

# ALPHA<sup>®</sup> HiTech<sup>™</sup> Adhesives

Designed for a Wide Range of Applications

## Bond Chip Components or Devices at Varying Curing Conditions

**ALPHA HiTech SMD Adhesives** are fast heat curable surface mount adhesives for use on high-speed dispenser and screen printing applications. These are designed for holding surface mount components during the wave soldering process.

**ALPHA HiTech Low Temperature Adhesives** are designed for bonding temperature sensitive devices to a variety of plastic and metal surfaces used in the camera module assembly. These products provide excellent adhesion and drop impact performance.

**ALPHA HiTech UV Adhesives** are 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.



## KEY FEATURES

### ALPHA HiTech SMD Adhesives

- Specially formulated Thixotropic Index (TI) for optimal dispensing and printing process
- Excellent non-sagging property, creates reliable contact with base of chip components during placement process
- Excellent thermal resistance enables it to hold the component and keep it from dropping during wave soldering process
- Excellent adhesion property on FR4, flexible polyimide and chip components

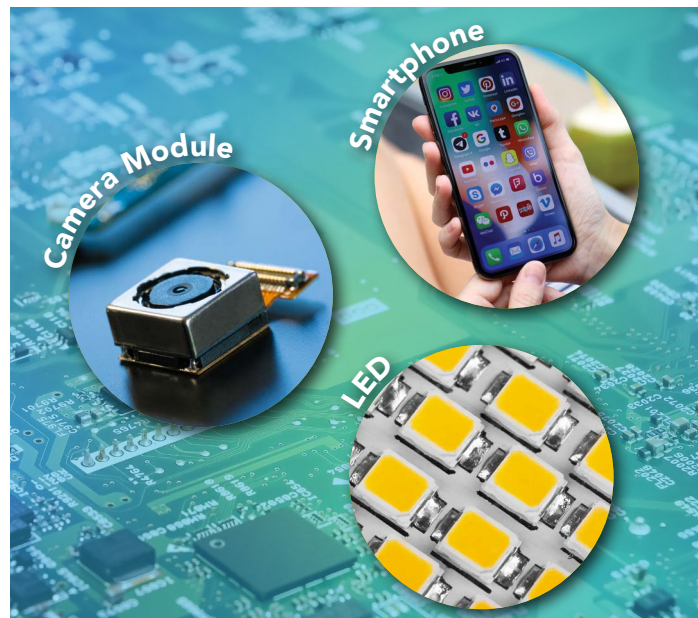
### ALPHA HiTech Low Temperature Adhesives

- One component
- Low curing temperature
- Excellent adhesion at ambient and higher temperatures
- Excellent drop shock performance
- Complies with RoHS Directive 2011/65/EU

### ALPHA HiTech UV Adhesives

- Products selection availability to match common materials
- Excellent adhesion strength at room temperature and higher temperatures
- Excellent resistance to moisture absorption
- Fast throughput performance

*(All products are halogen free)*



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ASSEMBLY SOLUTIONS

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LOW TEMPERATURE ADHESIVES					
ALPHA HiTech		AD13-9521B	AD13-9690BH	AD13-9620B	AD43-9600W
Typical Uncured Material Properties					
Color		Black	Black	Black	White
RVDV-II Brookfield Viscosity	Spindle/rpm	#6/30	--	--	#7/30
	kcps/25°C	8 - 12	--	--	30 - 50
Malcom PC-10A Viscosity	rpm	--	30	30 rpm	--
	kcps/25°C	--	8 - 18	8 - 18	--
Thixotropic Index		1.7 - 2.1	4.3 - 5.3	4.8 - 5.8	4.0 - 5.0
Specific Gravity		1.0 - 1.2	1.1 - 1.3	1.0 - 1.2	1.2 - 1.4
6 month Storage Temperature, °C		-20	-20	-20	-20
Pot Life, days		3	3	3	5
Cure Condition, °C/min		85/≥30	85/≥20	85/≥20	80/≥2 *
Typical Cured Materials Properties					
Tg (°C)		55 ± 5	45 ± 5	40 ± 5	55 ± 5
CTE, TMA (ppm)	α1	60 ± 10	55 ± 10	60 ± 10	65 ± 5
	α2	180 ± 20	175 ± 20	180 ± 20	190 ± 10
Shore D Hardness (25°C)		75 - 85	65 - 75	65 - 75	70 - 80
Surface Material Compatibility Level **	PA9T	Good	Good	Good	Good
	LCP	Good	Very Good	Very Good	Good
	PC	Good	Good	Good	Good
	PMMA	Very Good	Very Good	Very Good	Very Good
	FR4	Very Good	Very Good	Very Good	Very Good
Metal		Good	Good	Good	Good

\*Under a reflow process oven

\*\*PA9T: Polyamide; LCP: Liquid Crystal Polymer; PC: Polycarbonate; Metal: Magnet, SUS [Stainless Steel], PMMA: poly(methyl methacrylate); SUPP [Steel Plate Cold Commercial], Ni Plating, etc

UV ADHESIVES		
ALPHA HiTech		UP44-5566T
Typical Uncured Material Properties		
Color		Pale Yellow
Brookfield Viscosity, kcps	Spindle/rpm	#6/30
	kcps/25°C	8.0 - 18.0
Thixotropic Index (Viscosity @ 3 rpm/30 rpm)		4.5 - 6.5
Specific Gravity		1.0 - 1.2
6 month Storage Temperature, °C		1 - 10
Pot Life, days		7
UV Cure Condition	secs	≥ 10
	Power, mW/ cm <sup>2</sup>	200
	Wavelength, nm	365
Typical Cured Materials Properties		
Tg (°C)		65 ± 5
CTE, TMA (ppm)	α1	80 ± 10
	α2	220 ± 20
Shore D Hardness (25°C)		65 - 75
Adhesion Strength, kgf	PCB + PMMA	21.3
	PCB + Al	27.3

SMD ADHESIVES			
ALPHA HiTech		SM42-120P	SM42-131I
Typical Uncured Material Properties			
Color		Red	Red
Viscosity, Poise/25°C (Malcom PC-10A, 30 rpm)		550 - 700	350 - 550
sg (25°C)		1.2 - 1.4	1.1 - 1.3
Thixotropic Index		≥ 3.0	≥ 5.0
6 Months Storage Temperature, °C		1 - 10	1 - 10
Pot Life@ 25°C, days		7	7
Cure Condition (Convection Oven)		120°C/120s or 150°C/80 s	
Typical Cured Materials Properties			
Tg (°C)		110 ± 10	≥ 90
CTE, TMA (ppm)	α1	65 ± 10	60 ± 10
	α2	190 ± 20	190 ± 20
Corrosion 95-hr@40°C, 95%RH		None	None
Moisture Absorption, wt% (24-hr, water/25°C)		≤ 1.0	≤ 1.0
SIR per J-STD-004B (40°C/90%RH, 168hrs)		> 1 X 10 <sup>8</sup>	> 1 X 10 <sup>8</sup>
Hardness (25°C)[Shore D(5-kg/10 sec)]		80 - 90	80 - 90
Deposition Application		Screen Print	Dispense



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Alpha is a product brand of MacDermid Alpha Electronics Solutions.

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