Technical Data Sheet

LOCTITE ABLESTIK NCF 218

August 2018

PRODUCT DESCRIPTION

LOCTITE ABLESTIK NCF 218 provides the following product characteristics:

Technology	BMI
Appearance	Transparent yellow film
Product Benefits	• Enable fine pitch, narrow gap Cu Pillar
Cure	Heat cure
Application	Semiconductor, Films
Typical Applications	Thermal Compression Bonding

LOCTITE ABLESTIK NCF 218 transparent film is specially formulated for Pb free, low κ, thin gap, large and thin die used in advance flip chip applications. This material is suitable for die to die, die to wafer (TSV) or die to substrate applications.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Shelf Life @ 5 °C, days	180
Flash Point - See SDS	

TYPICAL PROCESS DATA

Lamination

Vacuum Time, seconds	10
Pressure, MPa	0.5
Pressure Time, seconds	60
Temperature, °C	50 to 55

Thermal Compression Bonding

Sample used: 7.3 X 7.3 x 0.15 mm SiN passivation

Stage Temperature, ºC	100
Contact Temperature, ºC	130
Search speed, mm/sec	1
Bonding Time (Total), seconds	<4
Bonding Force (depending on die size and bump count), N	35
Peak Temperature, ºC	260

The above thermal compression profile and post cure condition are guideline recommendations. These 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 CURING PERFORMANCE

Recommended Cure Schedule

30 minutes ramp to 175ºC, hold 2 hours @ 175°C

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

Coefficient of Thermal Expansion:	
Below Tg, ppm/°C	24
Above Tg, ppm/°C	190
Glass Transition Temperature, post cure TMA @ 10º/minute, °C	119
Weight Loss , TGA @ 250 °C, %	1.2
DSC (Differential Scanning Calorimetry):	
On-set temperature, ºC	162
Peak tempertature	168
Storage Modulus:	
@ 25°C, GPa	6.4
@ 250°C, GPa	0.11
Moisture Absorption, 85ºC @ 85°C/85% RH, wt.%	1.2
Extractable Ionic Content, :	
Sodium (Na+)	<10
Potassium (K+)	<10
Chloride (Cl-)	<10

TYPICAL PERFORMANCE OF CURED MATERIAL

Hot Die Shear Strength @ 260°C:

3 x 3 mm SiN die on BT substrate	N/mm²	5.4
	(psi)	(768)

GENERAL INFORMATION

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

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.

THAWING:

1. Allow container to reach room temperature before use, normally 30 minutes.

DIRECTIONS FOR USE

1. The surfaces on which the adhesive has to be applied should be clean, dry and free from all dust.

STORAGE:

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

Optimal Storage: -5 to +5°C. Storage below -5°C or above 25°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

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Disclaimer

Note:
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Reference 2