

LOCTITE® ABLESTIK ABP 6389

January 2023

PRODUCT DESCRIPTION

LOCTITE® ABLESTIK ABP 6389 provides the following product characteristics:

Technology	Epoxy
Appearance	Silver
Cure	Heat cure
Application	Die attach, Semiconductor Pastes, Electronic Adhesives & Solder
Product Benefits	• Good workability • High reliability • Good electrical and thermal conductivity • Good adhesion to Cu, Ag and PPF • Good adhesion to Non-BSM and BSM die • Low stress • Low outgassing
Typical Package Application(s)	SOIC, SOP, QFP and QFN

LOCTITE® ABLESTIK ABP 6389 electrically conductive die attach adhesive is designed for high reliability package applications. It is formulated with good thermal conductivity for heat management, along with excellent electrical conductivity to achieve low ON Resistance (RDS(ON)) in MOSFET devices.

LOCTITE® ABLESTIK ABP 6389 is engineered to bond with or without BSM (Back side Metallization) die. Its moderate modulus, good adhesion and low stress enable robust bonding of small to large die on a wide variety of metal surfaces, including Cu, Ag and PPF leadframes.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity, Brookfield CP51, 25 °C, mPa·s (cP):	
Speed 5 rpm	8,000
Thixotropic Index (0.5/5 rpm)	4.4
Work Life @ 25°C, hours	24
Shelf Life @ -40°C, days	365

TYPICAL CURING PERFORMANCE

Cure Schedule

30 minutes ramp to 175°C + 60 minutes @ 175°C, in N2 or air

Alternate Cure Schedule

30 minutes ramp to 200°C + 60 minutes at 200°C in N2 or air

Weight Loss

Weight Loss on Cure, %	2.8
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The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and specific application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties

Glass Transition Temperature, TMA, °C	34
Coefficient of Thermal Expansion, :	
Below Tg, ppm/°C	80
Above Tg, ppm/°C	167
Dynamic Tensile Modulus:	
@ 25°C	N/mm ² 5,790 (psi) (839,768)
@ 150°C	N/mm ² 360 (psi) (52,213)
@ 250°C	N/mm ² 310 (psi) (44,961)

Extractable Ionic Content, ppm:

Chloride (Cl-)	<10
Sodium (Na+)	<10
Potassium (K+)	<10

Electrical Properties

Volume Resistivity, ohms-cm	6×10 ⁻⁵
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Thermal Properties

Thermal Conductivity, W/(m-K):	
Cured @ 175°C	8
Cured @ 200°C	10

Adhesion Properties

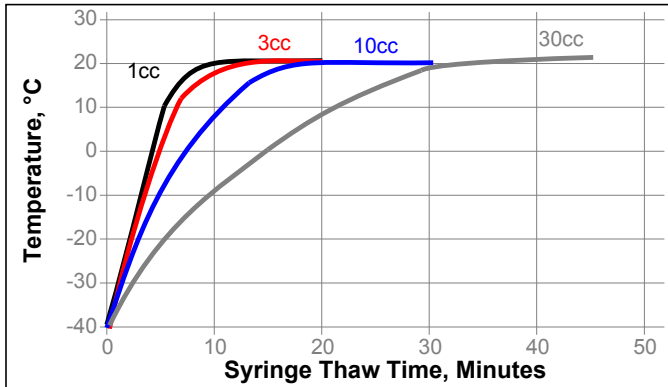
Die Shear Strength, kg-f:	
2 x 2 mm Ag BSM die on Ag leadframe:	
@ RT	11.8
@ 260°C	2.6
2 x 2 mm Ag BSM die on Cu leadframe:	
@ RT	10.2
@ 260°C	1.7

GENERAL INFORMATION

For safe handling information on this product, consult the Safety Data Sheet, (SDS).

Thawing

1. Allow container to reach room temperature before use.
2. After removing from the freezer, set the syringes to stand vertically while thawing.
3. DO NOT open the container before contents reach 25°C temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.
4. DO NOT re-freeze. Once thawed to 25°C, the adhesive should not be re-frozen.

**DIRECTIONS FOR USE**

1. Thawed material should immediately be placed on dispense equipment for use.
2. If the adhesive is transferred to a final dispensing reservoir, care must be exercised to avoid entrapment of contaminants and/or air into the adhesive.
3. Adhesive must be completely used within the product's recommended work life.
4. Silver-resin separation may occur if the adhesive is left out at room temperature, beyond the recommended work life.
5. Apply enough adhesive to achieve a 25 to 50 µm wet bondline thickness, dispensed with approximately 25 to 50 % filleting on all sides of the die.
6. Alternate dispense amounts may be used depending on the application requirements.
7. Star or crossed shaped dispense patterns will yield fewer bondline voids than the matrix style of dispense pattern.

STORAGE

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: -40 °C. Storage below minus (-)40 °C or greater than minus (-)40 °C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Henkel Representative.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local Henkel representative for assistance and recommendations on the specifications of this product.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\text{N} \times 0.225 = \text{lb/F}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{N/mm}^2 = \text{MPa}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Disclaimer

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Reference 1