

SPREADERSHIELD™ Heat Spreaders

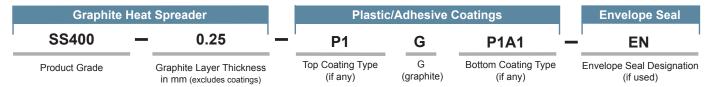
Technical Data Sheet 321

Product Overview

eGRAF® SPREADERSHIELD™ flexible graphite products function as both a passive heat spreader and heat shield. These products offer a variety of in-plane thermal conductivity solutions. The flexible graphite materials can be die-cut, press-formed, or laminated with plastics and/or adhesives.

Part Designation

Every eGRAF® SPREADERSHIELD™ flexible graphite heat spreader part number defines the grade and coating options of the material. It is constructed based on the following example. For additional coating information, please reference Technical Data Sheet 322 - SPREADERSHIELD™ Design Options.



Product Grade Characteristics[1]: Natural Graphite Products

Characteristic	SS300	SS350	SS400	SS500	SS600
Typical Thermal Conductivity ^[2] In-Plane • Through-Plane (W/m-K)	300 ● 4.5	350 ● 4.1	400 • 3.7	500 ● 2.8	600 ● 3.5
Available Thickness Range (mm)	0.94 1 0.51	0.94 1 0.127	0.94	0.76	0.127 0.102
Standard Thickness (mm) Standard Roll Width (mm) Width of graphite material only, finished roll width will slightly decrease with coating and adhesive options	0.94 • 610 0.51 • 1000	0.94 • 610 0.48 • 610 0.20 • 610	0.94 • 610 0.51 • 584 0.25 • 584 0.20 • 610 0.127 • 610 0.076 • 559 0.051 • 355 0.040 • 355	0.76 • 305 0.40 • 508 0.20 • 457 0.127 • 440 0.076 • 400	0.127 • 182 0.102 • 182
Thermal Contact Impedance Per Side (°C cm²/W) @ specified thickness (mm)	0.30 @ 0.51	0.34 @ 0.51	0.38 @ 0.51	0.90 @ 0.102	0.44 @ 0.102
Tensile Strength (MPa)	-	-	9.7	7.7	9.7
Electrical Resistivity In-Plane (μΩm)	6.5	5.8	5.2	4.2	3.4
Electrical Conductivity In-Plane • Through-Plane (S/cm)	1,600 • 28	1750 • 23	1,900 • 18	2,400 • 15	2,900 • 10

(continued on next page)

Product Grade Characteristics[1]: Natural Graphite Products

Characteristic	SS300	SS350	SS400	SS500	SS600	
Coefficient of Thermal Expansion (ppm/°C) In-Plane • Through-Plane	-0.4 • 27.0					
UL Flammability Rating	94V-0					
Operating Temperature (°C)	-40 to +400					
Specific Heat ^[2] (J/gC) @ 25°C	0.77					
RoHS Compliant	Yes					
Lead / Halogen Free	Yes					

Product Grade Characteristics[1]: Synthetic Graphite Products

SS1500 -0.017	SS1500 -0.025	SS1700 -0.040	SS1700 -0.050			
0.017 ±0.003	0.025 ±0.005	0.040 ±0.005	0.050 ±0.005			
248 x 390	248 x 390	248 x 390	248 x 390			
1800 • 3.4	1600 • 3.4	1700 • 3.4	1700 • 3.4			
0.1						
37						
0.5						
19,000 ● 5						
-0.4 ● 27						
94V-0						
-40 to +410						
0.87						
Yes						
Yes						
	-0.017 0.017 ±0.003 248 × 390	-0.017	-0.017			

- [1] Properties listed are typical and cannot be used as acceptance or rejection criteria. Product characteristics exclude coatings and adhesives.
 [2] Quasi-Isothermal Modulated Differential Scanning Calorimetry Method.
 [3] In-plane conductivity at ambient temperature determined using Angstrom's method; through-plane determined using ASTM D5470 Modified method.
- +1 (800) 253-8003 (Toll-Free in USA) +1 (216) 529-3777 (International)

Learn more about eGRAF® products and download our latest technical data sheets: www.egraf.com | www.graftechAET.com egraf@graftech.com



Redefining limits