

# HITHERM™ Thermal Interface Materials

## TECHNICAL DATA SHEET 318

### Product Overview

eGRAF® HITHERM™ thermal interface materials are designed for use in applications requiring low contact resistance and high thermal conductivity. The flexible graphite materials can be die-cut and/or laminated with plastics and adhesives.

### Part Designation

Every eGRAF® HITHERM™ thermal interface part number defines the grade and coating options of the material and is constructed based on the following example:

### Product Series Characteristics<sup>[1]</sup>

CHARACTERISTIC	UNIT	PURE GRAPHITE HT-1200 Series	POLYMER ENHANCED HT-2500 Series
Thermal Impedance @ 200 kPa	K-cm <sup>2</sup> /W	HT-1205 = 0.59 HT-1210 = 0.66	HT-2505 = 0.41 HT-2510 = 0.58
Thermal Impedance @ 700 kPa	K-cm <sup>2</sup> /W	HT-1205 = 0.30 HT-1210 = 0.40	HT-2505 = 0.24 HT-2510 = 0.41
Typical Thermal Conductivity <sup>[2]</sup> @ 700 kPa Through-Plane • In-Plane	W/m-K	10 • 150	16 • 120
Typical Thickness with Tolerance			
0.127 mm (0.005") ± 10%		HT-1205	HT-2505
0.25 mm (0.010") ± 5%	-	HT-1210	HT-2510
0.51 mm (0.020") ± 5%		HT-1220	-
Electrical Resistivity <sup>[3]</sup> In-Plane • Through Thickness	μΩm	60 • 1230	80 • 1550
Hardness (Shore A)			85
Coefficient of Thermal Expansion (CTE) In Plane • Through-Plane	ppm/°C		-0.4 • 27.0
Flammability Rating	UL		94V-0
Operating Temperature	°C	-40 to +400	-25 to +125
Specific Heat @ 25°C	J/g-°C		0.71
RoHS Compliant	-		Yes
Halogen Free		Yes	No
Lead Free	-		Yes

THERMAL INTERFACE MATERIAL		
HT	—	12 10
Product Name	Series Name	Typical Graphite Thickness (thousands of an inch)

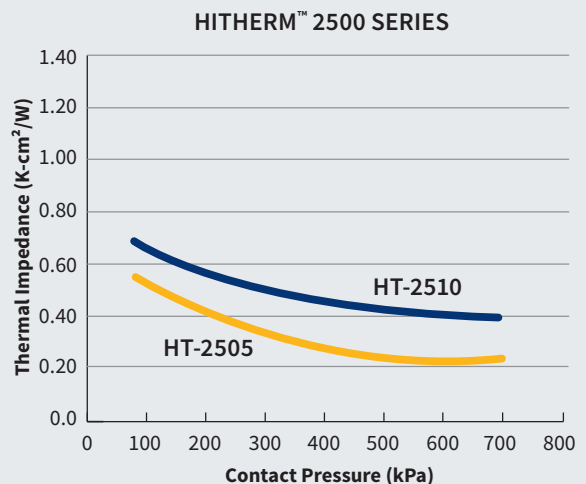
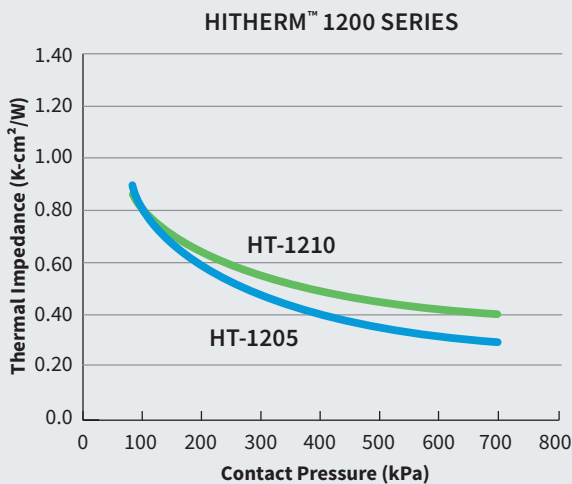
OPTIONAL COATING
A
Adhesive

## HITHERM™ Thermal Interface Materials - Adhesive Coating Option

CHARACTERISTIC	ADHESIVE “A” COATING*
Nominal Thickness (mm • inches)	0.008 • 0.0003
Operating Temperature (°C)	-40 to +150
Thermal Impedance <sup>[4]</sup> per Side (cm <sup>2</sup> °C/W @ 110 kPa)	0.16
Thermal Conductivity (W/m-K)	-
Dielectric Strength (V)	-
Adhesive Strength <sup>[5]</sup> (g/cm <sup>2</sup> )	700 Typical 450 Minimum

\*Adhesive not available on HT-1220 Grade

### Thermal Impedance vs. Interface Pressure



Notes:

- [1] Properties listed are typical and cannot be used as accept/reject specifications.
- [2] In-Plane conductivity at ambient temperature determined using Angstrom’s Method. Through-plane conductivity determined using ASTM D5470 Modified Method.
- [3] ASTM C611.4 Point Resistivity Test.
- [4] ASTM D5470 Modified (at 110kPa/16 psi/1.1 bar). Total thermal impedance = thermal impedance of graphite + thermal impedance of coating.
- [5] Adhesive Strength is based on a lap shear test (ASTM D3163) with material adhering to a glass plate.

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