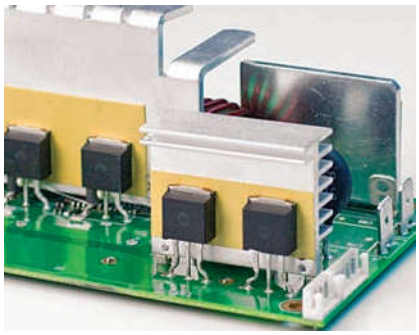
BOND-PLY LMS-HD

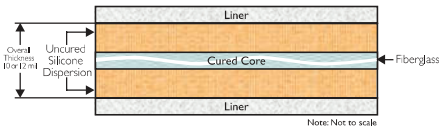
Laminate Material – Silicone, High Durability, Optional Lamination Methods

Features and Benefits

- TO-220 thermal performance: 2.3°C/W, initial pressure only lamination
- Exceptional dielectric strength
- Very low interfacial resistance
- 200 psi adhesion strength
- Continuous use of -60 to 180°C
- Eliminates mechanical fasteners



BOND-PLY LMS-HD is a thermally conductive heat curable laminate material. The product consists of a high performance thermally conductive low modulus silicone compound coated on a cured core, 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-HD will typically be used for structurally adhering power components and PCBs to a heat sink.



Typical Applications Include:

- Discrete semiconductor packages bonded to heat spreader or heat sink

TYPICAL PROPERTIES OF BOND-PLY LMS-HD

PROPERTY	IMPERIAL VALUE	METRIC VALUE	TEST METHOD
Color	Yellow	Yellow	Visual
Reinforcement Carrier	Fiberglass	Fiberglass	—
Thickness (in.) / (mm)	0.010, 0.012	0.254, 0.305	ASTM D374
Continuous Use Temp. (°F) / (°C)	-76 to 356	-60 to 180	—
ADHESION			
Lap Shear @ RT (psi) / (mPa)	200	1.4	ASTM D1002
ELECTRICAL		VALUE	TEST METHOD
Breakdown Voltage, Sheet (Vac.)(1)		5,000	ASTM D149
Breakdown Voltage, Laminated (Vac.)(2)		4,000	ASTM D149
Dielectric Constant (1,000 Hz)		5.0	ASTM D150
Volume Resistivity (Ohmmeter)		10^{11}	ASTM D257
Flame Rating		V-O	UL 94
THERMAL			
Post-Cured Thermal Conductivity (W/m-K)(3)		1.4	ASTM D5470
THERMAL IMPEDANCE VS. LAMINATION METHOD			
Lamination Pressure (75 psi)(4)		Constant	IPO
TO-220 Thermal Performance (°C/W)		2.1	2.3
CURE SCHEDULE			
Cure @ 125°C (mins.)(5)		30	30
Cure @ 160°C (mins.)(5)		6	6

1) The ASTM D149 test method on cured LMS-HD material. No pressure was applied to the LMS-HD during the cure cycle.
2) A 1/2 in. diameter probe was laminated with LMS-HD to a 2 in. X 2 in. plate at 200 psi for 30 seconds, then cured with no pressure at 160°C for 6 minutes. The cured assembly was then tested per ASTM D149. This LMS-HD sample resembles a typical lamination application.
3). The ASTM D5470 (Bergquist Modified) test procedure was used on post-cured LMS-HD material. The recorded value includes interfacial thermal resistance. These values are given for customer reference only.
4). TO-220 Thermal Performance testing, per The Bergquist RD2010 specification for laminates, was completed on laminated TO-220 assemblies. Lamination was completed at 75 psi for 30 seconds for "IPO" (Initial Pressure Only) and at a constant 75 psi during the lamination and curing process for "Constant." No additional pressure was applied during TO-220 thermal performance testing.
5). Cure Schedule – time after cure temperature is achieved at the interface. Ramp time is application dependent.

Configurations Available:

- Roll form
- Die-cut parts
- Sheet form

Shelf Life: BOND-PLY LMS-HD is a heat-cured material and should be stored in temperature controlled conditions. The recommended storage temperature range of 5-25°C should be used to maintain optimum characteristics for a 5-month shelf life.

Building a Part Number

BPLMSHD – 0.010 – 00 – 12/100 – NA

- Section A: BPLMSHD = BOND-PLY LMS-HD Material
- Section B: Standard thicknesses available: 0.010", 0.012"
- Section C: 00 = No adhesive
- Section D: 1212 = 12" x 12" Sheets, 12/100 = 12" x 100' rolls
- Section E: NA = Selected standard option. If not selecting a standard option, insert company name, drawing number, and revision level.

Standard Options

◂◂ *example*

Note: To build a part number, go to www.bergquistcompany.com/Part_Number_Builder.php.

NEDC Sealing Solutions
New England Die Cutting