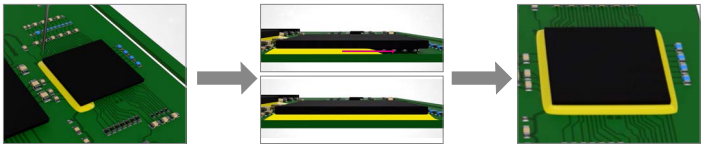
ALPHA® HiTech Underfills

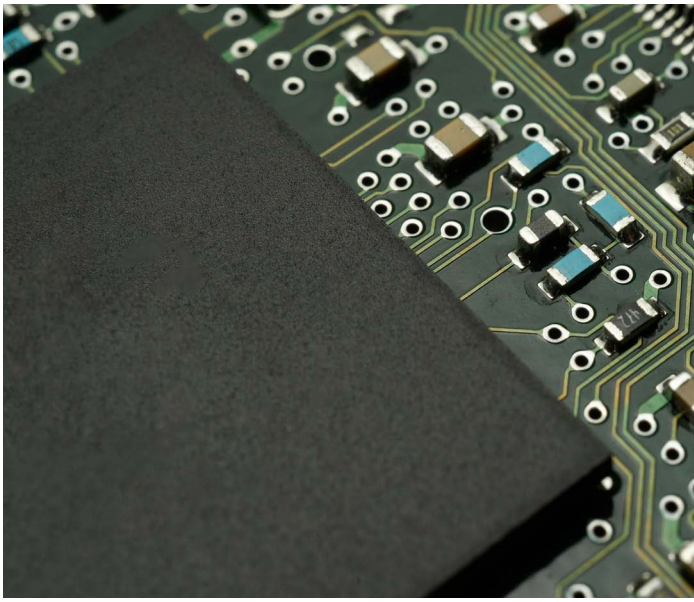
One Component, Heat Curable Materials

Protect Solder Joints in BGA, CSP or Flip Chip

ALPHA HiTech Underfills are epoxy based materials 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 range of Underfills are developed to match different requirements sought by various customers from the different market segments.

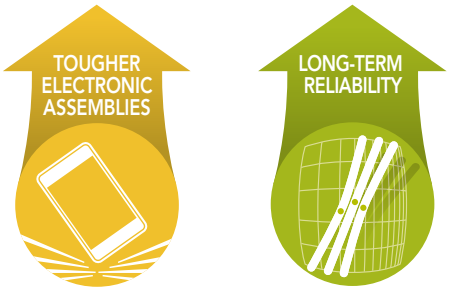


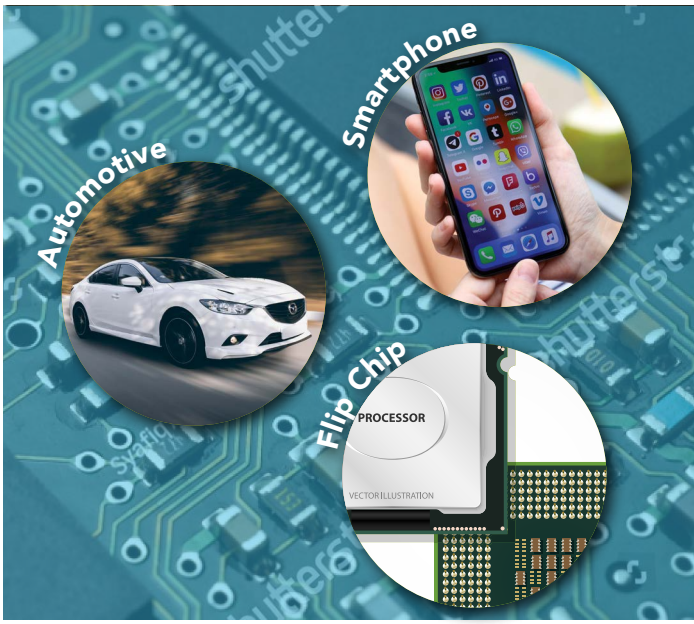
Apply Underfill | Underfill will penetrate beneath the component | Apply heat to cure underfill



KEY FEATURES

- One Component
- Excellent Adhesion to FR4
- Fast Curing Performance
- Excellent Drop Shock
- Excellent Impact Bend
- Availability of Low Temperature UF
- Reworkable Underfill Available
- Execlent TCT Reliability Performance
- Halogen Free





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ASSEMBLY SOLUTIONS

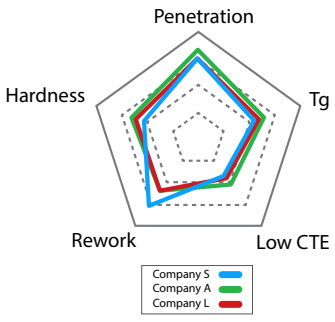
ALPHA® HiTech Underfills

One Component, Heat Curable Materials

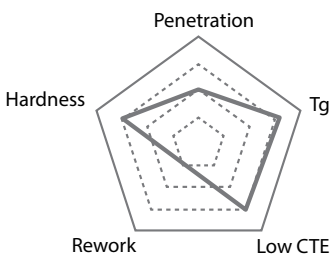
ALPHA HiTech		CU32-380	CU31-2030	CU13-3150	CU31-3100	CU11-3127	CU21-3240
Typical Uncured Material Properties							
Chemical Type		Epoxy	Epoxy	Epoxy	Epoxy	Epoxy	Epoxy
Halogen Status		Halogen Free	Halogen Free	Halogen Free	Halogen Free	Halogen Free	Halogen Free
Color		Black	Black	Black	Black	Black	Black
Viscosity	Spindle/rpm	#4/20	#3/20	#3/20	#5/20	#4/20	#5/20
RVDV-II Brookfield	kcps/25°C	0.3 - 0.8	–	1.0 - 3.0	3.0 - 8.0	1.0 - 4.0	–
RVT Brookfield	kcps/25°C	–	0.2 - 1.0	–	–	–	8.0 - 16.0
Filler Content, SiO2		–	10%	–	≥ 30%	56%	50%
Specific Gravity		1.1 - 1.2	1.1 -1.3	1.1 - 1.2	1.35 - 1.45	1.55 - 1.65	1.5 - 1.6
6_months Storage Temperature, °C		-20	-20	-20	-20	-20	-20
Pot Life, days		3	3	3	3	1	3
Cure Condition, °C/min		130/8	120/20; 130/10; 150/7.5	80/30; 100/10; 110/7; 120/5	150/7	140/20; 150/15; 165/5	140/30; 150/10; 165/5
Typical Cured Materials Properties							
Tg (°C)		89	168	47	120	177	165
CTE, TMA (ppm)	α1	57	56	50	49	29	31
	α2	199	176	200	144	107	105
Shore D Hardness (25°C)		80 - 90	80 - 90	50 - 60	80 - 90	85-95	85 - 95
Reworkable		No	Yes	Yes	No	No	No
Thermal Cycling Test, -40°C - 125°C, 30 min, SAC305		–	Pass 3000 cycles	–	Pass 3000 cycles	Pass 2000 cycles	Pass 5000 cycles
Component		BGA	BGA, CSP	BGA (Low Temperature)	BGA, CSP & Flip Chip	BGA, CSP & Flip Chip	BGA, CSP & Flip Chip

End Market

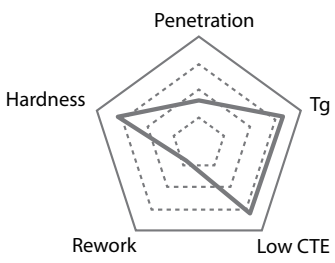
Smartphone



Automotive



CSP/Flip Chip



MacDermid Alpha ELECTRONICS SOLUTIONS

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December 2020

Alpha is a product brand of MacDermid Alpha Electronics Solutions.

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