

# LOCTITE ABLESTIK QMI509

June 2017

## PRODUCT DESCRIPTION

LOCTITE ABLESTIK QMI509 provides the following product characteristics:

<b>Technology</b>	Bismaleimide Resin
<b>Appearance</b>	Gray paste
<b>Filler Type</b>	Silver
<b>Product Benefits</b>	<ul style="list-style-type: none"> <li>Electrically conductive</li> <li>Hydrophobic</li> <li>Stable at high temperatures</li> <li>Void-free bondline</li> <li>Low modulus</li> </ul>
<b>Cure</b>	Heat cure
<b>Application</b>	Die attach
<b>Key Substrates</b>	Wide variety of metals and ceramic surfaces, including Copper, Silver, Palladium and Alloy 42

LOCTITE ABLESTIK QMI509 silver filled conductive adhesive is recommended for use in bonding integrated circuits and components to metal leadframes. This adhesive also exhibits a very low modulus, which can reduce inter-package stress. A package or device manufactured with LOCTITE ABLESTIK QMI509 will have good resistance to delamination and "popcorning" after exposure to reflow temperatures.

LOCTITE ABLESTIK QMI509 can be cured in a conventional oven, on a snap cure oven, or utilize SkipCure™ processing on a die bonder or wire bonder.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Viscosity 5 rpm @ 25°C, mPa·s (cP)	8,500
Thixotropic Index (0.5/5 rpm)	3.5
Specific Gravity, gm/cc	3.5
Pot Life @ 25 °C, hours	≥24
Shelf Life @ -40°C (from date of manufacture), days	365

## TYPICAL CURING PERFORMANCE

### Recommended Cure Schedule

Conventional Box Oven	15 mins @ 180°C
Snap Cure Oven	≥10 seconds @ 240°C *
Tunnel Oven: configured with hot gas or IR	≥10 seconds @ 240°C *
SkipCure™	≥6 seconds @ 260°C *

\* Time at temperature of the adhesive bondline.

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

## TYPICAL PROPERTIES OF CURED MATERIAL

### Physical Properties

Glass Transition Temperature (Tg), °C	1
Coefficient of Thermal Expansion, TMA:	
Alpha 1, ppm/°C	77
Alpha 2, ppm/°C	168
Extractable Ionic Content, ppm:	
Chloride (Cl-)	<20
Sodium (Na+)	<20
Potassium (K+)	<20
Fluoride (F-)	<20
Moisture Absorption, 168 hours @ 85°C/85% RH, ≤0.2 wt. %	
Thermal Conductivity, W/(m-K)	2.8
DMA Modulus @ 25°C	GPa 1.8 (N/mm <sup>2</sup> ) (1,800) (psi) (261,000)

### Electrical Properties

Volume Resistivity, ohm-cm	≤0.003
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## TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear Strength :	
1 mil BLT, 300 x 300 mil die	≥36
Average kgf @ 25°C on Ceramic	

## GENERAL INFORMATION

### Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

**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 Technical Service Center or Customer Service Representative.

**Conversions**

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

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Reference 1