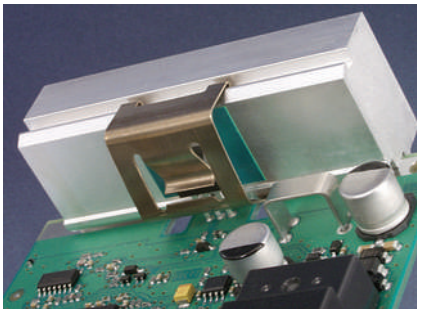
Hi-Flow® 300P

Electrically Insulating, Thermally Conductive Phase Change Material

Features and Benefits

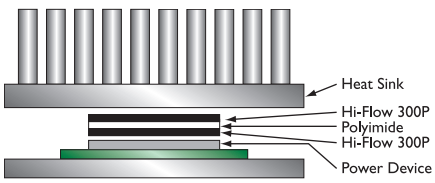
- Thermal impedance: 0.13°C-in²/W (@25 psi)
- Field-proven polyimide film
  - excellent dielectric performance
  - excellent cut-through resistance
- Outstanding thermal performance in an insulated pad



Hi-Flow 300P consists of a thermally conductive 55°C phase change compound coated on a thermally conductive polyimide film. The polyimide reinforcement makes the material easy to handle and the 55°C phase change temperature minimizes shipping and handling problems.

Hi-Flow 300P achieves superior values in voltage breakdown and thermal performance when compared to its competition. The product is supplied on an easy release liner for exceptional handling in high volume manual assemblies. Hi-Flow 300P is designed for use as a thermal interface material between electronic power devices requiring electrical isolation to the heat sink.

Bergquist suggests the use of spring clips to assure constant pressure with the interface and power source. Please refer to thermal performance data to determine nominal spring pressure for your application.



We produce thousands of specials. Tooling charges vary depending on tolerances and complexity of the part.

TYPICAL PROPERTIES OF HI-FLOW 300P

PROPERTY	IMPERIAL VALUE	METRIC VALUE	TEST METHOD
Color	Green	Green	Visual
Reinforcement Carrier	Polyimide	Polyimide	—
Thickness (inch) / (mm)	0.004 - 0.005	0.102 - 0.127	ASTM D374
Film Thickness (inch) / (mm)	0.001 - 0.002	0.025 - 0.050	ASTM D374
Elongation (%)	40	40	ASTM D882A
Tensile Strength (psi) / (MPa)	7000	48	ASTM D882A
Continuous Use Temp (°F) / (°C)	302	150	—
Phase Change Temp (°F) / (°C)	131	55	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)	1.6	1.6	ASTM D5470

THERMAL PERFORMANCE vs PRESSURE

Pressure (psi)	10	25	50	100	200
TO-220 Thermal Performance (°C/W) 0.0010"	0.95	0.94	0.92	0.91	0.90
TO-220 Thermal Performance (°C/W) 0.0015"	1.19	1.17	1.16	1.14	1.12
TO-220 Thermal Performance (°C/W) 0.0020"	1.38	1.37	1.35	1.33	1.32
Thermal Impedance (°C-in²/W) 0.0010" (2)	0.13	0.13	0.12	0.12	0.12
Thermal Impedance (°C-in²/W) 0.0015" (2)	0.17	0.16	0.16	0.16	0.15
Thermal Impedance (°C-in²/W) 0.0020" (2)	0.19	0.19	0.19	0.18	0.18

1) This is the measured thermal conductivity of the Hi-Flow 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.

Typical Applications Include:

- Spring / clip mounted
- Discrete power semiconductors and modules

Configurations Available:

- Roll form, die-cut parts and sheet form, dry both sides

Building a Part Number

HF300P – 0.001 – 00 – 00 – ACME10256 Rev a

Section A: HF300P = Hi-Flow 300P Phase Change Material

Section B: 0.001 = Standard polyimide thicknesses available: 0.001", 0.0015", 0.002"

Section C: 00 = No adhesive

Section D: 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

example

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

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