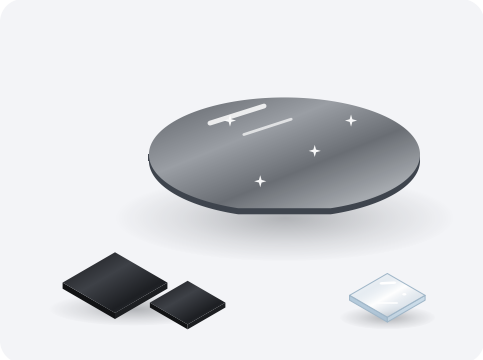
SERIES S41 · ENGINEERED & THIN-FILM DIAMOND

Colour-centre engineered diamond and diamond thin films



Diamond with ready-made colour-centre layers for quantum experiments, and polycrystalline diamond films and plates for heat spreading, MEMS, optics and electrochemistry.

- NV, SiV and GeV centres by doped growth or implantation and annealing
- Nanocrystalline (NCD) and microcrystalline (MCD) films on Si
- Boron-doped diamond (BDD) electrodes
- Custom layer depth, density and isotopes on request

CONFIGURATIONS

Ref. No.	Product	Specification	Format	Price
S4101	NV ensemble layer on EG plate	N-doped CVD layer, 1 – 50 µm; irradiated and annealed	2 × 2 mm	On request
S4102	NV ensemble layer on EG plate	N-doped CVD layer, 1 – 50 µm; irradiated and annealed	3 × 3 mm	On request
S4103	NV ensemble layer on EG plate	N-doped CVD layer, 1 – 50 µm; irradiated and annealed	4 × 4 mm	On request
S4104	Shallow NV (^{15}N implanted)	Depth 5 – 20 nm; single NVs to dense ensembles	2 × 2 mm	On request
S4105	Shallow NV (^{15}N implanted)	Depth 5 – 20 nm; single NVs to dense ensembles	3 × 3 mm	On request
S4106	Shallow NV (^{15}N implanted)	Depth 5 – 20 nm; single NVs to dense ensembles	4 × 4 mm	On request
S4107	SiV centres (implanted)	Depth and dose on request	2 × 2 mm	On request
S4108	SiV centres (implanted)	Depth and dose on request	3 × 3 mm	On request
S4109	GeV centres (implanted)	Depth and dose on request	2 × 2 mm	On request
S4110	GeV centres (implanted)	Depth and dose on request	3 × 3 mm	On request
S4111	Nanocrystalline diamond (NCD) on Si	100 nm	2" wafer	On request
S4112	Nanocrystalline diamond (NCD) on Si	100 nm	4" wafer	On request
S4113	Nanocrystalline diamond (NCD) on Si	500 nm	2" wafer	On request
S4114	Nanocrystalline diamond (NCD) on Si	500 nm	4" wafer	On request
S4115	Nanocrystalline diamond (NCD) on Si	1 µm	2" wafer	On request
S4116	Nanocrystalline diamond (NCD) on Si	1 µm	4" wafer	On request
S4117	Nanocrystalline diamond (NCD) on Si	2 µm	2" wafer	On request
S4118	Nanocrystalline diamond (NCD) on Si	2 µm	4" wafer	On request
S4119	Microcrystalline diamond (MCD) on Si	5 µm	2" wafer	On request
S4120	Microcrystalline diamond (MCD) on Si	5 µm	4" wafer	On request
S4121	Microcrystalline diamond (MCD) on Si	10 µm	2" wafer	On request

Ref. No.	Product	Specification	Format	Price
S4122	Microcrystalline diamond (MCD) on Si	10 µm	4" wafer	On request
S4123	Microcrystalline diamond (MCD) on Si	20 µm	2" wafer	On request
S4124	Microcrystalline diamond (MCD) on Si	20 µm	4" wafer	On request
S4125	Boron-doped diamond (BDD)	B ≈ 10^{20} – 10^{21} cm^{-3}	10 × 10 mm on Si	On request
S4126	Boron-doped diamond (BDD)	B ≈ 10^{20} – 10^{21} cm^{-3}	10 × 10 mm free-standing	On request
S4127	Boron-doped diamond (BDD)	B ≈ 10^{20} – 10^{21} cm^{-3}	Ø 10 mm free-standing	On request
S4128	Thermal-grade polycrystalline plate	0.3 mm, 1000 – 2000 W/m·K	10 × 10 mm	On request
S4129	Thermal-grade polycrystalline plate	0.3 mm, 1000 – 2000 W/m·K	25 × 25 mm	On request
S4130	Thermal-grade polycrystalline plate	0.5 mm, 1000 – 2000 W/m·K	10 × 10 mm	On request
S4131	Thermal-grade polycrystalline plate	0.5 mm, 1000 – 2000 W/m·K	25 × 25 mm	On request
S4132	Thermal-grade polycrystalline plate	1.0 mm, 1000 – 2000 W/m·K	10 × 10 mm	On request
S4133	Thermal-grade polycrystalline plate	1.0 mm, 1000 – 2000 W/m·K	25 × 25 mm	On request

DIAMOND PROPERTIES (SINGLE CRYSTAL, TYPICAL)

Lattice constant	**3.567 Å**	Band gap	**5.47 eV**
Thermal conductivity	**≈ 2000 W/m·K**	Refractive index (589 nm)	**≈ 2.41**
Transmission	**0.22 µm to far IR (absorption 2.5 – 6 µm)**	Hardness	**Mohs 10**
NV zero-phonon line	**637 nm**	NV ground-state splitting	**2.87 GHz**

OTHER QUANTUM-GRADE SUBSTRATES

Ref. No.	Material	Specification	Format	Typical use	Price
S4201	High-purity semi-insulating 4H-SiC	On-axis	2"	Divacancy and V_{Si} colour centres	On request
S4202	High-purity semi-insulating 4H-SiC	On-axis	4"	Divacancy and V_{Si} colour centres	On request
S4203	High-purity semi-insulating 4H-SiC	4° off-axis	2"	Divacancy and V_{Si} colour centres	On request
S4204	High-purity semi-insulating 4H-SiC	4° off-axis	4"	Divacancy and V_{Si} colour centres	On request
S4205	Qubit-grade sapphire	C-plane, annealed, low dielectric loss	2"	Superconducting qubits and resonators	On request
S4206	Qubit-grade sapphire	C-plane, annealed, low dielectric loss	3"	Superconducting qubits and resonators	On request
S4207	Qubit-grade sapphire	C-plane, annealed, low dielectric loss	4"	Superconducting qubits and resonators	On request
S4208	^{28}Si epitaxial layer	Isotopically enriched ^{28}Si on Si	4" (on request)	Spin qubits	On request
S4209	Hexagonal boron nitride (hBN)	High-purity bulk crystal	Crystal, ≈ 1 – 2 mm	Quantum emitters, 2D encapsulation	On request

Also for quantum work: float-zone silicon > 10,000 Ω·cm (series S17) and thin-film lithium niobate (series S36).

Specifications are typical values; every lot ships with a Certificate of Conformance, and measured data are available on request. Prices on request.