Technical Data Sheet

BERGQUIST BOND PLY TBP 1400LMS-HD

Known as BOND-PLY LMS-HD BERGQUIST
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PRODUCT DESCRIPTION

Laminate Material - Silicone, High Durability, Optional Lamination Methods.

Technology	Silicone
Appearance	Yellow
Reinforcement Carrier	Fiberglass
Total Thickness	0.254 to 0.457 mm
Application	Thermal management, Thermally conductive adhesive
Operating Temperature Range	-60 to 180ºC

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

TYPICAL APPLICATIONS

- Discrete semi-conductor packages bonded to heat spreader or heat sink

BERGQUIST BOND PLY TBP 1400LMS-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.

BERGQUIST BOND PLY TBP 1400LMS-HD will typically be used for structurally adhering power components and PCBs to a heat sink

SHELF LIFE

BERGQUIST BOND PLY TBP 1400LMS-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.

TYPICAL CURE SCHEDULE

Cure Schedule (5)

30 minutes @ 125°C, ASTM D4473
6 minutes @ 160°C, ASTM D4473

TYPICAL PROPERTIES

Physical Properties

Flammability Rating, UL 94		V-0

Adhesion Properties

Lap Shear Strength, ASTM D1002:		
@ 25°C	MPa (psi)	1.4 (200)

Electrical Properties

Dielectric Breakdown Voltage, Sheet, ASTM D149, Vac (1)	5,000
Dielectric Breakdown Voltage, Laminated, ASTM D149, Vac (2)	4,000
Dielectric Constant, ASTM D150 @ 1,000 Hz	5.0
Volume Resistivity, ASTM D257, ohm-meter	1×10^{11}

Thermal Properties

Thermal Conductivity , ASTM D5470, W/(m-K) (3)	1.4

Thermal Impedance vs. Lamination Pressure

Lamination Pressure, RD 2010 @ 75 psi (4)	
TO-220 Thermal Performance, ºC/W	
Constant	2.1
IPO	2.3

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" diameter probe was laminated with LMS-HD to a 2" X 2" 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.

GENERAL INFORMATION

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

Not for product specifications
The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

CONFIGURATIONS AVAILABLE

BERGQUIST BOND PLY TBP 1400LMS-HD are supplied in:

- Roll form
- Sheet form
- Die-Cut parts

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb/F
N/mm x 5.71 = lb/in
psi x 145 = N/mm²
MPa = N/mm²
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Disclaimer

Note:
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