ALPHA® HiTech Bonding Materials

Adhesive, Underfill, Edgebond and Encapsulant

MacDermid Alpha
ELECTRONICS SOLUTIONS

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ALPHA HiTech Bonding Materials

Adhesive

Adhesive

Designed for a Wide Range of Applications

Bond Chip Components or Devices at Varying Curing Conditions

ALPHA HiTech SMD Adhesive
is a fast heat curable surface mount adhesive, formulated for use on high-speed dispensers and screen printing applications. These products are designed for holding surface mount components during the wave soldering process.

ALPHA HiTech Low Temperature Adhesive
is designed for bonding temperature sensitive devices to a variety of plastic and metal surfaces, where the materials cannot withstand high curing temperatures. The camera module market is one example of where these adhesives are very applicable.

ALPHA HiTech UV Adhesive
is formulated to be cured at ambient temperature under ultraviolet light. These products can be used in various applications such as coating and fixing of components which require high tensile strength and moisture resistance.

Product Type	Application	Product	CTE, TMA (ppm)	Tg (°C)
SMD Adhesive	Wave soldering	**ALPHA HiTech SM42-1311** • Specially designed for dispensing • Excellent thermal resistant adhesion to FR4, flexible polyimide and chip components	α1: 60 α2: 190	≥90
		ALPHA HiTech SM42-120P • Specially designed for printing • Excellent thermal resistant adhesion to FR4, flexible polyimide and chip components	α1: 65 α2: 190	110
Low Temperature Cure Adhesive	Bonding temperature sensitive parts	**ALPHA HiTech AD13-9690BH** • Low curing temperature at 80 °C for 30 minutes • Excellent adhesion to LCP, Polycarbonate (PC) and Nylon	α1: 55 α2: 175	45
		ALPHA HiTech AD43-9600W • Low curing temperature at 80 °C for 2 minutes (reflow) • Excellent high temperature adhesion to PMMA and very good on LCP and Nylon	α1: 65 α2: 190	55
UV Cure Adhesive	Bonding temperature sensitive parts	**ALPHA HiTech UP44-5566T** • Curing in seconds under UV at room temperature • Excellent for high throughput manufacturing • Very good adhesion on PC and PMMA	α1: 80 α2: 220	65

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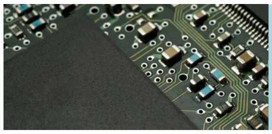
Underfill and Edgebond



Underfill

One Component, Heat Curable Materials

Protect Solder Joints in BGA, CSP or Flip Chip

ALPHA HiTech Underfill
is an epoxy based material to be dispensed on the edges of the BGA, CSP or Flip Chip devices. The material then flows beneath the component through capillary action. Upon completion of the curing process, the cured underfill helps strengthen the soldered assembled component, allowing it to pass reliability tests such as Drop Shock, Impact Bend and Thermal Cycle (TCT). ALPHA HiTech has developed Underfill to accommodate variations in customer requirements throughout the industry.

Product Type	Application	Product	CTE, TMA (ppm)	Tg (°C)	Reworkable
Underfill	Fast flowing penetration and thermally reliable	**ALPHA HiTech CU31-2030** • Low viscosity, fast flow at room temperature • Pass 3,000 cycles -40 +125 °C, 30 minutes TCT with SAC305 alloy	α1: 56 α2: 176	168	Yes
	High thermal reliability automotive	**ALPHA HiTech CU21-3240** • Fast flowing on 70 - 100 °C substrate temperature • Pass 5,000 cycles -40 +125 °C, 30 minutes TCT with SAC305 alloy	α1: 31 α2: 105	165	No
	Underfilling temperature sensitive parts	**ALPHA HiTech CU13-3150** • Low viscosity, fast flow at room temperature • Low curing temperature at 80 °C for 30 minutes	α1: 50 α2: 200	47	Yes

Edgebond

Epoxy Materials for Dispense on Edges or Corners of BGAs

Dispense and Cure on Edges or Corners of BGAs

ALPHA HiTech Edgebond is a one component, heat curable material for edge or corner bonding applications. Upon deposition, it will not flow beneath the BGA. The cured edgebond will help to strengthen the soldered assembled component so it can pass reliability tests such as Drop Shock, Impact Bend and Thermal Cycle (TCT).

Product Type	Application	Product	CTE, TMA (ppm)	Tg (°C)	Reworkable
Edgebond	Edge Bonding and Corner Bonding	**ALPHA HiTech CF31-4010** • Low viscosity, fast flow at room temperature • Pass 2,700 cycles -40 +125 °C, 30 minutes TCT with SAC305 alloy • Pass 3,000 cycles -40 +150 °C, 30 minutes TCT with Innolot alloy	α1: 25 α2: 70	170	Yes
		ALPHA HiTech CF12-4485B • 1 to 10°C storage condition • 7 days pot life at 25°C • Pass 1,500 cycles -40 +125 °C, 30 minutes TCT with SAC305 alloy	α1: 56 α2: 191	105	No

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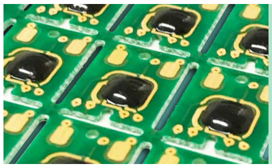
Encapsulant

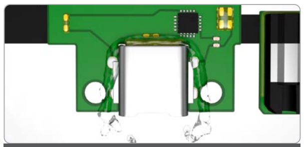


Encapsulant

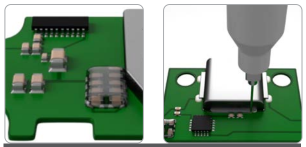
One Component, Intermediate Temperature, Fast Heat Curable Materials

Encapsulate Assembled Chips and IC Devices

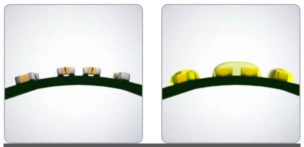
ALPHA HiTech Encapsulant is a one component, intermediate temperature, fast heat curable material which is designed to mechanically protect assembled chips and encapsulated IC devices from dropping off or cracking. These encapsulants are formulated for applications in portable devices requiring extra reliability protection. The smartphone market is one example of where these encapsulants are very applicable.



Prevent Migration & Waterproof



Glob-Top & Coating



Prevent Chip Crack

Product Type	Application	Product	CTE, TMA (ppm)	Tg (°C)	Reworkable
Encapsulant	Protect small components from cracking	**ALPHA HiTech 4007-Series** • Excellent adhesion on FR4, flexible polyimide and chip components • Excellent water proofing protection, preventing migration formation	α1: 65 α2: 200	25	Yes
		ALPHA HiTech 4210 -Series • Excellent adhesion property on FR4, flexible polyimide and chip components • Excellent water proofing protection, preventing migration formation	α1: 65 α2: 210	50	No

* All ALPHA HiTech products are halogen-free and are available in a wide variety of packaging options. For more information, please contact your local MacDermid Alpha representative.

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