

Thermally Conductive Graphite

Thermally conductive graphite is a thermal interface material with high thermal conductivity and a thin graphite film structure. Available as sheets, rolls, or custom die cut into shapes. Also available with a pressure sensitive adhesive backing.



PROPERTIES

- High in-plane thermal conductivity up to 1800 W/m-K.
- Extremely thin: offered in thicknesses of 0.012mm to 0.100mm (12 microns to 100 microns).
- Lightweight when compared to its metallic counterparts such as aluminum or copper.
- Highly anisotropic structure allows for high thermal conductivity only in the x-y plane.
- Reliable performance from -40°C to 400°C (-40°F to 752°F).
- EMI shielding and absorbing to protect sensitive electronic parts.
- Can be die-cut into customizable shapes.
- Offered with adhesives for fast installation (peel-and-stick attachment).
- Can be laminated with plastics, metals, or foam to improve performance.
- Can be used to reduce skin temperature and eliminate "hot spots."
- Can replace thermal grease or phase change thermal interface materials. Eliminates the need for fans and heat pipes.
- Offers excellent flexibility (withstands repeated bending).

APPLICATIONS

- Consumer Electronics
- Aerospace
- Medical devices
- Automotive
- Displays

Typical Properties	Units	HGS-012	HGS-017	HGS-025	HGS-040	HGS-050	HGS-070	HGS-100
Thickness	um	12	17	25	40	50	70	100
	mm	0.012	0.017	0.025	0.040	0.050	0.070	0.100
Thermal Conductivity, In-Plane	W/m-K	1800	1800	1750	1400	1350	1300	1050
Thermal Conductivity, Through-Plane	W/m-K	10	11	18	20	20	20	26
Thermal Diffusivity	cm ² /s	10~12	10~11	9~10	9~10	8~10	8~10	8~10
Density	g/cm ³	2.1	2.1	2.1	1.8	1.7	1.7	1.5
Specific Heat @ 50 °C	J/gK	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heat Resistance	°C	400	400	400	400	400	400	400
Extensional Strength, In-Plane	MPa	40	40	30	25	20	20	20
Extensional Strength, Through-Plane	MPa	0.1	0.1	0.1	0.4	0.4	0.4	0.4
Expansion Coefficient, In-Plane	1/K	9.3 x 10 ⁻⁷	9.3 x 10 ⁻⁷	9.3 x 10 ⁻⁷	9.3 x 10 ⁻⁷	9.3 x 10 ⁻⁷	9.3 x 10 ⁻⁷	9.3 x 10 ⁻⁷
Expansion Coefficient, Through-Plane	1/K	3.2 x 10 ⁻⁵	3.2 x 10 ⁻⁵	3.2 x 10 ⁻⁵	3.2 x 10 ⁻⁵	3.2 x 10 ⁻⁵	3.2 x 10 ⁻⁵	3.2 x 10 ⁻⁵
Bending Test (R5/180°)	times	≥ 20000	≥ 20000	≥ 20000	≥ 20000	≥ 20000	≥ 20000	≥ 20000
Electrical Conductivity	S/cm	20000	20000	20000	10000	10000	10000	10000

While information on this data sheet is typical, it may be subject to change and does not constitute a product warranty. All the properties shown are typical and do not constitute a specification value.