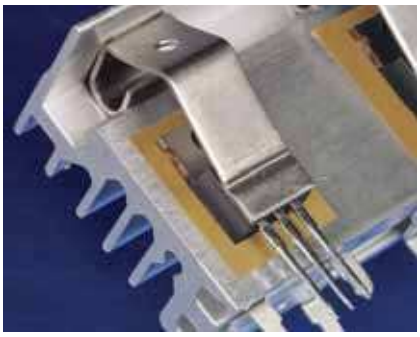
Hi-Flow® 330P

Electrically Insulating, High Performance, Thermally Conductive Phase Change Material

Features and Benefits

- Thermal impedance: 0.18°C-in²/W (@25 psi)
- Natural tack for ease of assembly
- Exceptional thermal performance in an insulated pad



Hi-Flow 330P is a thermally conductive phase change material featuring a natural tack on one side and reinforced with a polyimide film. The polyimide film provides a high dielectric strength and cut-through resistance. Hi-Flow 330P offers excellent handling and consistent liner peel-off characteristics. The material is designed for use between a high power electrical device requiring electrical isolation and its heat sink. Bergquist recommends the use clips or springs for phase change materials to assure constant pressure between the component interface and the heat sink.

Typical Applications

- Spring / clip-mounted devices
- Discrete power semiconductors and modules

Configurations Available

- Roll form, die-cut parts, sheet form
- Available with 1.0 mil (Hi-Flow 330P1.0), 1.5 mil (Hi-Flow 330P1.5) or 2.0 mil (Hi-Flow 330P2.0) Polyimide reinforcement carrier

TYPICAL PROPERTIES OF HI-FLOW 330P

PROPERTY	IMPERIAL VALUE	METRIC VALUE	TEST METHOD
Color	Gold	Gold	Visual
Reinforcement Carrier	Polyimide	Polyimide	—
Thickness (inch) / (mm)	0.0045 - 0.0055	0.114 - 0.140	—
Film Thickness (inch) / (mm)	0.001 - 0.002	0.025 - 0.050	ASTM D374
Inherent Surface Tack (1 or 2-Side)	1	1	—
Elongation (%)	40	40	ASTM D882A
Tensile Strength (psi)	7000	7000	ASTM D882A
Continuous Use Temp (°F / °C)	-40 to 257	-40 to 125	—
Phase Change Softening Temp (°F / °C)	126	52	ASTM D3418
ELECTRICAL			
Dielectric Breakdown Voltage (Vac)	5000	5000	ASTM D149
Dielectric Constant (1000 Hz)	4.5	4.5	ASTM D150
Volume Resistivity (Ohm-meter)	10^{12}	10^{12}	ASTM D257
Flame Rating	V-O	V-O	U.L. 94
THERMAL			
Thermal Conductivity (W/m-K)(1)	1.4	1.4	ASTM D5470

THERMAL PERFORMANCE vs PRESSURE					
Pressure (psi)	10	25	50	100	200
TO-220 Thermal Performance (°C/W) 0.0010"	1.22	1.17	1.13	1.10	1.08
TO-220 Thermal Performance (°C/W) 0.0015"	1.44	1.40	1.38	1.35	1.33
TO-220 Thermal Performance (°C/W) 0.0020"	1.67	1.63	1.60	1.58	1.54
Thermal Impedance (°C-in²/W)(2) 0.0010"	0.19	0.18	0.17	0.16	0.15
Thermal Impedance (°C-in²/W)(2) 0.0015"	0.21	0.21	0.21	0.19	0.18
Thermal Impedance (°C-in²/W)(2) 0.0020"	0.26	0.26	0.24	0.23	0.22

1) This is the measured thermal conductivity of the Hi-Flow wax coating. It represents one conducting layer in a three-layer laminate. The Hi-Flow coatings are phase change compounds. These layers will respond to heat and pressure induced stresses. The overall conductivity of the material in post-phase change, thin film products is highly dependent upon the heat and pressure applied. This characteristic is not accounted for in ASTM D5470. Please contact Bergquist Product Management if additional specifications are required.
2) The ASTM D5470 test fixture was used and the test sample was conditioned at 70°C prior to test. The recorded value includes interfacial thermal resistance. These values are provided for reference only. Actual application performance is directly related to the surface roughness, flatness and pressure applied.

Building a Part Number

HF330P – 0.001 – 01 – 00 – ACME10256 Rev a ◂◂ *example*

Section A: HF330P = Hi-Flow 330P Phase Change Material

Section B: Standard Polyimide Thickness Available = 0.001", 0.0015", 0.002"

Section C: 01 = Natural Tack

Section D: ____ = Standard configuration dash number, 1112 = 11" x 12" sheets, 11/250 = 11" x 250' rolls, or 00 = custom configuration

Section E: NA = Selected standard option. If not selecting a standard option, insert company name, drawing number, and revision level.

Standard Options

Note: To build a part number, visit our website at www.bergquistcompany.com.

Hi-Flow®: U.S. Patent 6,197,859 and others

THE BERGQUIST COMPANY www.bergquistcompany.com

The Bergquist Company - North American Headquarters
18930 West 78th Street
Chanhassen, MN 55317
Phone: 800-347-4572
Fax: 952-835-0430

The Bergquist Company - European Headquarters
Bramenberg 9a, 3755 BT Eemnes
Netherlands
Phone: 31-35-5380684
Fax: 31-35-5380295

The Bergquist Company - Asia
Room 15, 8/F Wah Wai Industrial Centre
No. 38-40, Au Pui Wan Street
Fotan, Shatin, N.T. Hong Kong
Ph: 852.2690.9296
Fax: 852.2690.2344

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