

Heavy Boron-Doped Diamond

Diamond is a suitable material to be applied in power devices. Operating large power needs vertical device structure, passing current between top and bottom surface.

EDP commercialized the substrate with lightly boron-doped epitaxial layer, which has high mobility of hall. EDP continued to develop heavily boron doped epitaxial layer and succeeded to obtain low resistive diamond. EDP commercializes 2 types of low resistive diamond substrates, which will contribute to develop high power diamond devices.

Specification

◆ Free standing substrate

Boron Concentration : $2 \times 10^{20} \sim 4 \times 10^{20} / \text{cm}^3$

Resistivity : Less than $20 \text{m}\Omega\text{cm}$

Thickness : 0.2mm

Size : Smaller than $7 \times 7 \text{mm}$

Surface: Both face polished ($R_a < 5 \text{nm}$ or $R_a < 2 \text{nm}$)

◆ Heavy boron doped epitaxial substrate

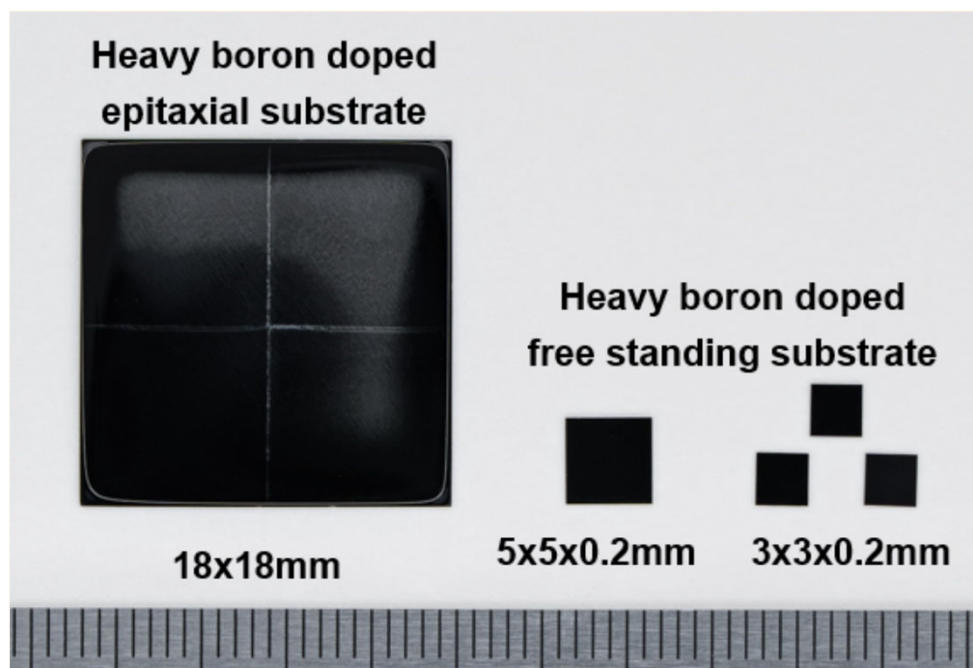
Boron concentration : $2 \times 10^{20} \sim 4 \times 10^{20} / \text{cm}^3$

Thickness of boron doped layer : 0.03-0.2mm

(Polishing one face needs minimum 0.05mm thickness.)

Largest size : Single crystal $8 \times 8 \text{mm}$, Mosaic crystal $18 \times 18 \text{mm}$

Substrate : Standard EDP substrate with thickness 0.3-0.5mm.



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