YINCAE® INNOVATION AT ITS BEST

The Global Leader in Solder Joint Encapsulants Underfills, Thermal Interface Materials and Advanced Adhesives

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INNOVATION AT ITS BEST

Manufacturers' #1 Supplier of Advanced Materials

Take a look at what makes our company the perfect choice for you

MISSION

YINCAE Advanced Materials, LLC is a developer, manufacturer, and supplier of high performance coatings, adhesives, electronic, and optoelectronic materials. The company was founded on three pillars: exceeding performance specifications, maximizing productivity, and lowering costs for customers.

With exceptional experience, dedication, and the ability to respond quickly to customer needs and requirements, YINCAE is confident in its customers' trust and loyalty.

Whether in research and product development, or in manufacturing, YINCAE Advanced Materials, LLC is committed to being a valuable resource to enhance its customers' strengths, productivity, and competitive industry position.

The YINCAE brand name is recognized worldwide as an industry leader in the development of advanced microelectronic grade materials used in the computer microchip and optoelectronic industries.

YINCAE products are designed to facilitate smarter and faster production for customers at lower costs without sacrificing quality. We are committed to meeting the demands of rapidly advancing industries while supporting green initiatives.

PHILOSOPHY

The most important asset to YINCAE Advanced Materials is our customers. YINCAE is committed to providing customers with high quality products to meet their application requirements. When customers purchase YINCAE products, they do so with confidence and the highest expectation of performance.

These high standards are met through the YINCAE driving force: a commitment to excellence through high quality products, high standard technical service, and technological innovation. We have achieved these goals because of exceptional employees, operational excellence, and customer satisfaction.

WHAT DISTINGUISHES US FROM THE REST

As the world's leader in advanced materials, YINCAE continues to rise and improve for customer satisfaction. We are always thinking of new ways to better our customers' needs. Our partners deserve the best solution for all their product needs, which is why we never stop improving our abilities and customer support. YINCAE is a trusted partner and reliable resource.

Our engineers have over 25 years of experience in this field. Production lines are built and evaluated for the best reliability. Thanks to them, our company can increase its production rate at a rapid speed for our consumers.

Sales representatives are available to help hands on in the field. YINCAE is growing rapidly, establishing new locations all over the world. We are ready to help you locally. Our doors are always kept open to build a relationship and trust with our customers.

LOCATIONS

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Arlington Heights, Illinois
Baja, Mexico
Calgary, AB, Canada
Minneapolis, Minnesota
Morganville, New Jersey
Portland, Oregon
San Diego, California
Sao Paulo, Brazil
Toronto, ON, Canada
West Palm Beach, Florida

EUROPE

Berlin, Germany
Breda, Holland
Meaux, France
Thalwil, Switzerland
Warsaw, Poland

ASIA-PACIFIC

Beijing, China
Changsha, China
Melbourne, Australia
Penang, Malaysia
Seoul, Korea
Shanghai, China
Shenzhen, China
Singapore
Taguig, Philippines
Taipei, Taiwan
Tokyo, Japan
Zhuhai, China

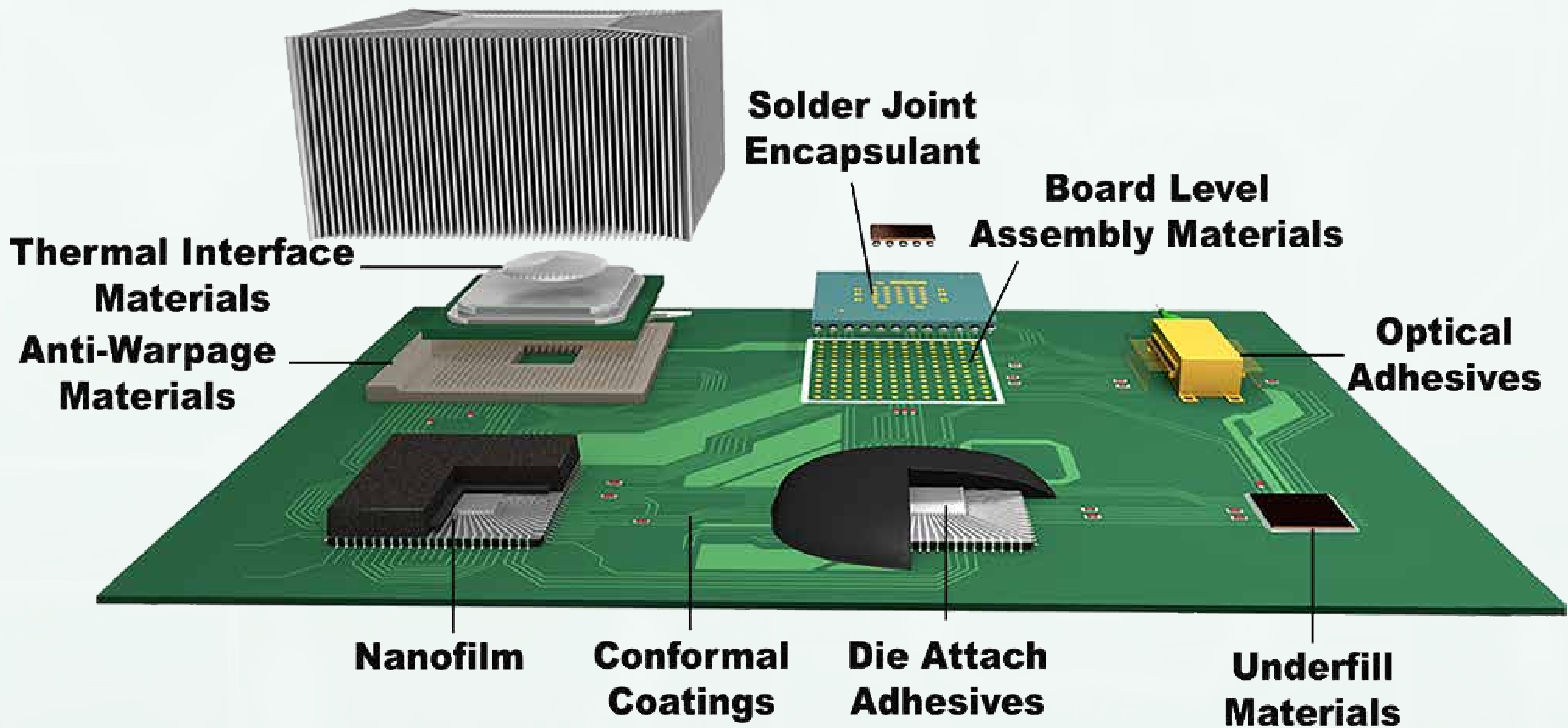
TOTAL SOLUTIONS MADE SIMPLE

From wafer level, to package level, to board level, our products are the perfect assets. It is a complete solution for electronic needs. We provide a simple way for any customer to get in touch, as well as to get to know us better. We leave a sense of professionalism within our products and character.

YINCAE strives to create the perfect solution for your product needs. Our products are customer approved, with billions of commercial products using our solution. We do more than just provide. The world's first solder joint encapsulant SMT series enhances solder joint strength by 5-10X, reduces cost, eliminates underfill, improves process yield, has high throughput, and is 100% reworkable. With excellent reliability, our products are compatible with lead-free processes and great for ultra-low bump applications.

Our ACP series is another great achievement in driving consumers to adapt to choose our products. It is the world's first nanofilm for gold replacement. While staying environmentally friendly, it eliminates the gold plating process, provides low cost ownership, high throughput, reworkable process, and brings forth a large process window. With the numerous solutions YINCAE can provide, it's an easy and obvious choice for many distributors.

Our catalog lists most of our products, but not all. If you cannot find a product in the catalog that will fulfill your requirements, contact us at info@yincae.com. We will be happy to send you information on a product appropriate for your needs.

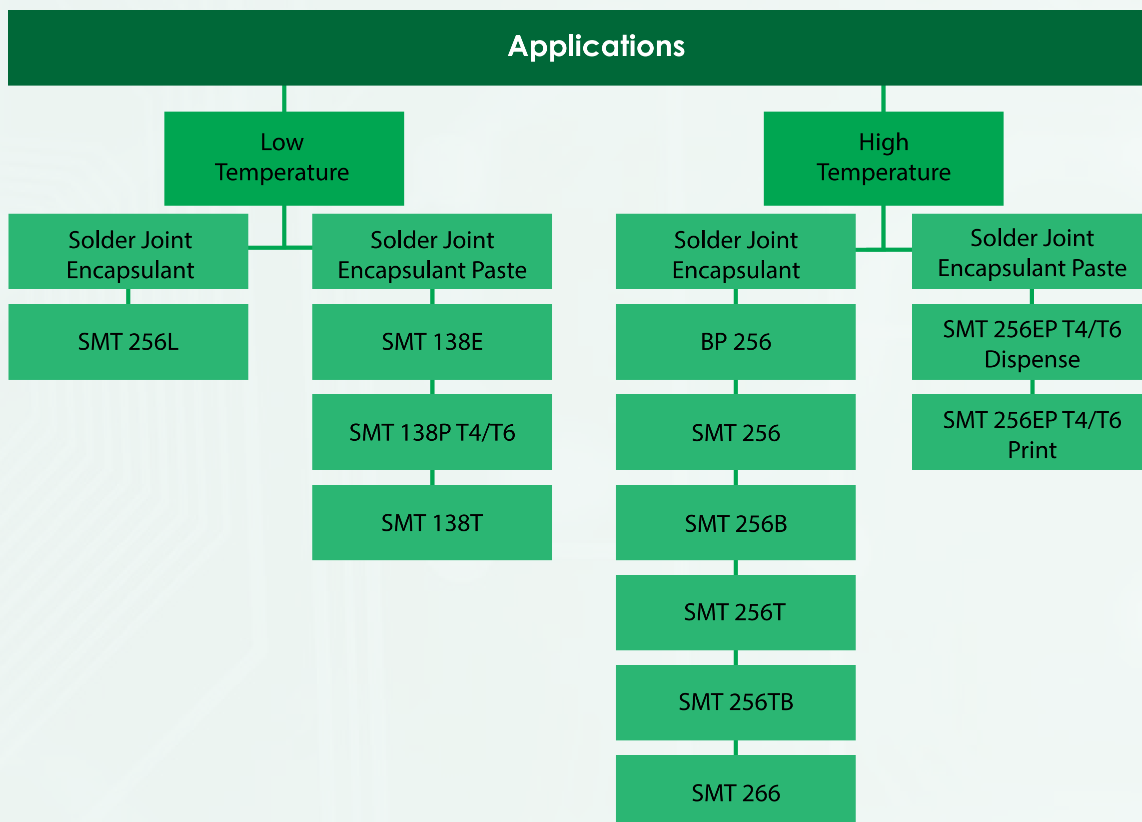

Solder Joint Encapsulant
Board Level Assembly Materials
Thermal Interface Materials
Anti-Warpage Materials
Optical Adhesives
Nanofilm
Conformal Coatings
Die Attach Adhesives
Underfill Materials

BOARD LEVEL ASSEMBLY MATERIALS

This series contains one of our most popular products - SMT 256 and SMT 266, the world's first solder joint encapsulant. This series has been designed to enhance product reliability and eliminate solder joint cracking for CSP, BGA, flip chips, and PoP (package on package), particularly for lead-free applications. The adhesives we have available, remove metal oxide to provide our customers with a stronger product. Our solder joint encapsulants allow a 3-D polymer network to form and encapsulate individual solder joints. Our board level assembly materials have many benefits for our customers.

- Enhances Solder Joint Strength 5 - 10x
- High Cost Reduction
- Eliminates Underfill
- Improves Process Yield
- Higher Throughput

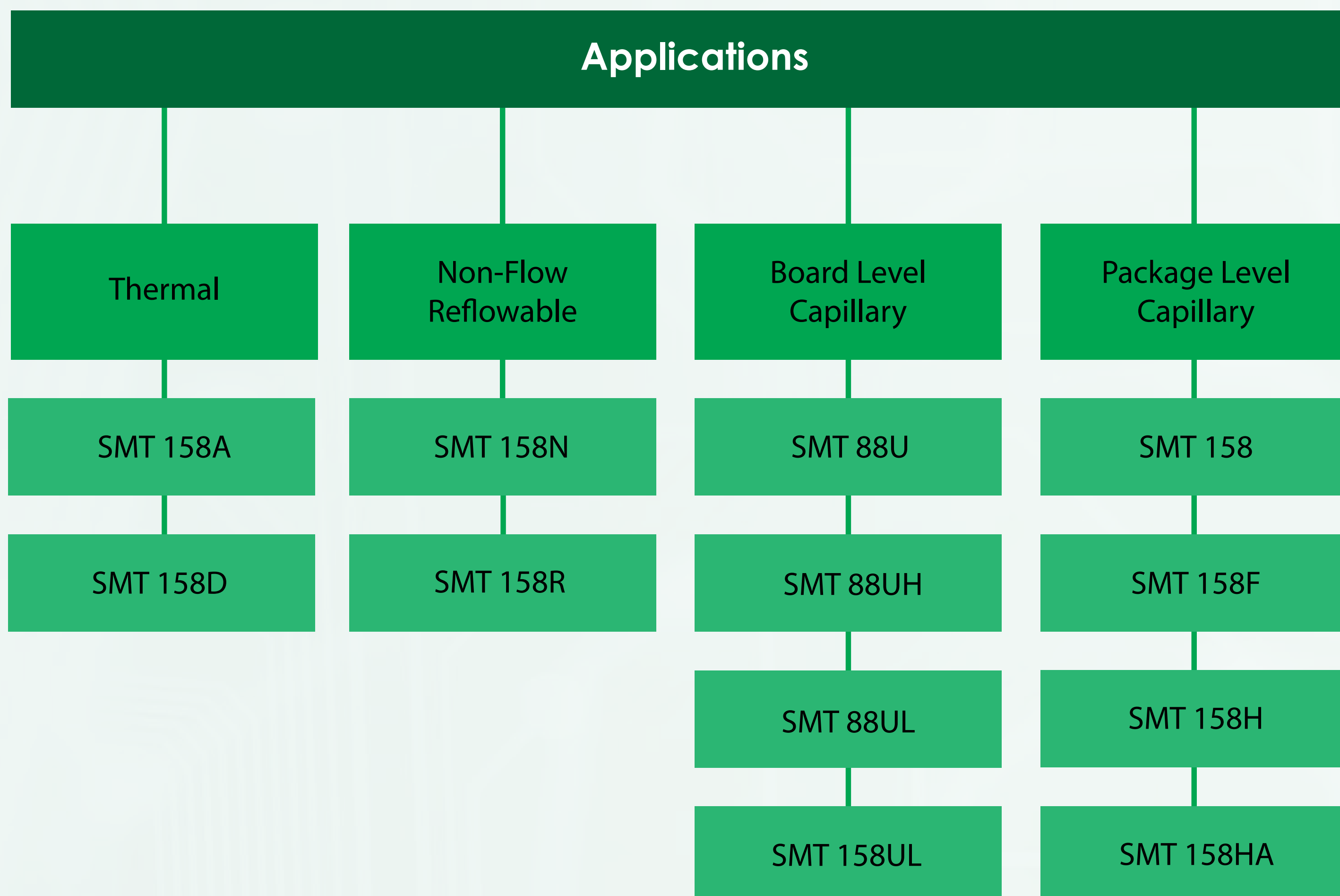
These materials are easily dispensed, minimize induced stresses, provide outstanding reliability performance, and excellent mechanical resistance. At YINCAE, we strive to go above and beyond to meet our customers' individual needs. Several of our products give consumers the option to batch cure or cure in-line, giving them the power to designate cure time. We also offer a broad range of colors, filler concentrations, and particle sizes for this series to cater to specific needs and requirements.



Product	Type	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
SMT 256	Dip Adhesive	Designed to enhance solder joint reliability and eliminate solder joint cracking for CSP, BGA, Flip-Chip	Dip	In-line curing Peak Temp. 230 - 260°C	5 - 20 kcp	65	First solder joint encapsulating adhesive
SMT 266	Spray Adhesive	Designed to enhance solder joint reliability and eliminate solder joint cracking for CSP, BGA, Flip-Chip	Rework Spray Jet	In-line curing Peak Temp. 230 - 260°C	6 - 10 cp	65	First solder joint encapsulating adhesive
SMT 256B	Dip Adhesive	Designed to enhance solder joint reliability and eliminate solder joint cracking for CSP, BGA, Flip-Chip	Dip	In-line curing Peak Temp. 230 - 260°C	5 - 20 kcp	65	Black color Easy storage
SMT 256T	Dip Adhesive	Designed to enhance solder joint reliability and eliminate solder joint cracking for CSP, BGA, Flip-Chip	Dip	In-line curing Peak Temp. 230 - 260°C	500 - 2000 cp	65	Transparent Easy storage
SMT 256TB	TCB Adhesive	Designed to enhance solder joint reliability and eliminate solder joint cracking for CSP, BGA, Flip-Chip	Dip Dispense Jet	TCB Peak Temp. 260°C	1 - 8 kcp	65	Thermal com-pression bond-ing pressure 2 N
BP 256	Ball Attach Adhesive	Designed to enhance solder joint reliability and eliminate clean-ing processes for ball bumping procedures	Pin-transfer Print	In-line curing Peak Temp. 230 - 260°C	15 - 35 kcp	65	Ball bumping adhesive
SMT 256EP T4/T6	Solderable Adhesive	Self-leveling, self soldering, designed for high temperature Pb-free applications	Dispense	In-line curing Peak Temp. 230 - 260°C	50 - 100 kcp	23.5	Solder joint encapsulant paste
SMT 256EP T4/T6	Solderable Adhesive	Self-leveling, self soldering, designed for high temperture Pb-free applications	Print	In-line curing Peak Temp. 230 - 260°C	50 - 100 kcp	23.5	Solder joint encapsulant paste
SMT 256L	Dip Adhesive	Designed to enhance solder joint reliability and eliminate solder joint cracking for CSP, BGA, Flip-Chip	Dip	In-line curing Peak Temp. 140 - 190°C	5 - 20 kcp	23.5	Low tempera-ture cure solder joint encapsu-lant adhesive
SMT 138E	Solderable Adhesive	SnBi based adhesive offering rapid, low temp curing, self-leveling, and self-soldering	Dispense	In-line curing Peak Temp. 140 - 190°C	50 - 100 kcp	23.5	Electrical conductivity 10 - 30 μΩ/cm Silver filled
SMT 138P T4/T6	Solderable Adhesive	SnBi based adhesive offering rapid, low temp curing, self-leveling, and self-soldering	Print	In-line curing Peak Temp. 140 - 190°C	50 - 100 kcp	23.5	Young's Modulus 26.3 GPa Silver filled
SMT 138T	Solderable TCB Adhesive	SnBi based adhesive offering rapid, low temp curing, self-leveling, and self-soldering	Dispense	TCB Peak Temp. 180°C	50 - 100 kcp	23.5	Thermal com-pression bond pressure 9 N

UNDERFILL MATERIALS

Our SMT 158 capillary underfill series is a unique filled capillary underfill. It is a rapid curing and fast flowing liquid epoxy, that can be used as an underfill for CSP, BGA, PoP, LGA, and flip chip applications. It is also suitable for bare chip protection in a variety of advanced packages such as memory cards, chip carriers, hybrid circuits, and multi-chip modules. This material is easily dispensed, minimizes induced stresses, provides outstanding reliability performance, and excellent mechanical resistance. We offer a broad range of colors, filler concentrations, and particle sizes to cater to our customer needs and requirements.



Product	Type	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
SMT 88U	Underfill	Super-fast flow underfill designed for room temperature underfilling	Dispense	2 min 88°C	300 - 500 cp	65/182	Fast, low temperature cure
SMT 88UH	Underfill	Super-fast flow underfill designed for room temperature underfilling	Dispense	15 - 30 min 120°C	150 - 300 cp	65/182	Fast flow Easy storage
SMT 88UL	Underfill	Super-fast flow capillary underfill for room temperature underfilling	Dispense	80 min 110°C or 5 min 150°C	200 - 300 cp	65/172	Flows into 10µm gap
SMT 158UL	Underfill	Super-fast flow capillary underfill, flows into 10µm gap at room temperature	Dispense	In-line curing or 15 min 150°C	100 - 300 cp	35/162	Easy storage
SMT 158	Underfill	Capillary underfill, combination of capillary flow and no-flow underfill	Dispense	In-line curing or 15 min 150°C	3.5 - 8 kcp	35/142	Lap Shear Strength 2600psi (FR4/FR4)
SMT 158D	Underfill	Highly thermally conductive diamond filled capillary underfill	Dispense	In-line curing or 15 min 150°C	3.5 - 8 kcp	35/142	Thermal Conductivity 5 W/mk
SMT 158F	Underfill	Capillary underfill, combination of capillary flow and no-flow underfill	Dispense	In-line curing or 15 min 150°C	3.5 - 8 kcp	35/142	Black color Lap Shear Strength 2600psi (FR4/FR4)
SMT 158H	Underfill	Fast flow, low temperature slow cure high purity liquid epoxy underfill	Dispense	10 min 130°C and 5 min 150°C	5 - 8 kcp	22/112	Room temperature dispense
SMT 158HA	Liquid Encapsulant	Slow flow, slow cure, high purity liquid epoxy underfill	Dispense	1hr 130°C and 2h 165°C	105 - 115 kcp	22/71	Lap shear strength 3600psi (FR4/FR4)
SMT 158N	Liquid Encapsulant	Non-flow, low temperature slow cure high purity liquid epoxy encapsulant	Dispense	40-60 min 130°C or 10-15 min 150°C	5 - 8 kcp	22/112	Lap shear strength 2600psi (FR4/FR4)
SMT 158R	Filled Fluxing Underfill	Filled fluxing liquid epoxy underfill for flip chip, CSP, BGA, PoP, and LGA	Dispense	10 min 130°C and 1 min 150°C or TCB process	3.5 - 8 kcp	32/142	Reflowable underfill

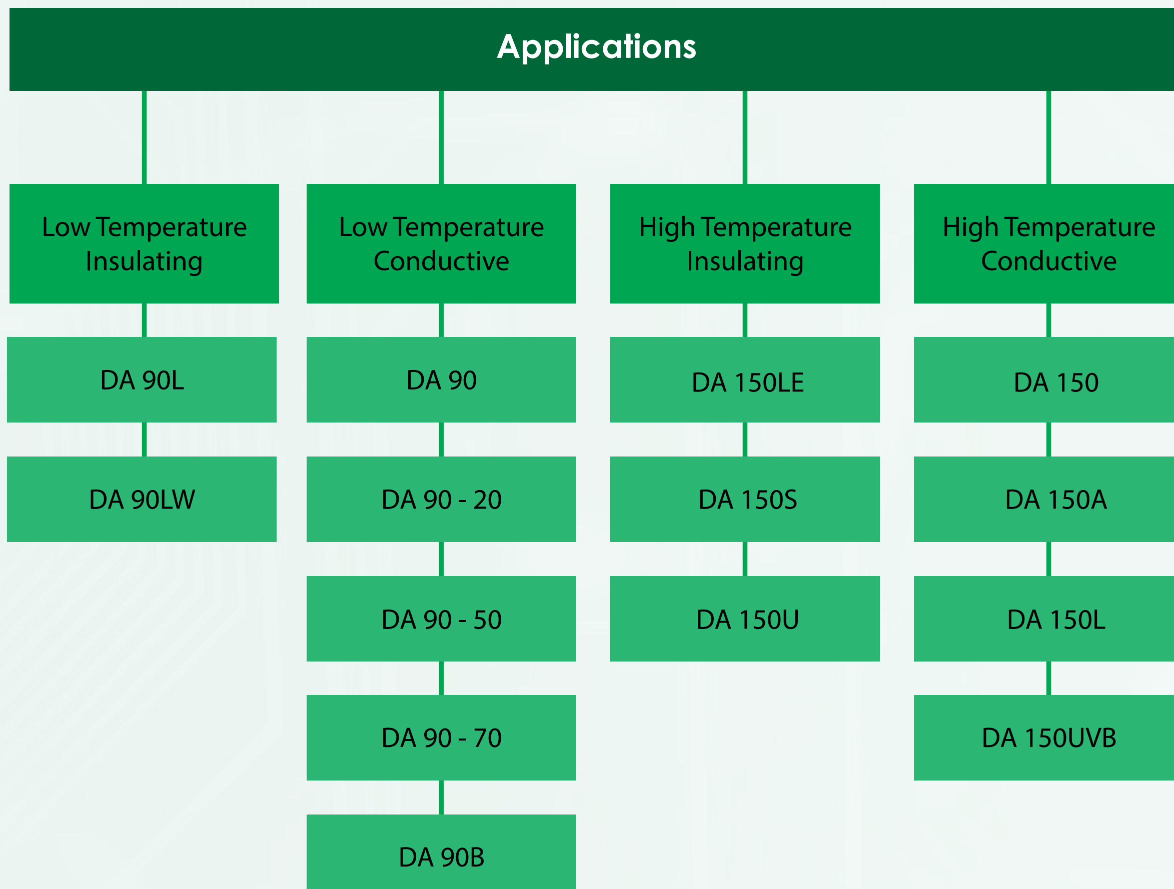
DIE ATTACH ADHESIVES

The DA 90 series features solvent-free and fast curing thermosetting die attach adhesives. This series offers excellent adhesion to the substrate and bare die. These products can be used for small and large die attachments, and can be applied using dispense of print methods. Advantages include high reliability and high temperature reflow performance. This material is easily dispensed, minimizes induced stresses, provides outstanding reliability performance, and excellent mechanical resistance.

The DA 90 series can be customized in color, fillers, and particle sizes per the customer specifications and needs.

Our DA 150 series are solvent free and fast curing thermosetting electrically and thermally conductive, as well as electrically and thermally insulating, die attach adhesives. DA 150 products have excellent adhesion to the substrate and bare die. These products can be used for small and large die attachments, and can be applied using dispense or print methods. It has demonstrated high reliability and high temperature reflow performance.

The DA 150 series can be customized in color, fillers, and particle sizes per the customer specifications and needs.



Product	Type	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
DA 90	Conductive Adhesive	Silver filled, highly conductive, solvent-free and fast cure	Dispense Print	30 - 50 min 88 - 110°C	10 - 25 kcp	35	Thermal Conductivity 2 - 5 W/mK
DA 90-20	Conductive Adhesive	Silver filled, highly conductive, solvent-free and fast cure	Dispense Print	30 - 50 min 88 - 110°C	28 - 38 kcp	35	Thermal Conductivity 2 - 5 W/mK
DA 90-50					48 - 68 kcp		
DA 90-70					68 - 88 kcp		
DA 90B	Conductive Adhesive	Silver filled, highly thermally conductive, solvent-free and fast cure	Dispense Print	30 - 50 min 88 - 110°C	10 - 50 kcp	35	Easy storage conditions Thermal Conductivity 2 - 5 W/mK
DA 90LW	Insulating Adhesive	Epoxy based, one-component thermosetting insulating adhesive designed for LED (GaN) bonding	Dispense Pin transfer	30 - 45 min 88 - 110°C	5 - 10 kcp	55	High thermal stability Excellent moisture resistance High reliability
DA 150	Conductive Adhesive	Silver filled, highly conductive, solvent-free and fast cure	Dispense Print	6 - 10 min 150°C	10 - 50 kcp	32	Thermal Conductivity 2 - 5 W/mK
DA 150A	Conductive Adhesive	Mixed powder filled, highly thermally conductive, solvent-free and fast cure	Dispense Print	6 - 10 min 150°C	10 - 50 kcp	32	Thermal Conductivity 2 - 5 W/mK
DA 150L	Conductive Adhesive	Silver filled, highly conductive, thermosetting solvent-free and fast cure	Dispense Print	6 - 10 min 150°C	2 - 5 kcp	32	Thermal Conductivity >2.8 W/mK
DA 150LE	Insulating Adhesive	One-component, thermosetting insulating, designed for LED chip (GaN) bonding	Dispense Pin transfer	60 min 150°C	5 - 10 kcp	65	UV resistant Refractive Index 1.52
DA 150S	Insulating Adhesive	Silica filled,insulating, solvent-free and fast cure	Dispense Print	30 - 45 min 150°C	10 - 25 kcp	35	Young's Modulus 6 GPa
DA 150U	Insulating Adhesive	One-component, thermosetting insulating, designed for thin, large chip GaN bonding	Dispense	30 - 45 min 150°C	500 - 2000 cp	65	UV resistant Lap shear strength 2800 psi
DA 150UVB	Conductive Adhesive	Silver filled, highly conductive, solvent-free and fast cure	Dispense Print	60 min 150°C	10 - 25 kcp	30	Thermal Conductivity 1 - 5 W/mK UV B-stage

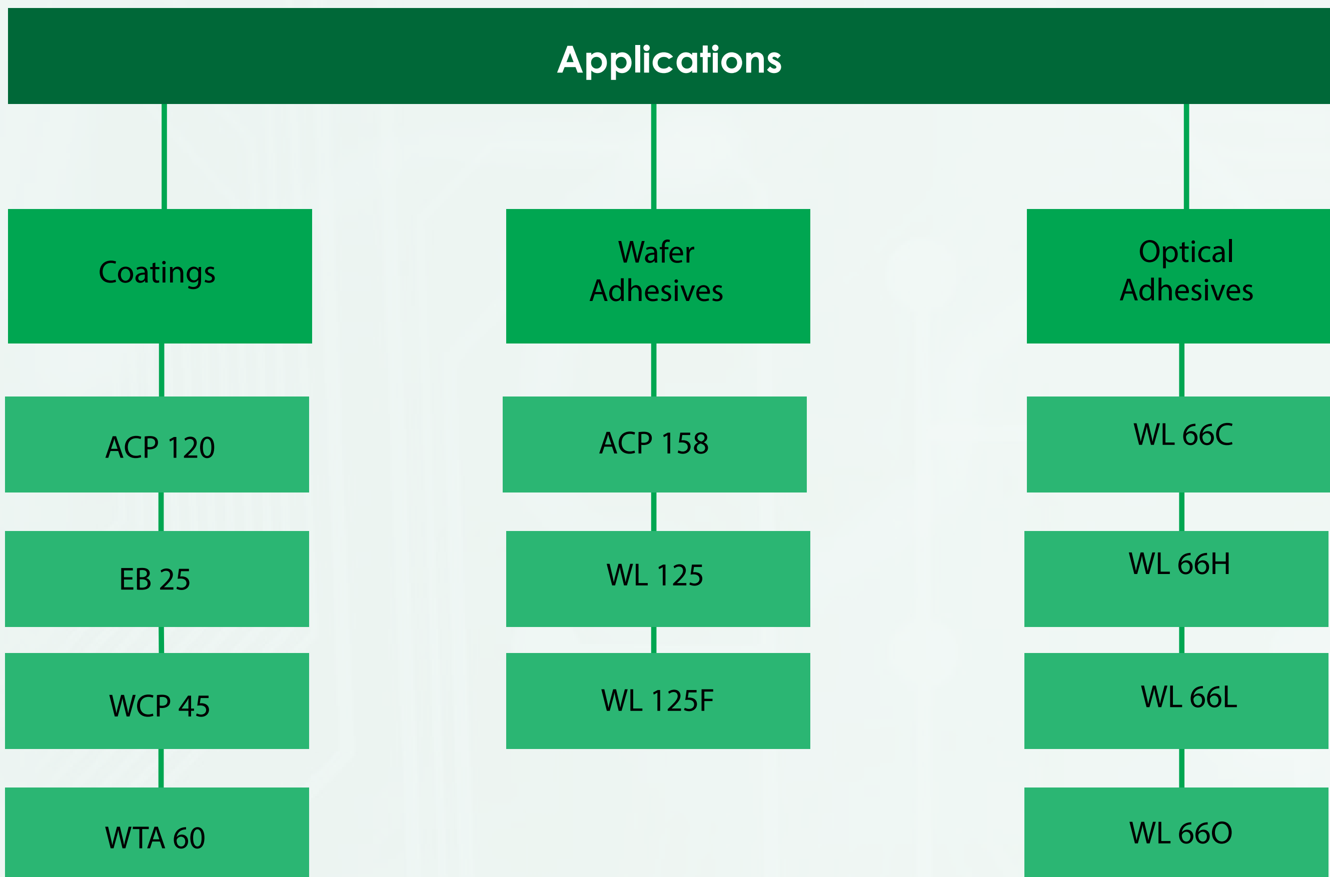
WAFER LEVEL MATERIALS

Our ACP 120 series is an excellent option for customers looking for an anti-oxidation coating for solderable and metal surfaces such as zinc, nickel, steel, aluminum, and more. Features include excellent anti-oxidation performance and adhesion, excellent anti-corrosion and anti-rusting, high thermal resistance, room temperature drying, and easy rework when wet. Some highlights are:

- Eliminates Gold Plating Process
- Low Cost Ownership
- Environmentally Friendly
- High Throughput
- Reworkable Process
- Large Process Window

ACP 120 can be customized to meet customer requirements.

Our WL 66 series are UV curable optical lid attachment adhesives designed for wafer level lens and optical lens attachment. They provide a bubble free optical coverage, high moisture resistance, and high temperature resistance. The product also remains transparent and does not 'yellow'.

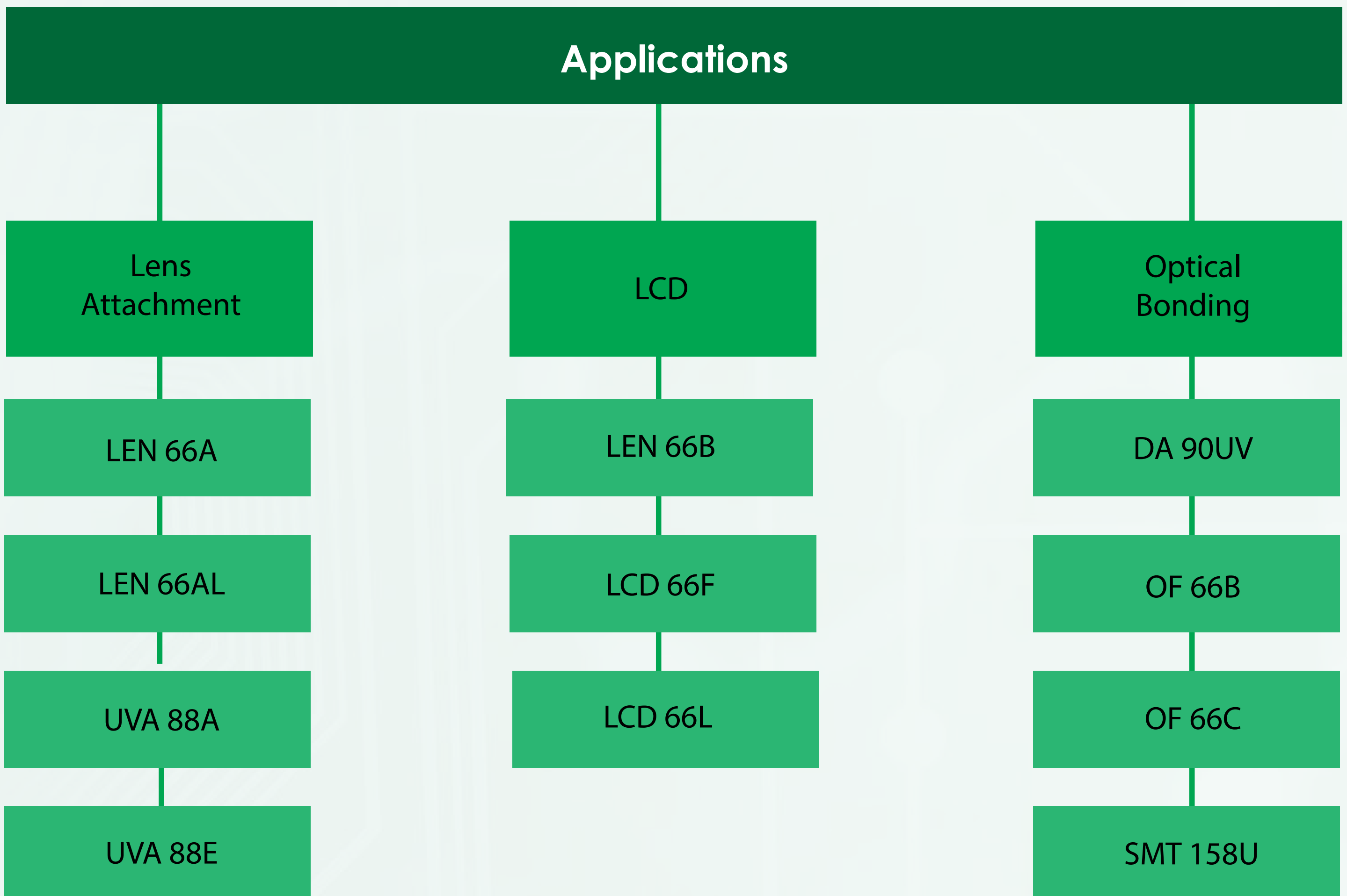


Product	Type	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
ACP 120	Nano Coating	Anti-oxidation solderable coating for gold replacement	Dip Immersion Spray	Room Temp.	12 - 15 s	N/A	High cost reduction Environmentally friendly
EB 25	Exposure Agent	EB 25 is a bump tip exposure agent for wafer level underfill	Print Spin Coat	Room Temp.	5 - 10 s	N/A	Low cost Easy handling High process yield
WCP 45	Wafer Level Protective Coating	Aqueous polymer coating, protects small bumps during dicing	Dip Spin Coat Spray	Room Temp.	10 - 15 s	N/A	Easy cleaning
WL 66C	Wafer Level Optical Adhesive	Dual cure UV bonding adhesive for wafer level lens or optical lens attachment	Dispense	UV cure (365nm light, 2 - 5W/cm^2)	10 - 30 kcp	65	Non-yellowing Moisture resistant High temp. resistant
WL 66H	Wafer Level Optical Adhesive	Wafer level die attach adhesive for wafer level lens, optical lens, and die attachment	Dispense Print	1.5 - 2 hr 100°C	2 - 5 kcp	65	Low temp. cure High reliability
WL 66L	Wafer Level Optical Adhesive	Dual cure UV bonding adhesive for wafer level lens or optical lens attachment	Dispense	UV cure (365nm light, 2-5W/cm^2)	1.5 - 4.5 kcp	65	Non-yellowing Moisture resistant High temp. resistant
WL 66O	Wafer Level Optical Adhesive	Dual cure UV bonding adhesive for wafer level lens or optical lens attachment	Dispense	UV cure (365nm light, 2-5W/cm^2)	30 - 80 kcp	65	Non-yellowing Moisture resistant High temp. resistant
ACP 158	Conductive Adhesive	Anisotropic conductive adhesive for CSP, BGA, LGA, PoP, and Flip Chip applications	Dispense	In-line curing or 5 - 10 min 150°C	5 - 8 kcp	30/135	High electrical conductivity High process yield
WL 125	Wafer Level Underfill	Pre-applied wafer level underfill for wafer-wafer, chip-wafer, and chip-chip bonding	Print Spin Coat	In-line or TCB	10 - 100 cp	65/175	B-stage temp. 125°C
WL 125F	Wafer Level Underfill	Pre-applied wafer level underfill for wafer-wafer, chip-wafer, and chip-chip bonding	Print Spin Coat	In-line or TCB	5 - 6 kcp	30/115	High process yield High reliability
WTA 60	Temporary Bonding Adhesive	Sacrificial wafer temporary bonding adhesive	Dispense Spin Coat	Room Temp.	3 - 8 kcp	65	Easy removal and cleaning

OPTOELECTRONIC MATERIALS

Our LEN 66 series features one part, 100% solid, super-fast UV curable bonding adhesives. This series has been designed for lens attachment, protective window covers, and touch screens. Other applications include LED lamination and sealing, polarizer lamination, and touch screen bonding. After cure, LEN 66 products not only provide a bubble free optical coverage, high moisture resistance, and excellent weatherability, but also forms very flexible bonds, which can easily dissipate thermal stress from different C.T.E. substrates. Some highlights are:

- Quick Bonding
- Excellent Alignment
- Fast Throughput
- High Process Yield
- High Reliability



Product	Type	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
DA 90UV	Optical Adhesive	One part, filled UV curable adhesive for optical, fiber optic, and optoelectronic devices	Dispense Print	UV cure (365nm light, 2 - 5W/cm^2)	50 - 100 kcp	20	Low moisture absorption Quick bonding
LCD 66F	Optical Adhesive	One part, 100% solid UV curable LCD end sealant	Dispense	UV cure (365nm light, 2 - 5W/cm^2)	10 - 12 kcp	75	Low moisture absorption Easy flow control High reliability
LCD 66L	Optical Adhesive	Bio-compatible UV curable optical bonding adhesive	Dispense	UV cure (365nm light, 2 - 5W/cm^2)	800 - 1500 cp	75	Fast bonding for protective win-dows and touch screens
LEN 66A	Optical Adhesive	Super-fast UV curable adhesive for optical, fiber optic, and opto-electronic devices	Dispense	UV cure (365nm light, 2 - 5W/cm^2) and 45 min 90°C	20 - 30 kcp	75	Outstanding reliability and optical perfor-mance
LEN 66AL	Optical Adhesive	Super-fast UV curable adhesive for optical, fiber optic, and opto-electronic devices	Dispense	UV cure (365nm light, 2 - 5W/cm^2) and 1 - 2 hrs 80 - 100°C	8 - 10 kcp	80	Low thermal stress High throughput High process yield
LEN 66B	Optical Adhesive	Low temp curable black adhesive for hose bond-ing, LCD sealing, and polarize lamination	Dispense	60 - 90 min 70 - 75°C	20 - 30 kcp	70	Low thermal stress High throughput High process yield
OF 66B	Optical Adhesive	One part, 100% solid dual cure UV bonding adhesive for optical, fiber optic, and opto-electronic devices	Dispense	UV cure (365nm light, 2 - 5W/cm^2)	450 - 900 cp	65	Low moisture absorption Refractive index 1.53 - 1.55
OF 66C	Optical Adhesive	One part, 100% solid dual cure UV bonding adhesive for optical, fiber optic, and opto-electronic devices	Dispense	UV cure (365nm light, 2 - 5W/cm^2) and 45 - 60 min 110°C	10 - 20 kcp	65	Moisture resistant Refractive index 1.52 - 1.53
SMT 158U	Underfill	Super-fast flow liquid epoxy encapsulant	Dispense	In-line or 15 min 150°C	500 - 800 cp	65/178	Lap shear strength (FR4/FR4) 2900 psi
UVA 88A	Optical Adhesive	Dual cure UV adhesive designed for optical de-vices including, image sensors, glass lid, and lens attachment	Dispense	UV cure (365nm light,1.5 - 5W/cm^2) and 30 min 110°C	6 - 50 kcp	65/182	A1: Glass to FR4 A2/A3: Lens attachment
UVA 88E	Optical Adhesive	Dual cure UV adhesive designed for optical device encapsulation for LED, CMOS, and lens attachment	Dispense	UV cure (365nm light,1.5 - 5W/cm^2) and 30 min 110°C	6 - 50 kcp	65/182	E1: Glass to FR4 E2/E3: LED applications

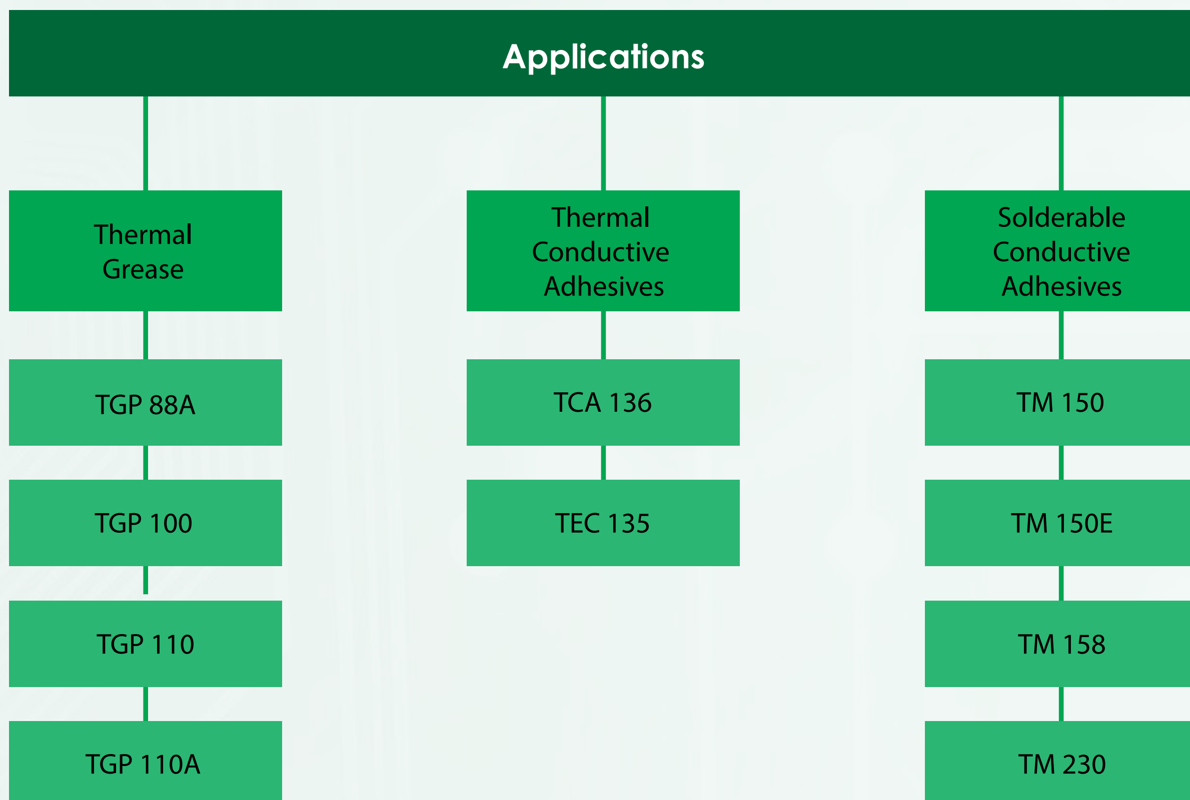
THERMAL INTERFACE MATERIALS

Our TM solderable conductive adhesive products are rapid cure, self-filling, self-leveling, and self-soldering adhesives, which can be used as die attach adhesives for LED, CSP, QFP, etc., to replace conductive adhesives (Ag) or solder materials such as solder paste or preform. In comparison to conductive adhesives (Ag), TM products have higher electrical and thermal conductivity. In comparison to soldering materials, our solderable adhesives eliminate outgassing from soldering processes, eliminate die skewing and shifting, and eliminate solder bleeding. This soldered interface is encapsulated with a 3D polymer network after curing, allowing it to tolerate harsh environmental conditions.

Our TGP reactive thermal grease products form a very thin BLT eliminating micro bubbles at the rough interface when applied. In service time, the products cure to form a thermal gel or thermal pad with the performance of a thermal phase change material.

Our TCA products cure at low temperatures and offer excellent adhesion strength to copper, aluminum, steel, glass, ceramics, and most plastics.

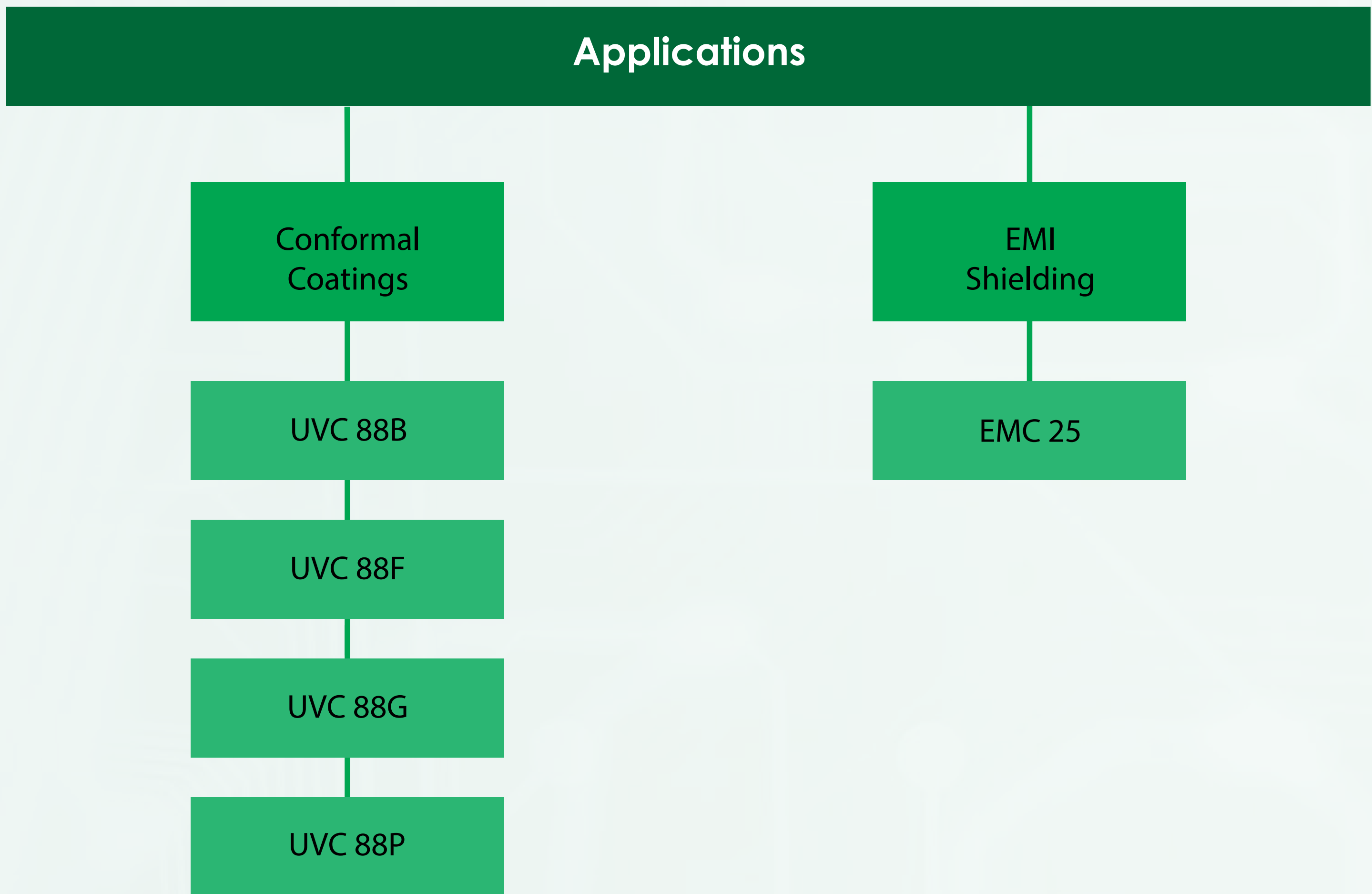
Our TEC products are thermally conductive and anisotropically electrically conductive. During the curing process, this material can obtain a conductivity that is equal in magnitude to that of the metal surface.



Product	Type	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
TCA 136	Thermal Conductive Adhesive	Highly conductive adhesive with excellent adhesion strength to copper, aluminum, steel, ceramic, glass and most plastics	Dispense	60 - 90 min 136°C	20 - 50 kcp	30	High thermal conductivity Low ownership cost
TEC 135	Thermal Conductive Adhesive	Thermal conductive and anisotropic electrical adhesive	Dispense	30 - 45 min 135°C	20 - 50 kcp	30	Water resistant Excellent weatherability
TGP 88A	Thermal Conductive Adhesive	Reactive thermal grease, eliminates micro-bubbles at rough interfaces and has an very thin BLT	Dispense	2 - 3 hr 88°C	20 - 50 kcp	30	Excellent thermal conductivity
TGP 100	Thermal Conductive Adhesive	Reactive thermal grease, eliminates micro-bubbles at rough interfaces and has an very thin BLT	Dispense	5 min 150°C	20 - 50 kcp	30	High reliability Low ownership cost High thermal conductivity
TGP 110	Thermal Conductive Adhesive	Reactive thermal grease, eliminates micro-bubbles at rough interfaces and has an very thin BLT	Dispense	Cures over service time	20 - 50 kcp	30	High reliability Excellent thermal conductivity
TGP 110A	Thermal Conductive Adhesive	Reactive thermal grease, eliminates micro-bubbles at rough interfaces and has an very thin BLT	Dispense	15 - 30 min 110°C	20 - 50 kcp	30	High reliability Excellent thermal conductivity
TM 150	Solderable Conductive Adhesive	Rapid cure, self-filling, self-leveling, and self-soldering adhesive	Dispense	30 min 180°C	20 - 50 kcp	23.5	Thermal Conductivity 60 W/mK
TM 150E	Solderable Conductive Adhesive	Rapid cure, self-filling, self-leveling, and self-soldering adhesive	Dispense	30 min 150°C	20 - 50 kcp	23.5	Thermal Conductivity 60 W/mK
TM 158	Solderable Conductive Adhesive	Highly conductive adhesive designed to withstand application temperatures up to 400°C	Dispense	In-line or 15 - 30 min 150°C	800 - 1600 cp	18/98	Diamond filled Thermal Conductivity 60 W/mK
TM 230	Solderable Conductive Adhesive	Rapid cure, self-filling, self-leveling, and self-soldering adhesive	Dispense	60 sec 230°C	30 - 45 kcp	21.7	Thermal Conductivity 58 W/mK

CONFORMAL COATINGS

Our UVC 88 series features highly fluorescing, one part, 100% solid, dual cure acrylated polyurethane conformal coatings. They provide excellent chemical resistance, surface hardness, flexibility, and moisture resistance. After cure, these products provide excellent protection for all surfaces against dust, chemicals, and harsh environmental factors. They also increase their biocompatibility and ability to retain relatively brilliant fluorescence, allowing coating inspection under UV light. The cure of shadow areas can be accomplished using a secondary heat cure.



Product	Type	Description	Applying Method	Curing Conditions	Viscosity	C.T.E.	Features
EMC 25	Conformal Conductive Coating	Silver filled, one part epoxy conductive coating for glass and plastic surfaces	Spray	24 - 48 hr Room Temp or 1 - 2 hr 60°C	18 - 26 s	75	EMI shielding Anti-static protection
UVC 88B	Conformal Coating	Highly biocompatible one part, dual cure polymer flexible coating	Dip Dispense Spray	UV (365nm UV, intensity 2 - 5 W/cm^2), then 1 hr at 110°C	238 cp	75	Excellent flexibility, chemical and moisture resistance
UVC 88F	Conformal Coating	Highly fluorescing, one part 100% solid acrylated polyurethane coating	Dip Dispense Spray	UV (365nm UV, intensity 2 - 5 W/cm^2), then 1 hr at 110°C	238 cp	75	For flexible substrates
UVC 88G	Conformal Coating	Highly biocompatible one part, dual cure polymer flexible hydrogel coating	Dip Dispense Spray	UV (365nm UV, intensity 2 - 5 W/cm^2), then 1 hr at 110°C	300 - 500 cp	85	Excellent flexibility, chemical and moisture resistance
UVC 88P	Conformal Coating	Highly fluorescing one part, dual cure polymer coating	Dip Dispense Spray	UV (365nm UV, intensity 2 - 5 W/cm^2), then 1 hr at 110°C	126 cp	75	For rigid substrates

APPENDICES

Solder Powder Particle Size Classification

IPC J-STD-006 Designation	Powder Size (µm)	Minimum Needle Size (Gauge)
Type 2	45 - 75	18
Type 3	25 - 45	23
Type 4	20 - 38	25
Type 5	15 - 25	27
Type 6	5 - 15	30

Unit Conversions

0.001 Pa × s	1 cp
1 W/mK	0.58 Btu/(hr × ft × °F)
1 g/cc	1.94 slugs/ft^3
6894 Pa	1 psi
1 W/m^2	0.317 Btu/(hr × ft^2)
1 kg	2.2 lb
101,325 Pa	1 atm
(°C × 9/5) + 32 = °F	(°F - 32) × 5/9 = °C
10^{-10} m	1 å

Moisture Classification Level and Floor Life

Moisture Sensitivity Level (IPC J-STD-20)	Floor Life (out of bag) at ambient ≤30°C/60% RH or otherwise stated
1	Unlimited at ≤30°C/85% RH
2	1 year
2a	4 weeks
3	168 hours
4	72 hours
5	48 hours
5a	24 hours
6	Mandatory bake before use

- Alkali Metals
- Alkaline Earth Metals
- Transition Metals
- Metalloids
- Nonmetals
- Lanthanoids
- Actinoids
- Halogens
- Noble Gases
- Post-Transition Metals

Key: Name — mendelevium; Atomic # — 101; Symbol — Md; Atomic Mass — [258]

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
hydrogen 1 **H** 1.0079																	helium 2 **He** 4.0026
lithium 3 **Li** 6.941	beryllium 4 **Be** 9.0122											boron 5 **B** 10.811	carbon 6 **C** 12.011	nitrogen 7 **N** 14.007	oxygen 8 **O** 15.999	fluorine 9 **F** 18.998	neon 10 **Ne** 20.180
sodium 11 **Na** 22.990	magnesium 12 **Mg** 24.305											aluminium 13 **Al** 26.982	silicon 14 **Si** 28.086	phosphorus 15 **P** 30.974	sulfur 16 **S** 32.065	chlorine 17 **Cl** 35.453	argon 18 **Ar** 39.948
potassium 19 **K** 39.098	calcium 20 **Ca** 40.078	scandium 21 **Sc** 44.956	titanium 22 **Ti** 47.867	vanadium 23 **V** 50.942	chromium 24 **Cr** 51.996	manganese 25 **Mn** 54.938	iron 26 **Fe** 55.845	cobalt 27 **Co** 58.933	nickel 28 **Ni** 58.693	copper 29 **Cu** 63.546	zinc 30 **Zn** 65.38	gallium 31 **Ga** 69.723	germanium 32 **Ge** 72.64	arsenic 33 **As** 74.922	selenium 34 **Se** 78.96	bromine 35 **Br** 79.904	krypton 36 **Kr** 83.798
rubidium 37 **Rb** 85.468	strontium 38 **Sr** 87.62	yttrium 39 **Y** 88.906	zirconium 40 **Zr** 91.224	niobium 41 **Nb** 92.906	molybdenum 42 **Mo** 95.96	technetium 43 **Tc** [98]	ruthenium 44 **Ru** 101.07	rhodium 45 **Rh** 102.91	palladium 46 **Pd** 106.42	silver 47 **Ag** 107.87	cadmium 48 **Cd** 112.41	indium 49 **In** 114.82	tin 50 **Sn** 118.71	antimony 51 **Sb** 121.76	tellurium 52 **Te** 127.60	iodine 53 **I** 126.90	xenon 54 **Xe** 131.29
caesium 55 **Cs** 132.91	barium 56 **Ba** 137.33	57-71	hafnium 72 **Hf** 178.49	tantalum 73 **Ta** 180.95	tungsten 74 **W** 183.84	rhenium 75 **Re** 186.21	osmium 76 **Os** 190.23	iridium 77 **Ir** 192.22	platinum 78 **Pt** 195.08	gold 79 **Au** 196.97	mercury 80 **Hg** 200.59	thallium 81 **Tl** 204.38	lead 82 **Pb** 207.2	bismuth 83 **Bi** 208.98	polonium 84 **Po** [209]	astatine 85 **At** [210]	radon 86 **Rn** [222]
francium 87 **Fr** [223]	radium 88 **Ra** [226]	89-103	rutherfordium 104 **Rf** [261]	dubnium 105 **Db** [262]	seaborgium 106 **Sg** [266]	bohrium 107 **Bh** [264]	hassium 108 **Hs** [277]	meitnerium 109 **Mt** [268]	darmstadtium 110 **Ds** [271]	roentgenium 111 **Rg** [272]	copernicium 112 **Cn** [285]	nihonium 113 **Nh** [286]	flerovium 114 **Fl** [289]	moscovium 115 **Mc** [290]	livermorium 116 **Lv** [293]	tennessine 117 **Ts** [294]	oganesson 118 **Og** [294]

lanthanum 57 **La** 138.91	cerium 58 **Ce** 140.12	praseodymium 59 **Pr** 140.91	neodymium 60 **Nd** 144.24	promethium 61 **Pm** [145]	samarium 62 **Sm** 150.36	europium 63 **Eu** 151.96	gadolinium 64 **Gd** 157.25	terbium 65 **Tb** 158.93	dysprosium 66 **Dy** 162.50	holmium 67 **Ho** 164.93	erbium 68 **Er** 167.26	thulium 69 **Tm** 168.93	ytterbium 70 **Yb** 173.05	lutetium 71 **Lu** 174.97
actinium 89 **Ac** [227]	thorium 90 **Th** 232.04	protactinium 91 **Pa** 231.04	uranium 92 **U** 238.03	neptunium 93 **Np** [237]	plutonium 94 **Pu** [244]	americium 95 **Am** [243]	curium 96 **Cm** [247]	berkelium 97 **Bk** [247]	californium 98 **Cf** [251]	einsteinium 99 **Es** [252]	fermium 100 **Fm** [257]	mendelevium 101 **Md** [258]	nobelium 102 **No** [259]	lawrencium 103 **Lr** [262]

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YPC-001 (Version 01/2017)