Technical Data Sheet

BERGQUIST HI FLOW THF 1500P

Known as BERGQUIST HI-FLOW 650P
April 2020

PRODUCT DESCRIPTION

Electrically Insulating, High Performance, Thermally Conductive Phase Change Material.

Technology	Phase Change
Appearance	Gold
Reinforcement Carrier	Polyimide
Total Thickness , ASTM D374	0.114 to 0.14mm
Film Thickness , ASTM D374	0.025 to 0.05 mm
Inherent Surface Tack	1 (1 or 2 side)
Application	Thermal management, Thermally conductive adhesive
Operating Temperature Range	-40 to 150ºC

FEATURES AND BENEFITS

- Thermal impedance: 0.2ºC-in²/W @ 25 psi
- 150°C high temperature reliability
- Natural tack one side for ease of assembly
- Exceptional thermal performance in an insulated pad

TYPICAL APPLICATIONS

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

BERGQUIST HI FLOW THF 1500P is a thermally conductive phase change material, reinforced with a polyimide film that is naturally tacky on one side. The polyimide film provides a high dielectric strength and cut-through resistance. BERGQUIST HI FLOW THF 1500P offers high temperature reliability ideal for automotive applications.

BERGQUIST HI FLOW THF 1500P is designed for use between a high-power electrical device requiring electrical isolation from the heat sink and is ideal for automated dispensing systems.

Bergquist recommends the use of spring clips to assure constant pressure with the component interface and the heat sink. Please refer to the TO-220 thermal performance data to determine the nominal spring pressure for your application.

TYPICAL PROPERTIES

Physical Properties

Elongation , 45º to warp and fill, ASTM D882,%	40
Tensile Strength ASTM D882A, psi	7,000
Phase Change Temperature, ASTM D3418, ºC	52
Flammability Rating, UL 94	V-0

Electrical Properties

Dielectric Breakdown Voltage, ASTM D149, Vac	5,000
Dielectric Constant, ASTM D150 @ 1,000 Hz	4.5
Volume Resistivity, ASTM D257, ohm-meter	1×10^{12}

Thermal Properties

Thermal Conductivity , ASTM D5470, W/(m-K) [1]	1.5

Thermal Performance vs. Pressure

TO-220 Thermal Performance, ºC/W

@ 0.001"	
@ 10 psi	1.2
@ 25 psi	1.15
@ 50 psi	1.11
@ 100 psi	1.06
@ 200 psi	1.0
@ 0.0015"	
@ 10 psi	1.47
@ 25 psi	1.41
@ 50 psi	1.37
@ 100 psi	1.33
@ 200 psi	1.29
@ 0.002"	
@ 10 psi	1.59
@ 25 psi	1.48
@ 50 psi	1.43
@ 100 psi	1.38
@ 200 psi	1.35

Thermal Impedance, ASTM D5470, ºC-in²/W [2]

@ 0.001"	
@ 10 psi	0.21
@ 25 psi	0.2
@ 50 psi	0.19
@ 100 psi	0.18
@ 200 psi	0.17
@ 0.0015"	
@ 10 psi	0.23
@ 25 psi	0.22
@ 50 psi	0.21
@ 100 psi	0.2

@ 200 psi	0.2
@ 0.002"	
@ 10 psi	0.27
@ 25 psi	0.27
@ 50 psi	0.26
@ 100 psi	0.25
@ 200 psi	0.24

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.

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 HI FLOW THF 1500P are supplied in:

- Sheet form, roll form and die-cut parts
- Available with 1.0, 1.5 or 2.0 mil Polyimide reinforcement carrier

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

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