

### PRODUCT DESCRIPTION

Silverstrate® is an **electrically conductive** phase change thermal interface material suitable for use between a heat sink and a variety of heat dissipating components. This product is supplied as a dry compound coated onto an aluminum substrate. The compound flows at the phase change temperature and conforms to the surface features of the heat sink and component. Upon flow, air is expelled from the interface, reducing thermal impedance and the material performs as a highly efficient thermal transfer material.

Silverstrate® is supplied as tooled preforms to match a wide variety of electronic components. Custom parts are also available upon request with low cost tooling.

### TYPICAL APPLICATIONS

Most frequently used where it is advantageous to have both a superior heat conduction path as well as a highly efficient path for electrical conduction. Applications include mounting high frequency RF power transistors, non-isolated ASIC's and other multichip modules. Also well suited for high power "disc pack" or "hockey puck" devices. Superior thermal performance enables Silverstrate to be an excellent replacement for certain "filled" thermal greases

### MATERIAL PROPERTIES

Silverstrate® is supplied in a range of compound thicknesses to match surface finish and flatness considerations in the interface area. Data for the two most common thicknesses is supplied below.

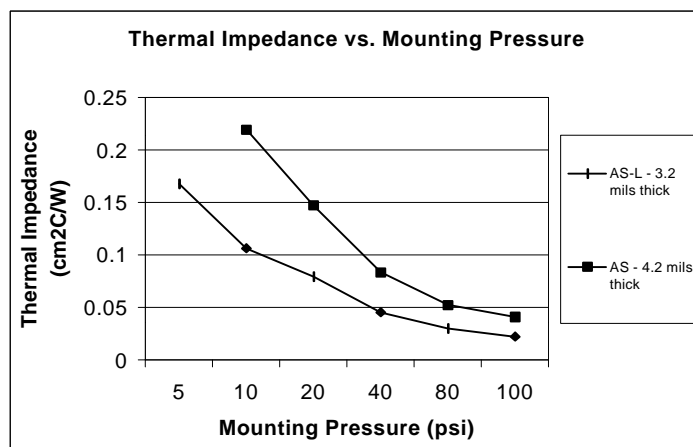
|   | Units                 | AS     | AS-H   |
|---|-----------------------|--------|--------|
| Substrate                                 | Type #1145 Aluminum   |        |        |
| Substrate Thickness                       | Inches                | .002   | .002   |
|   | mm                    | .051   | .051   |
| Compound Thickness (each side)            | Inches                | .00025 | .00045 |
|   | mm                    | .006   | .011   |
| Total Thickness                           | Inches                | .0032  | .0042  |
|   | mm                    | .081   | .107   |
| Thermal Impedance @ 10psi ASTM D5470      | °C-in <sup>2</sup> /W | .026   | .034   |
| Thermal Impedance @ 137.8 KPa ASTM D5470  | °C-cm <sup>2</sup> /W | .106   | .219   |
| Thermal Impedance @ 80psi ASTM D5470      | °C-in <sup>2</sup> /W | .003   | .006   |
| Thermal Impedance @ 551.6 KPa, ASTM D5470 | °C-cm <sup>2</sup> /W | .022   | .041   |
| Volume Resistivity ASTM B114, B193        | Ohm-cm                | 2.00   |        |

### PHYSICAL PROPERTIES

|  |             |
|--|-------------|
| Phase change temperature                 | 51°C        |
| Volumetric expansion upon phase change   | 15%         |
| Viscosity above phase change temperature | Thixotropic |

### PRODUCT PERFORMANCE

The performance of any phase change thermal interface material will be improved by increasing the mounting pressure at the interface. The graph shows the thermal impedance values generated on an ASTM D5470 platform. The test block dimensions are 2" x 2" (5.08 X 5.08 cm), the finish is 64 microinches (1.6 microns) and the flatness is .002 inches/inch (cm/cm). The power level is 80 watts.



### SURFACE CONDITIONS

Ideal interface surface conditions are quoted below:

|                  |  |
|------------------|--|
| Surface finish   | 64 microinches or better<br>1.6 microns or better  |
| Surface flatness | .002 inches/inch or better<br>.002 cm/cm or better |

### General Information

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

Silverstrate® is completely reworkable without solvents. No foreign residue remains after disassembly. A replacement pad can be installed without any further cleaning. If a clean surface is required, any compound present can be easily removed with mineral spirits. No silicones are utilized in the formulation of the phase change compound.

Pretooled pads are available for over one thousand commonly used electronic devices. Silverstrate® may be available as single die cut pads, or on continuous rolls for high volume production.

**Directions for use**

Complete directions for use are available by calling 1-800-LOCTITE.

**Storage**

Prior to assembly products shall ideally be stored in a cool, dry location in original packaging at temperatures below 40°C (104°F). Under these conditions the shelf life is indefinite. Silverstrate® can be applied to heat sinks which are then shipped to a final assembly location as long as the temperature does not exceed that stated above.

**Note**

The data contained hereon are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In the light of the foregoing, **Loctite Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from the sale or use of Loctite Corporation's products. Loctite Corporation specifically disclaims any liability for consequential or incidental damages of any kind including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from license under any Loctite Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.



**Loctite Electronics**

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