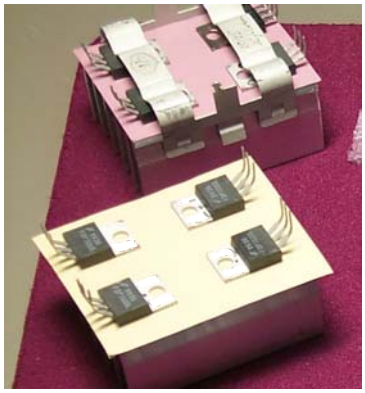
BOND-PLY™ LMS 1000

Low Modulus Silicone, Heat Cured, Laminating Adhesive

- **Low pressure laminate, only 20 psi required**

Bond-Ply LMS 1000 is a thermally conductive fiber reinforced heat curable laminating adhesive film. The product consists of a high performance thermally conductive low modulus silicone compound coated on a fiberglass weave, and double lined with protective films. The low modulus silicone design effectively absorbs mechanical stresses induced by assembly-level CTE mismatch, Shock and Vibration while providing exceptional thermal performance (vs PSA technologies) and long-term integrity. Bond-Ply LMS 1000 is typically used for fastening power components and PCBs to a heatsink.



The following suggestions are based on Bergquist lab results and are provided as general information. Optimization should be completed on the application level.

1. Ensure cleanliness of both interface surfaces.
2. Remove one liner (either side) from the material.
3. Hand-apply material to the heatsink interface in a manner that minimizes entrapped air.
4. Remove the remaining liner and place power component or device in desired position.
5. Place assembly into a press or clamp to attain moderate pressure (20 psi minimum).
6. With pressure applied, heat the assembly to a minimum interface temperature of 155°C for a minimum dwell time of 6 minutes. Higher temperatures will cure the LMS 1000 faster and create higher lap shear values. Cool to room temperature.

Typical Properties of Bond-Ply LMS 1000

Physical Property	Typical Value		Test Method
Color	Light Brown		Visual
Thickness, inches	0.008		ASTM D374
Post-Cured Tensile Strength, psi	1400		ASTM D412
Adhesion			
Lap Shear, psi	300		RD 3015 Anodized Alum
Electrical			
Post-Cured Breakdown Voltage, kV AC (1)	7.5		ASTM D149
Thermal			
Post-Cured Thermal Conductivity, W/m-K (2)	0.72		ASTM D5470
Thermal Impedance vs. Lamination Pressure			
Lamination Pressure, psi (3)	20	75	RD 2010
TO-220 Thermal Performance, °C/W	2.4	2.4	

1). The ASTM D149 test method was completed on cured LMS 1000 material. No pressure was applied to the product during the cure cycle. Actual application dielectric performance will vary with primary dependence on consistent material handling of LMS 1000 in the pre-cured or "green" state and applied pressure during the lamination process.

2). The ASTM D5470 (Bergquist Modified) test procedure was used on post-cured Bond-Ply LMS 1000 material. The recorded value includes interfacial thermal resistance. These values are given for customer reference only.

3). TO-220 Thermal Performance testing, per The Bergquist RD2010 specification for Laminates, was completed on pre-laminated TO-220 assemblies. Lamination was completed at the pressure levels referenced above. Actual pressure during performance testing was limited to the inherent weight distribution of the TO-220 component. No additional pressure was applied.

Application Cleanliness (Bonding):

Industry standard cleaning practices should be followed to ensure repeatable bonding from assembly to assembly. Utilizing standard practices, Bergquist has demonstrated exceptional metal to metal bonding characteristics on untreated and anodized aluminum as well as metal to FR-4 for PC board attachment.

Shelf Life:

The Bond Ply LMS 1000 is a heat-cured material and should be stored in temperature controlled conditions. A recommended storage temperature range of 5-21°C should be used to maintain optimum characteristics for 3 months.

Configurations:

Also available in 11 mil (0.279 mm) thickness

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