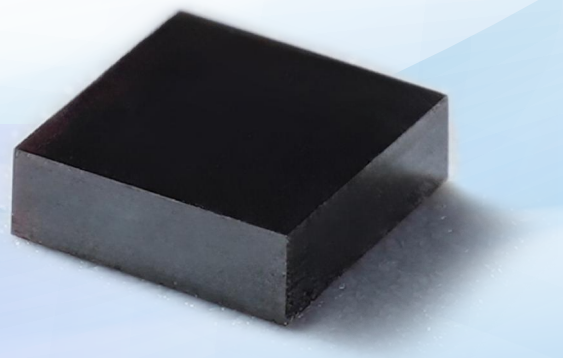
VIQIUM

Ultra-High-Density NV Diamond

High-coherence materials for superior imaging speed and detection sensitivity.



ViQium™ Ultra-High-Density NV Diamonds feature ultra-high NV density, strong fluorescence, high contrast, high sensitivity, and strong signal intensity. Widely used in high-precision sensing, quantum simulation, quantum memory, and solid-state room-temperature masers.

Product Parameters

Quantum Performance	Values
Center Type	Ensemble
NV Density	~ 10 - 40 ppm
T_2	~ 1 - 3 μs
T_2^*	~ 100 - 300 ns

Notes: 1. NV density measured using ODMR system.
2. T_2 measured by Spin Echo.
3. T_2^* measured by FID.

Thermal Properties	Values
Thermal Conductivity	> 2000 $Wm^{-1}K^{-1}$
CTE (300 K)	1.0 ± 0.1 $ppm \cdot K^{-1}$
CTE (1000 K)	4.4 ± 0.1 $ppm \cdot K^{-1}$

Geometric Properties	Values
Standard Size	3 mm × 3 mm & 2 mm ×2 mm
Standard Thickness	1 mm
Polished Surface Roughness	Ra < 5 nm

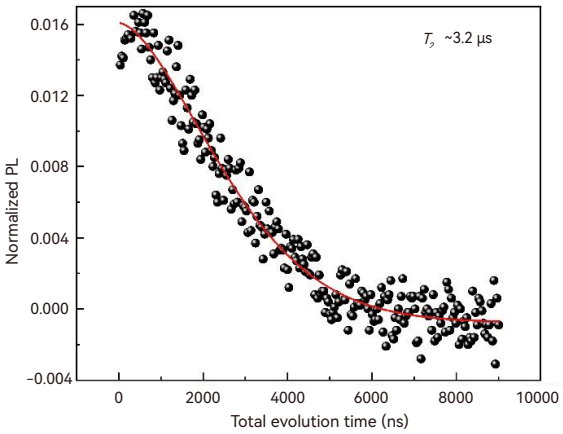


Fig 1. Spin Coherence Properties of Ultra-High-Density NV Diamond: T_2

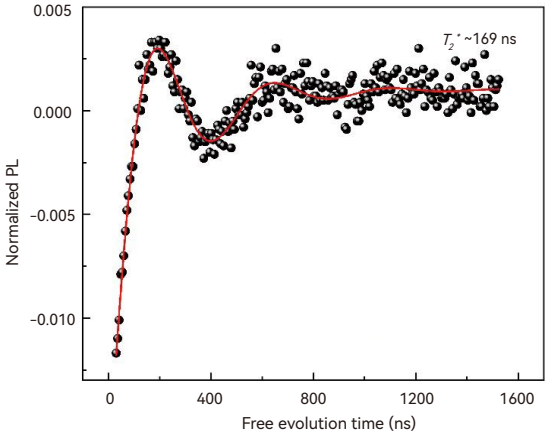


Fig 2. Spin Coherence Properties of Ultra-High-Density NV Diamond: T_2^*

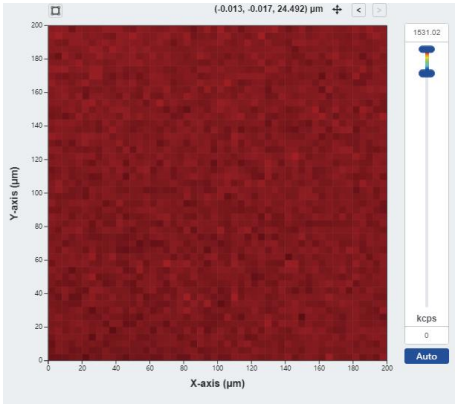


Fig 3. Confocal Fluorescence Image of Ultra-High-Density NV Diamond

ViQium™ Ultra-High-Density NV Diamond

No.	Product Code	Dimensions (mm)	Crystal Orientation	NV Density	T_2
1	BHNV100F12	2 × 2 × 1	<100>	~ 10 ppm	~ 1 - 3 μs
2	BHNV100F13	3 × 3 × 1	<100>	~ 10 ppm	~ 1 - 3 μs
3	BHNV100F22	2 × 2 × 1	<100>	~ 15 ppm	~ 1 - 3 μs
4	BHNV100F23	3 × 3 × 1	<100>	~ 15 ppm	~ 1 - 3 μs
5	BHNV100F32	2 × 2 × 1	<100>	~ 20 ppm	~ 1 - 3 μs
6	BHNV100F33	3 × 3 × 1	<100>	~ 20 ppm	~ 1 - 3 μs
7	BHNV100F42	2 × 2 × 1	<100>	~ 25 ppm	~ 1 - 3 μs
8	BHNV100F43	3 × 3 × 1	<100>	~ 25 ppm	~ 1 - 3 μs
9	BHNV100F52	2 × 2 × 1	<100>	~ 30 ppm	~ 1 - 3 μs
10	BHNV100F53	3 × 3 × 1	<100>	~ 30 ppm	~ 1 - 3 μs
11	BHNV100F62	2 × 2 × 1	<100>	~ 35 ppm	~ 1 - 3 μs
12	BHNV100F63	3 × 3 × 1	<100>	~ 35 ppm	~ 1 - 3 μs
13	BHNV100F72	2 × 2 × 1	<100>	~ 40 ppm	~ 1 - 3 μs
14	BHNV100F73	3 × 3 × 1	<100>	~ 40 ppm	~ 1 - 3 μs

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