

LOCTITE® ABLESTIK ATB F100E1

August 2024

PRODUCT DESCRIPTION

LOCTITE® ABLESTIK ATB F100E1 provides the following product characteristics:

Technology	Epoxy film
Appearance	White
Cure	Heat cure
Product benefits for 25um DAF version	<ul style="list-style-type: none"> • Excellent workability • High reliability • Meets thin wafer requirements • Ideal modulus for wide range of package sizes • Recommended for small die size packages • Consistent dicing and die pickup for small die applications • Long work life, up to 4 months
Product benefits for >35um DAF version	<ul style="list-style-type: none"> • Excellent workability • High reliability • Good flow • High modulus • Meets thin wafer requirements
Application	Die attach, Film Over Wire (FOW), Film over Die (FOD)
Carrier type	Non UV PSA dicing tape (6107)
Carrier thickness, µm	85
Adhesive thickness, µm	25 for small die application, 35-120 for Die to Die, FOW/FOD
Wafer size, in	8 and 12
Typical package application	Discrete, IC and Chip stack packages

LOCTITE® ABLESTIK ATB F100E1 adhesive film is formulated for use in wafer lamination processes or as a preform decal.

TYPICAL PROPERTIES OF UNCURED MATERIAL

For 25um adhesive for small die application

Work life @ 25°C, days	
Before lamination	30
After lamination to die attach	90
Shelf life @ 5°C, (from date of manufacture), days	365

For >35um adhesive for Die to Die, FOW/FOD

Work life @ 25°C, days	
Before lamination	21
After lamination to die attach	28
Shelf life @ 5°C, (from date of manufacture), days	274

Flash point - see SDS

TYPICAL CURING PERFORMANCE

Recommended cure schedule

1 hour @ 130°C

The above cure profiles are guideline recommendations. These 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

Coefficient of thermal expansion, TMA, ppm/°C:	
Below Tg	37
Above Tg	83
Glass transition temperature, (Tg) by DMTA, °C	215
Thermal conductivity, W/(m-K)	0.57
Tensile Modulus, DMTA	
@-65°C	N/mm ² 9,755 (psi) (1,414,843)
@25°C	N/mm ² 5,256 (psi) (762,318)
@150°C	N/mm ² 1,092 (psi) (158,381)
@200°C	N/mm ² 368 (psi) (53,373)
@250°C	N/mm ² 185 (psi) (26,831)
Extractable ionic content,	
Chloride (Cl-)	19
Sodium (Na+)	2
Potassium (K+)	1

Weight loss @ 200°C, TGA, wt %	0.27
Moisture absorption, wt %	0.78

Electrical properties

Volume resistivity, ohm-cm	5.26 x 10 ¹³
Dielectric strength, V/mil	1,108

TYPICAL PERFORMANCE OF CURED MATERIAL

Die Shear strength vs temperature, kg-f/die	
2.5 x 2.5 mm (100 x 100 mil), Si die on BT substrate	
@260°C	3.1

GENERAL INFORMATION

Please consult the Safety Data Sheet (SDS) for safe handling information of this product.

Directions for use

1. Ensure all surfaces to be bonded are free from surface contamination.
2. Adhesive must be completely used within the product's recommended work life.
3. Remove the tape reel from the moisture-resistant package and load into the tape application machine.
4. Store unused adhesive film in the original sealed moisture resistant package until needed.

Storage

This adhesive film should be stored at 5°C, in its original moisture resistant packaging. Partially used reels should be stored under dry conditions at 5°C.

To minimize moisture absorption, we recommend storing the adhesive film in the sealed moisture-resistant package until needed.

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 the specifications of this product.

Conversions

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

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Reference 1

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