



Graphene Film Heatspreader

Product Data Sheet

Description:

GF graphene film is an extremely light weighted and ultra-flexible material build from pure graphene oxide through blade coating process and high temperature heat treatment. The outcome film possesses highly crystalline structure and features an anisotropic and overall high thermal conductance. It demonstrates unique functions such as eliminating hot spots, shielding components and reducing skin temperature of electronic devices. It is a remarkable lateral heat spreader for thermal management especially in limited space.

Feature:

- Excellent thermal conductivity (4-8 times as high as copper)
- Lightweight (1/45 to 1/4 of copper)
- High tensile strength
- High electrical conductivity
- Customizable thickness (20 μ m-350 μ m)
- Ultra-flexible and conformable (Easy to cut)
- Excellent reliability
- RoHS compliant

Volume Product datasheet — GF Graphene Film

Order code	Thickness (μ m)	Thermal conductivity ($Wm^{-1}K^{-1}$)	Thermal diffusion (mm^2/s)	Density (g/cm^3)	Specific heat (J/gK)	Electronic conductivity (S/m)	Mechanical strength (MPa)
GF-20	20 \pm 2	\geq 1200	\geq 800	1.9 \pm 0.2	0.79 \pm 10%		
GF-50	50 \pm 3	\geq 1140	\geq 759	1.9 \pm 0.2	0.79 \pm 10%	\geq 10 ⁵	\geq 40
GF-100	100 \pm 4	\geq 1100	\geq 735	1.9 \pm 0.2	0.79 \pm 10%	\geq 10 ⁵	\geq 50
GF-150	150 \pm 5	\geq 1050	\geq 700	1.9 \pm 0.2	0.79 \pm 10%	\geq 10 ⁵	\geq 60
GF-200	150 \pm 5	\geq 1000	\geq 650	1.9 \pm 0.2	0.79 \pm 10%	\geq 10 ⁵	
Test standard	ASTM D374	ASTM E1461 LFA467 Netzsch	ASTM E1461 LFA467 Netzsch	ASTM D2638	DSC3500 Netzsch	ASTM C611	AGS-X Shimadzu

Prototype Product datasheet — GF Graphene Film

Physical Properties	Value	Units	Test Method
Thickness	1-100	μ m	
Roughness	<20	%	
Color	Metallic Grey		
Thermal Conductivity (x-y plane)	1700-3200	W/mK	Vacuum self-heating
Electrical conductivity	6000-14000	S/cm	4-point probes
Tensile strength	78 \pm 6	MPa	ASTM
Heat resistance	400	$^{\circ}$ C	

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PROTOTYPE

Tensile strength comparison between GF and commercially available PGS film.

