

Polycrystalline CVD Diamond

DiaFlux™ 180



Product Features

- Polycrystalline CVD Diamond
- Grown by Plasma Chemical Vapor Deposition
- Thermal Conductivity 1,800 W/m·K (at 25 °C)
- Standard Thickness 200 / 350 / 500 μm
- Surface Roughness $R_a < 20 \text{ nm}$
- Electrically Insulating

Applications

- AI Accelerator and High-Power Chip Cooling
- High-Power GaN HEMT Thermal Management
- RF and Microwave Device Heat Spreader
- SiC Power Electronics Cooling
- High-Power Laser Diode Submount
- Advanced Semiconductor Packaging
- Aerospace, Defense, and Scientific Thermal Applications



Description

RFHIC's DiaFlux™ 180 is a polycrystalline CVD diamond heat spreader grown by plasma chemical vapor deposition. It provides a high thermal conductivity of 1,800 W/m·K (at 25 °C) along with electrically insulating properties. Available in 200 / 350 / 500 μm thicknesses with custom sizes and forms.

The DiaFlux 180 is suitable for thermal management of a wide range of high-power devices, including AI accelerators, high-power GaN HEMTs, RF and microwave devices, SiC power electronics, and laser diodes.

Physical Characteristics

PARAMETER	SPECIFICATION
Growth Method	Plasma Chemical Vapor Deposition
Structure	Cubic, Polycrystalline
Grain Size	0.05 – 1 mm, dependent on thickness and process
Grade	High Performance Thermal Grade
Thickness	200 / 350 / 500 μm
Thickness Tolerance	$\pm 20 \mu\text{m}$
Electrical Property	Electrically Insulating

Fabrication Capability

PARAMETER	SPECIFICATION
Bow	$\leq 15 \mu\text{m} / \text{cm diameter}$
Warp	$\leq 15 \mu\text{m} / \text{cm diameter}$
Surface Roughness	$R_a < 20 \text{ nm}$

Thermal Properties

PARAMETER	SPECIFICATION
Thermal Conductivity	1,800 W/m·K (at 25 °C)
Thermal Diffusivity	500 – 1,000 mm^2/s
Thermal Expansion Coefficient	$1.0 \times 10^{-6} \text{ K}^{-1}$

Polycrystalline CVD Diamond

DiaFlux™ 180



Specific Heat	0.400 – 0.700 J·g ⁻¹ ·K ⁻¹
---------------	--

Finished Part Specifications and Tolerances

PARAMETER	SPECIFICATION
Size	Ø 3 – 100 mm (round) / 3 × 3 – 70 × 70 mm (square)
Edges	Laser cut
Edge Features	< 0.2 mm
Lateral Tolerance	± 0.2 mm

* Custom sizes, thicknesses and finishes are available on request.

Revision History

Part Number	Release Date	Version	Modification	Data Sheet Status
DiaFlux 180	2026.09.09	0.1	-	Preliminary



Certification

This product is manufactured by a company that is certified for the AS9100D quality management system.

RFHIC Corporation reserves the right to make changes to any products herein or to discontinue any product at any time without notice. While product specifications have been thoroughly examined for reliability, RFHIC Corporation strongly recommends buyers to verify that the information they are using is accurate before ordering. RFHIC Corporation does not assume any liability for the suitability of its products for any particular purpose, and disclaims any and all liability, including without limitation consequential or incidental damages. RFHIC products are not intended for use in life support equipment or application where malfunction of the product can be expected to result in personal injury or death. Buyer uses or sells such products for any such unintended or unauthorized application, buyer shall indemnify, protect, and hold RFHIC Corporation and its directors, officers, stockholders, employees, representatives and distributors harmless against any and all claims arising out of such unauthorized use. All sales inquiries and support should be directed to the local authorized geographic distributor for RFHIC Corporation. For customers in the US, please contact the US sales team through our website at <https://rfhic.com/rfhic-us/>. For all other inquiries, please contact our international sales team through our website portal at <https://rfhic.com/contact/>