

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:

Thermal Interface Material			Optional Coating
HT	—	12	A*
Product Name	Series Name	Typical Graphite Thickness (thousands of an inch)	Adhesive

Product Series Characteristics^[1]

*Adhesive not available on HT-1220 Grade

Characteristic	Unit	Pure Graphite	Polymer Enhanced
		HT-1200 Series	HT-2500 Series
Thermal Impedance @ 200 kPa	K-cm ² /W	HT-1205 = 0.59 HT-1210 = 0.66	HT-2505 = 0.41 HT-2510 = 0.58
Thermal Impedance @ 700 kPa	K-cm ² /W	HT-1205 = 0.30 HT-1210 = 0.40	HT-2505 = 0.24 HT-2510 = 0.41
Typical Thermal Conductivity ^[2] @ 700 kPa Through-Plane • In-Plane	W/m-K	10 • 150	16 • 120
Typical Thickness with Tolerance 0.127 mm (0.005") ± 10% 0.25 mm (0.010") ± 5% 0.51 mm (0.020") ± 5%	-	HT-1205 HT-1210 HT-1220*	HT-2505 HT-2510 -
Electrical Resistivity ^[3] 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	0.77	
RoHS Compliant	-	Yes	
Lead / Halogen Free	-	Yes	

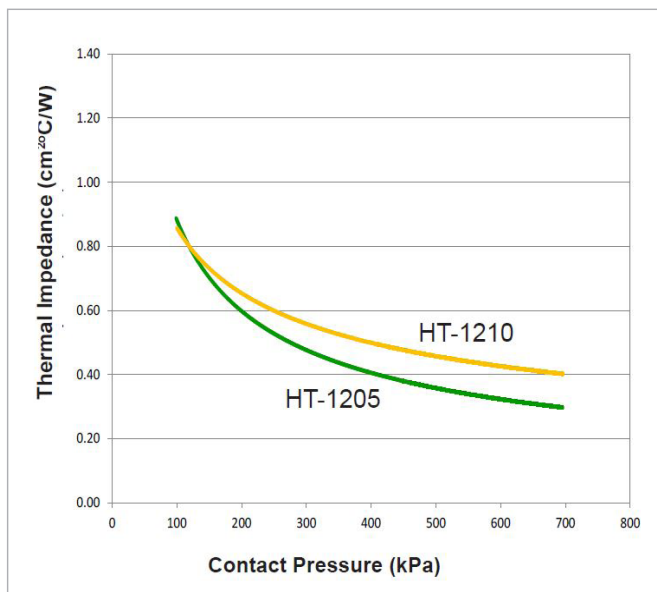
HITHERM™ Thermal Interface Materials - Adhesive Coating Option

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

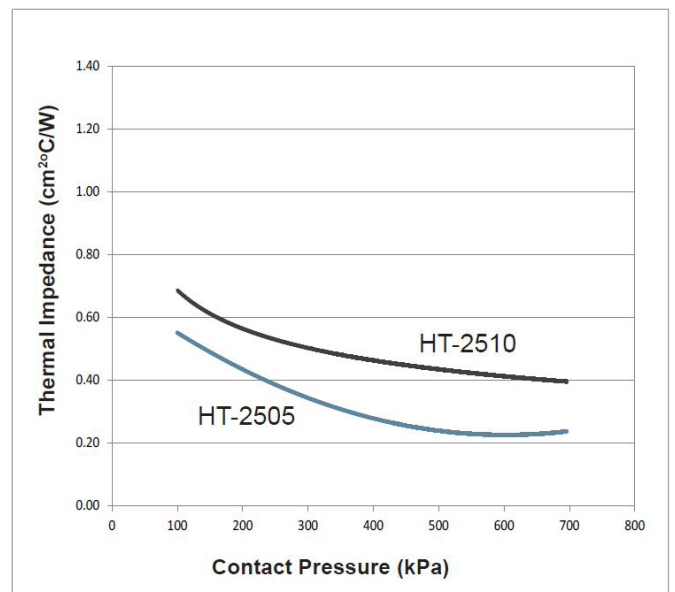
*Adhesive not available on HT-1220 Grade

Thermal Impedance vs. Interface Pressure

HITHERM™ 1200 Series



HITHERM™ 2500 Series



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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