceable, flexibilized system with outstanding thermal cycling & thermal shock resistance.
EP3RR-1	1 part epoxy	1 part	120,000-150,000	45-60 sec @ 300°F	20-30 min @ 230°F 5-10 min @ 300°F	-60 to 400°F	Toughened system with good thermal conductivity & heat resistance. Castable over 1 inch thick. Excellent flowability.
EP36	1 part epoxy	1 part	semi-solid melts at 180°F	uncured material reusable	2 hrs @ 300°F	-100 to 500°F	Unique B stage system. Combines superb temperature resistance with high flexibility & elongation.
UV10LV	UV curable	one part	200-250	not applicable	5-30 secs depends on depth of cure & light intensity	-60 to 250°F	Very low viscosity. Cures rigid and up to 1/8" deep. Good electrical properties and chemical resistance.
UV15-7SP4	UV curable	one part	800-1,500	not applicable	5-30 secs depends on depth of cure & light intensity	-80 to 250°F	Highly flexible & non-yellowing. Excellent thermal cycling properties. Superb thermal shock & impact resistance.
UV15X-2	UV curable	one part	6,000-8,000	not applicable	5-30 secs depends on depth of cure & light intensity	-80 to 250°F	Semi-flexible. Will cure over 1/4" deep. Good electrical & non-yellowing properties. Superior chemical resistance.
EP30D12	2 part urethane	100/30	800-1,000	10-15	8-12 hrs @ RT	-60 to 250°F	Flexible, rapid curing, low exotherm. Superb abrasion resistance. Unusually superior chemical resistance.
MasterSil 150	2 part silicone condensation cure	100/10	12,000-15,000	3 hrs	24-48 hrs @ RT ambient temperature cure only	-75 to +400°F	Cost effective, non-corrosive encapsulant with high flexibility and very low shrinkage during cure.
MasterSil 151	2 part silicone addition cure	100/10	1,200-1,500	4-5 hrs	24-48 hrs @ RT 2-3 hrs @ 200°F	-75 to +400°F	Optically clear. Low outgassing. Will cure at ambient or elevated temperatures. Also for encapsulation.

III. CONFORMAL COATINGS

Master Bond Grade	Type of System	Mix Ratio by weight	Viscosity RT, cps	Set-Up Time Minutes, RT	Cure Schedule Temp/Time, °F	Service Temp Range, °F	Applications
EP21LV-1	2 part epoxy	100/100	4,000-6,000	60-90	24-48 hrs @ RT 1-2 hrs @ 200°F	-60 to +250°F	Easy to use by brushing or dip coating. Excellent physical properties & chemical resistance profile.
EP30LV	2 part epoxy	100/20	200-300	35-40	24-36 hrs @ RT 1-2 hrs @ 200°F	-60 to +250°F	Low viscosity, clear. Excellent electrical insulation properties & chemical resistance. Applied by spraying or flow coating.

Master Bond Grade	Type of System	Mix Ratio by weight	Viscosity RT, cps	Set-Up Time Minutes, RT	Cure Schedule Temp/Time, °F	Service Temp Range, °F	Applications
EP30DP	2 part epoxy	100/10	3,000-4,000	60-90	48 hrs @ RT 2-3 hrs @ 200°F	4°K to +250°F	Toughened system. Allows for repairability. Superb electrical insulation properties. Applied by dipping or spraying.
EP19HT	1 part epoxy	1 part	600	not applicable	60 min @ 250°F 45 min @ 300°F	-60 to 400°F	Easy to use. Good mechanical & electrical insulation properties. Applied by spraying or flow coating.
MasterSil 713	1 part silicone	1 part	3,000	15-20 depends on depth of cure & humidity	18-24 hrs @ RT	-75 to +400°F	Highly flexible, easily repairable system. Non corrosive & fast curing. Applied by brushing, dip coating or spraying.
MasterSil 773	1 part silicone	1 part	60-70	5 depends on humidity	2-4 hrs @ RT	-75 to +400°F	Ultra low viscosity. Easily applied by spraying, dipping, brushing or flow coating. Superb humidity & heat resistance.
UV15	UV curable	1 part	120-150	not applicable depends on depth of cure & light intensity	5-30 secs	-60 to +350°F	Excellent heat & chemical resistance. Post curing by heat enhances properties. Optional fluorescent dye available.
UV15X-5LV	UV curable	1 part	80,000	not applicable depends on depth of cure & light intensity	5-30 secs	-80 to +250°F	High flexibility. Superb mechanical & thermal shock resistance. Best applied by brushing or dip coating.
EP56	water based urethane	1 part	300-400	50-60	12-24 hrs @ RT	-75 to +250°F	Easily processable, low cost system. Excellent electrical properties. Best applied by brushing or dip coating.

IV. SPECIALTY SYSTEMS

Master Bond Grade	Type of System	Viscosity RT, cps	Cure Schedule Temp/Time, °F	Service Temp Range, °F	Applications
Supreme 3HTND-2GT	1 part epoxy glob top	paste	5-10 min @ 300°F	-60 to +350°F	Glob top. Offers superb protection for circuitry & components including fragile ones. Low ionics. Available in syringes as well as in a thermally conductive version.
UV15X-2GT	UV curable glob top	paste	5-30 secs — depends on depth of cure & light intensity	-80 to +250°F	Ultra-fast curing glob top. Excellent moisture & chemical resistance. Offers superior durability & superb thermal cycling & shock resistance properties.
Supreme 3HTND-1SM	1 part epoxy surface mount	thixotropic paste	5-10 min @ 300°F	-60 to +350°F	Rapid curing, high strength surface mount adhesive. Low ionic impurities. "No tailing" application feature. Also available in thermally & electrically conductive versions.
MB297	cyanoacrylate wire tacking	2,400	45-60 sec (set-up) moisture cure	-40 to +250°F	Easy to use, ultra fast curing, high strength wire tack adhesive. Bonds well to most plastics, metals, rubbers and ceramics.
UV10TK	UV curable wire tacking	30,000-40,000	5-30 secs — depends on depth of cure & light intensity	-60 to +300°F	Low shrinkage, rapid curing wire tacking adhesive. Bonds well to most plastics, metals and glass. Superior temperature & chemical resistance.
EP3RR-1UF	1 part epoxy underfill	120,000-150,000	20-30 min @ 220-230°F 5-10 min @ 300°F	-60 to +400°F	Epoxy underfill system featuring toughness and rapid curing along with good thermal conductivity and heat resistance. Excellent flowability.
AC83	acrylic based conductive coating	paste	2-4 hrs @ RT	-60 to +300°F	Graphite filled, solvent based, conductive coating. Cost effective. Used for EMI / RFI shielding on most plastics and ceramics. Shielding effectiveness >40 dB.
X5SC	rubber based conductive coating	paste	2-4 hrs @ RT	-80 to +250°F	Silver filled, rubber based flexible coating with excellent peel strength and durability. Shielding effectiveness of >75dB. High solids content.
LTX117N	latex based conductive coating	flowable	4-6 hrs @ RT	-60 to +250°F	Cost effective, nickel filled, water-based coating with convenient handling properties. Shielding effectiveness of >60dB. Bonds well to most substrates.

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