

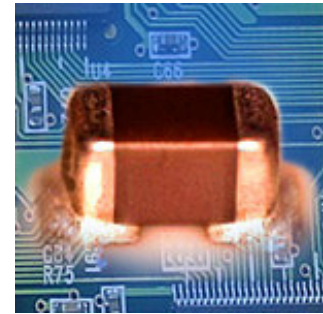
Silicone Based Electrically Conductive Adhesives

Features

United Adhesives Inc. makes two categories of Electrically Conductive Adhesives (ECA), silver filled silicones (Silductor series) and silver filled epoxies (Eposolder series), in both 1-part and 2-part systems. They are either dispensable or screen /stencil printable. The Silductor series provide significant stress compliance while maintaining high electrical & thermal conductivity.

Applications

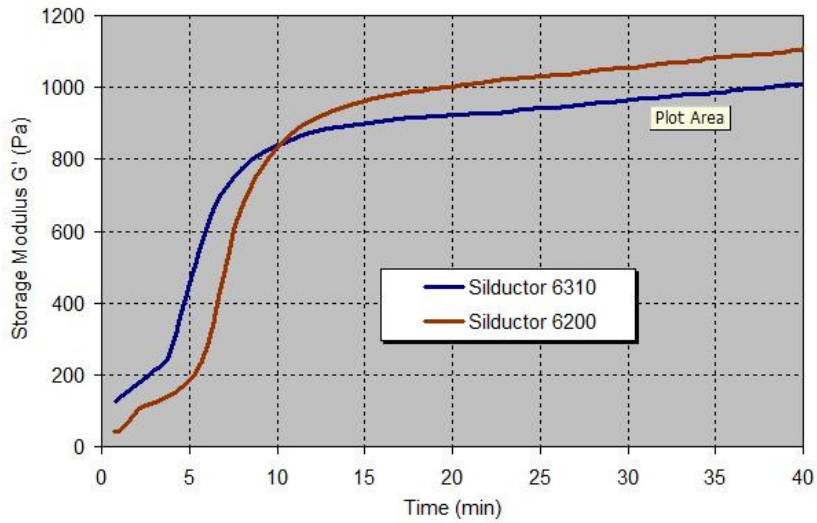
The typical applications are for mounting of heat sensitive components with electrically conductive path such as die attach, chip attach, and groundings. Silicone based ECAs provide significant stress compliance between components and mounting surfaces while serving as electrically conductive and thermally conductive interface material between mounted components and heat spreader.



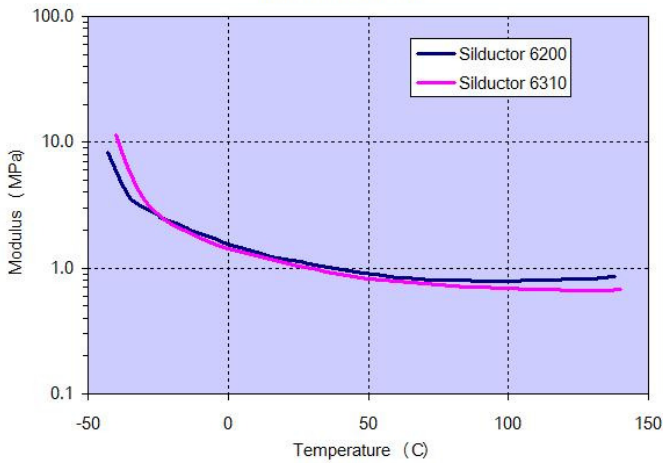
| Name | Silductor 6201 | Silductor 6381 | Silductor 6310 | Silductor 6350 |
|---------------------------------|---|---|--|---|
| Chemical Base | Silicone / Silver | Silicone Ag-Cu-Hybrid | Silicone / Silver | Silicone / Silver-Copper |
| Features / Advantages | Screen/Stencil Printable. High electrical & thermal conductivity. Low Thermal Stress. Very Low ionic Contamination. High moisture resistance. Reworkable. | Silver copper hybrid powder filled electrical & thermal conductivity. Low Thermal Stress. Very Low ionic Contamination. High moisture resistance. Reworkable. Low cost. | High electrical & thermal conductivity. Low Thermal Stress. Very Low ionic Contamination. High moisture resistance. Reworkable. | For low stress, electrically connecting applications. Very Low ionic Contamination. High moisture resistance. Reworkable. |
| Typical Application | For extremely low stress soldering / connecting / conducting applications such as in Sensors, Filters, Crystal Oscillators, MEMS, LCD Driver IC's, CCD chip attach, Wafer Lamination, CSP, etc. | For extremely low stress soldering / connecting / conducting applications such as in Sensors, Filters, Crystal Oscillators, MEMS, LCD Driver IC's, CCD chip attach, Wafer Lamination, CSP, etc. | For low stress soldering / connecting / conducting applications such as in Sensors, Filters, Crystal Oscillators, MEMS, LCD Driver IC's, CCD chip attach, Wafer Lamination, etc. | Low cost silver alternative electrically conductive adhesive for conducting in semiconductor and automotive electronics applications. |
| Rheology | Printable | Printable | Dispensable | Dispensable |
| Part / Component | One | One Part | One | One |
| Viscosity @25C (cps) | 78,000 | 85,000 | 41,000 | 42,000 |
| Thixotropic Index | 2.5 | > 3 | 2.1 | 2.6 |
| Density (g/ml) | 4.7 | 4.6 | 4.9 | 4.2 |
| Work life (hr) | > 72 | > 72 | >72 | > 72 |
| Cure Rate | 150C 30 min 125C 60 min | 150C 30 min 125C 60 min | 150C 30 min 125C 60 min | 150C 15 min 125C 30 min |
| Shelf Life (days) | 6 months @ -15C | 6 months @ -25C | 6 months @ -15C | 6 months @ -15C |
| Thermal Stability | -50C to 230C | -50C to 230C | -50C to 230C | -50C to 230C |
| Tg | -120C | -120C | -120C | -120C |
| CTE (ppm/C) ASTM D3386-94 | <100 | <95 | <100 | <98 |
| Hardness (ASTM D2240) | Shore A = 75 | Shore A = 50 | Shore A = 45 | Shore A = 68 |
| Tensile Strength (ASTM D638) | 3.0 Mpa | 3.5 Mpa | 3.1 Mpa | 3.5 Mpa |
| Volume Resistivity (Ohm-cm) | < 5x10 ⁻⁴ | < 5x10 ⁻³ | < 5x10 ⁻⁴ | < 5x10 ⁻³ |
| Adhesion (Al/Al Lap Shear, psi) | >150 psi | >150 psi | >150 psi | >180 psi |
| Thermal Conductivity (W/mK) | > 6 | > 6 | > 4 | > 4 |

► Mechanical and Electrical Properties of Silductor ECAs

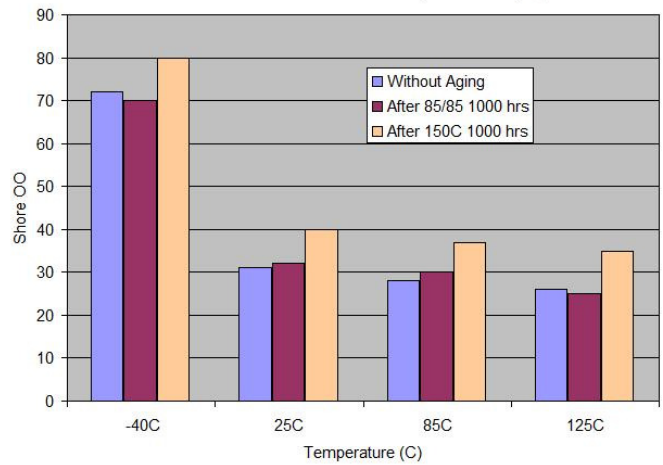
Cure Profile of Silductor ECAs



Modulus of Silductors



Silductor 6324 Hardness after Humidity and Heat Aging



Silductor 6324 Volume Resistivity after Humidity and Heat Aging

