

DATASHEET

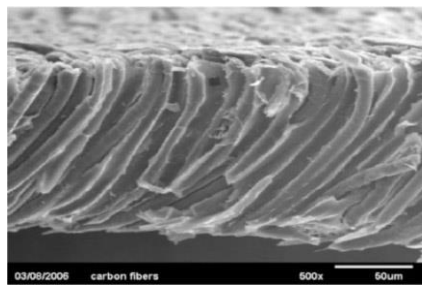
HM-2 Highly Thermally Conductive Film

btechcorp has invented and patented a process for aligning high density fibers through the thickness of a polymer matrix... up to 20 million fibers per square inch.

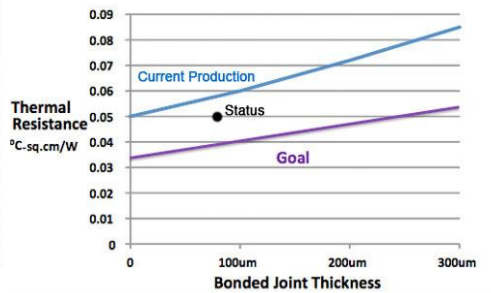
Unique highly thermally conductive graphite fibers (1900 W/m²K) are used to create a Z-axis bulk thermal conductivity of 750 W/m²K (at 40% fiber volume)...twice the thermal conductivity of pure copper.

HM-2 Thermally Conductive Adhesive Film is currently being used or evaluated for a variety of Thermal Interface Material applications, including die attach, LED assembly, heat pipe attachment, heat sink attachment and production dice thermal test equipment. An on-going product improvement program has already demonstrated lower total thermal resistance and this will be incorporated into our production process in the near future. A combination of lower interface resistance and higher bulk conductivity will be needed to reach our HM-2 performance Goal.

HM-2 Application Bonding: See Thermoplastic Film Bonding Page, Section A. All instructions for **NTP/TP-3** also apply to **HM-2** since they all use the same thermoplastic resin.



40% Graphite Fiber Volume



HM-2 Properties

Z-Axis Thermal Resistance	0.06 °C-cm ² /W (100μ thick bond)
Z-Axis Electrical Resistance	0.1-0.2 ohms (1.0 cm ² , 100μ thick)
Coefficient of Thermal Expansion	Z-Axis: 0 ppm/°C, X-Y plane: 45 ppm/°C
Young's Modulus	X-Axis: 75 Ksi (0.45 GPa) Y-Axis: 15 Ksi (0.09 GPa)
Ionic Purity	Hydrolyzable Chloride <5 ppm Hydrolyzable Sodium <2ppm
Rework Temperature	205 °C

Processing

Product Form	Film pre-form for reel supply. 2-10 mils (0.05-0.25mm) thick, +/- 0.1 mil
Cure Cycle	100 psi bond compression (<3 sec) at 190 °C (resin temperature)
Storage Life	6 months at 27 °C (80 °F)



MH&W International Corp.

575 Corporate Drive
Mahwah, NJ 07430-2330

Tel: (201) 891-8800
Fax: (201) 891-0625

THERMAL PRODUCTS DIVISION

Email: thermal@mhw-intl.com
Internet: <http://www.mhw-thermal.com>

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