

Technical Info Sheet

HCA 5-005 Heat Conductive Adhesive

Thermosetting polymer

1. Description

HCA 5-005 is a fast curing thermosetting, one-component, solvent-free Heat Conductive Adhesive, designed for the connection of bare dies and heat sinks on different substrates to control the thermal management of the components.

The HCA -glue has a hardener system, which includes a cationic curing agent.

Key Benefits

- Snap curing system
- High adhesion
- Low ionic contamination
- Excellent thermal conductivity
- High reliability

2. Typical properties of the Uncured Adhesive

	HCA 5-005
Viscosity ¹⁾	20-30 Pas
Processing Life ²⁾	5 days
Storage ³⁾	12 month

1) At shear rate $D=50 \text{ s}^{-1}$, plate-cone system with cone 2° , temperature: 23°C .

2) Time at room temperature ($23 \pm 3^\circ\text{C}$) during which the glue can be processed.

3) From the date of production, stored in the freezer at $-20^\circ\text{C} \pm 5^\circ\text{C}$.

3. Recommended Processing

3.1. Substrate and components

Before using the glue, be aware that the substrates and dies clean and dry

- Ensure that the adhesive has reached room temperature before opening.
- Substrate Materials: PCB, Lead Frame, Ceramic.
- Recommended surface: PCB, Lead Frame, Ceramic, Ni/Au, Ag, Sn, Cu.

3.2 Dispense equipment

When the glues are used, all touching equipment like nozzles, syringes and dispense machines must be free of any contamination of other glues

- Depending on the application, the dot-size and number of dots and dispensing of lines can vary in a wide range.
- Air pressure /time System e.g. GLT
Nozzle diameter : 0,41 – 0,25 mm
- Archimedes-screw system e.g. CAM/ALOT
Nozzle diameter : 0,33-0,20 mm

3.3 Curing ovens

While the glue is curing in the oven, it is also not allowed to have any contamination of amine or any other nitrogen or nitrogen compound in the oven or in the atmosphere. It's also not allowed to cure the glue together with other adhesives which content amines.

4. Typical properties of the cured Adhesive HCA 5-005

	HCA 5-005
Snap Cure Conditions: Peaktemperatur	1' / 180°C
Curing Conditions: Peaktemperatur	3' / 150°C
Adhesion (DIN EN 1465)	max. 14 N/mm ²
Elongation at Tear (ISO 527-2)	max. 0,8 %
E-Module (ISO 527-2)	approx. 4900 MPa
Glass Transistion Temperature	approx. 72°C
Weight Loss during Curing Process at 180°C	max. 1,3%
Water absorption ¹⁾	max. 0,7 %
Impurities: Cl⁻	max. 20 ppm
Thermal Conductivity	approx. 1,1 W/m K
CTE < Tg	max. 30 ppm
CTE above Tg	max. 110 ppm

1) @85°C and 85% R.H.

5. Cleaning

Before Curing:

- The uncured adhesive can be removed with different Vigon and Zestron cleaners, f. ex. SC400, SC 200, SD 301
- The cleaned parts must be completely dry before installing them in the machine.

After Curing:

- Defective components can easily be replaced by heating (with hot air) the cured adhesive joint above 250°C.
- The hot remaining adhesive can be removed with a sharp tool.

6. Packing

In jars with 100g

7. Storage

Outside the freezer avoid exposure to sunlight and high humidity.

In jars:
12 months from the date of production in the freezer at $-20^{\circ}\text{C} + 5^{\circ}\text{C}$.

H.W.H / 221008 / V3

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