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LOCTITE

Technical Data Sheet

LOCTITE 3607

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PRODUCT DESCRIPTION

LOCTITE 3607 provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (uncured)	Red viscous gel[LMS]
Components	One component - requires no mixing
Cure	Heat cure
Application	Surface mount adhesive
Key Substrates	SMD components to PCB
Other Application Areas	Small parts bonding
Dispense Method	Pin transfer
Wet Strength	High

LOCTITE 3607 is designed for the bonding of surface mounted devices to printed circuit boards prior to wave soldering. The very low moisture absorption allows longer exposure to humidity in open baths without affecting dispensability or causing void formation in the cured adhesive.

TYPICAL PROPERTIES OF UNCURED MATERIAL

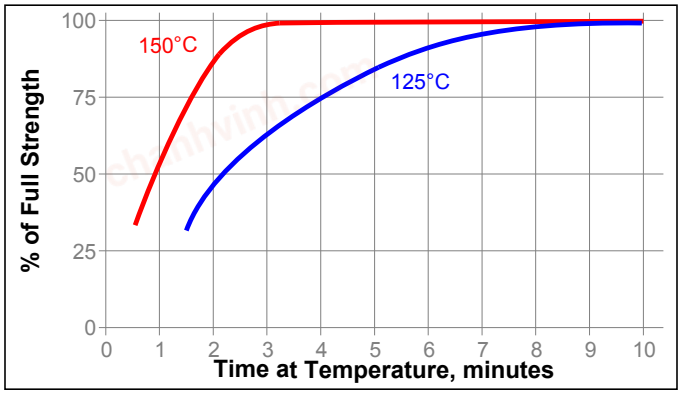
Specific Gravity @ 25 °C	1.2
Yield Point, 25 °C, Pa	150 to 350[LMS]
Cone & Plate Rheometer: Haake PK 100, M10/PK 1 2° Cone	
Casson Viscosity @ 25 °C, Pa·s	5 to 20
Cone & Plate Rheometer: Haake PK 100, M10/PK 1 2° Cone	
Flash Point - See SDS	

TYPICAL CURING PERFORMANCE

Recommended conditions for curing are exposure to heat above 100°C (typically 150 -180 seconds @ 150°C). Rate of cure and final strength will depend on the residence time at the cure temperature.

Cure Speed vs. Time, Temperature

The following graph shows the rate of torque strength developed with time at different temperatures. These times are defined from the moment the adhesive reaches cure temperature. In practice, total oven time may be longer to allow for heat up period. Strength is measured on 1206 capacitors @ 22 °C, tested according to IPC SM817, TM-650 Method 2.4.42.



Isothermal DSC Conversion

5 minutes @ 125 °C, %	≥85[LMS]

TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 30 minutes @ 150 °C

Physical Properties

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	145×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.4
Specific Heat, kJ/(kg·K)	0.3

Electrical Properties

Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	3.7 / 0.01
10 kHz	3.6 / 0.01
Volume Resistivity, IEC 60093, Ω·cm	2×10^{15}
Surface Resistivity, IEC 60093, Ω	2×10^{15}
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	24

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 5 minutes @ 125 °C

Pull-off Strength, Siemens norm SN59651:		
C-1206 on bare FR4 board	N (lb)	35 to 75 (7.9 to 16.9)
Torque Strength, IPC SM817,TM-650 Method 2.4.42:		
C-1206 on bare FR4 board	N·mm (in.oz)	40 to 80 (5.7 to 11.4)

Cured for 3 minutes @ 150 °C

Push-off Strength:		
C-1206 on bare FR4 board	N (lb)	≥30[LMS] (≥6.8)

Cured for 30 minutes @ 150 °C

Lap Shear Strength, ISO 4587:		
Steel (grit blasted)	N/mm² (psi)	≥25[LMS] (≥3,625)

Bond strength achieved in practice will vary considerably depending on the SMD component type, adhesive dot size and the type, grade and degree of cure of the solder mask/resist.

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TYPICAL ENVIRONMENTAL RESISTANCE

Resistance to Hot Solder Dip

Cured for 90 seconds @ 150 °C

Hot Solder Dip, IPC SM817, TM-650 Method 2.4.42.1, Pass/Fail:

R-1206 on bare FR4 board:

Supported 60 seconds above solder bath @ 260°C and dipped for 10 seconds	Pass

Resistance to Process Conditions

Cured for 90 seconds @ 150 °C

Torque Strength, IPC SM817,TM-650 Method 2.4.42, % of initial strength retained:

C-1206 on bare FR4 board:

Aged 30 seconds preheat to 100°C and 3 seconds @ 260°C with flux and wave solder	100

GENERAL INFORMATION

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

Directions for use:

1. After storage in a refrigerator the adhesive must be allowed to equilibrate to room temperature before use, typically 2 to 4 hours.
2. Avoid cross contamination with other adhesive residues by ensuring dispense nozzels, adapters etc. are thoroughly cleaned .
3. The quantity of adhesive dispensed will depend on the pin type and size, depth pin is dipped into adhesive and adhesive temperature.
4. These parameters will vary depending on the type of dispensing system used and should be optimised accordingly.
5. Bath temperature should ideally be controlled at a value between 25°C to 30°C, 50 % RH for optimum results. Under these conditions product will remain dispensable in the tray for at least 2 to 3 days and for up to five days with frequent replenishment of new material.
6. Uncured adhesive can be cleaned from the board with isopropanol, MEK or ester blends such as LOCTITE® 7360™.

Loctite Material Specification[LMS]

LMS dated February 26, 1999. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.
Optimal Storage: 2 °C to 8 °C. Storage below 2 °C or greater than 8 °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
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Note:
The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.
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Reference 1.1