

Composite Diamond Material

Mintres BV is a company specializing in shaping, coating and assembling advanced material components for a number of industries including electronics and opto-electronics as well as to research institutions. Mintres BV has a vast experience in this field and its workforce has developed a wide variety of advanced processing techniques and authored many patents.

Composite Diamond Material is a high thermally conductive substrate material at 600W/mK and a CTE (coefficient of thermal expansion) of 3.00 ppm/K. It is a suitable material for devices with small heat sources, such as laser diodes (LD), Laser Diode Arrays (LDA) and high power Microelectronic devices.

This material can be polished to high surface qualities and flatness. Due to our high precision laser cutting processes, we can achieve edge quality needs for Laser Diodes and LDA's. A wide range of thin film metallizations is available including basic Ti/Pt/Au and AuSn materials for advanced soldering needs.

Mintres operates extensive, class 100 compatible clean rooms and product packaging.

Ask us how we can be of help.



Characteristics of Composite Diamond

Thermal conductivity (W/mK)	600
Coefficient of thermal expansion (ppm/K)	3.00
Thermal diffusivity (cm/s)	3.20
Density (g/cm ³)	4.12
Young's Modulus (GPa)	841
Electrical resistivity (Ω cm)	0.015
Specific heat capacity (J/cm ³ K)	1.90

Typical product specifications

Standard available material thickness	0.30±0.025 (mm)
Surface quality, device side	Ra < 100nm
Surface quality, substrate side	Ra < 600nm
Au metallization configuration	Ti/Pt/Au (100/120/1000nm)
Solder metallization configuration	Ti/TiN/Ti/AuSn (80/20)/Au (40/120/40/3000/50nm)
Typical flatness specification	5µm / 10mm