

Supporting Information

Fast ultraviolet detection response achieved in high-quality $\text{Cs}_3\text{Bi}_2\text{Br}_9$ single crystals grown by an improved anti-solvent method

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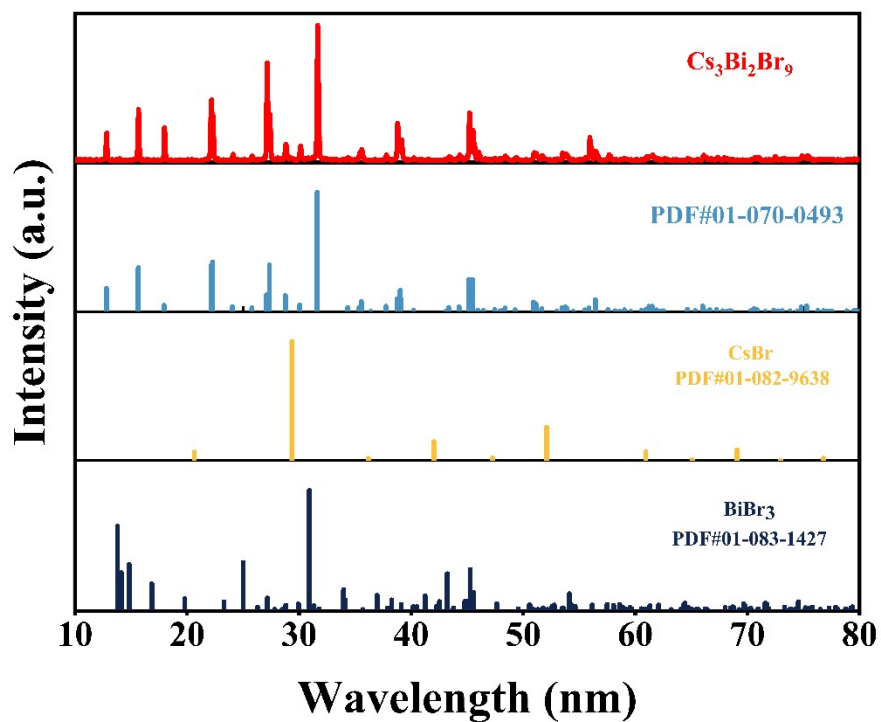


Figure S1. XRD pattern of $\text{Cs}_3\text{Bi}_2\text{Br}_9$ single crystal and experimental material.

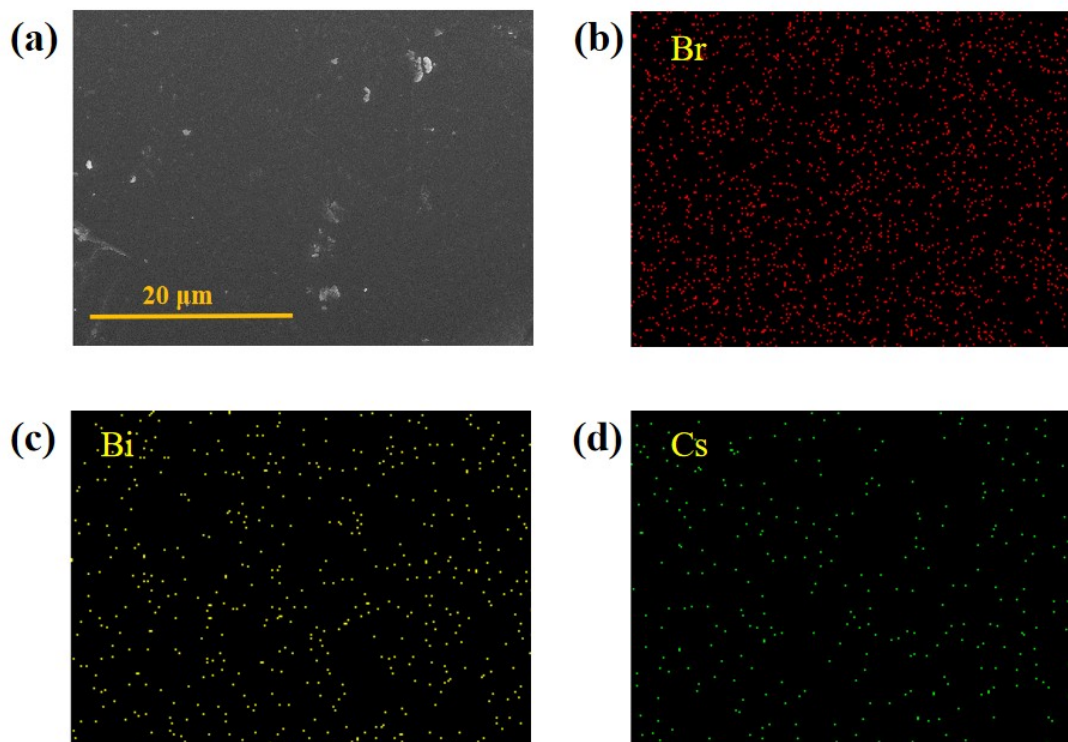


Figure S2. SEM image and (b-d) EDS elemental mappings (Br, Bi, Cs) of $\text{Cs}_3\text{Bi}_2\text{Br}_9$ single crystal.

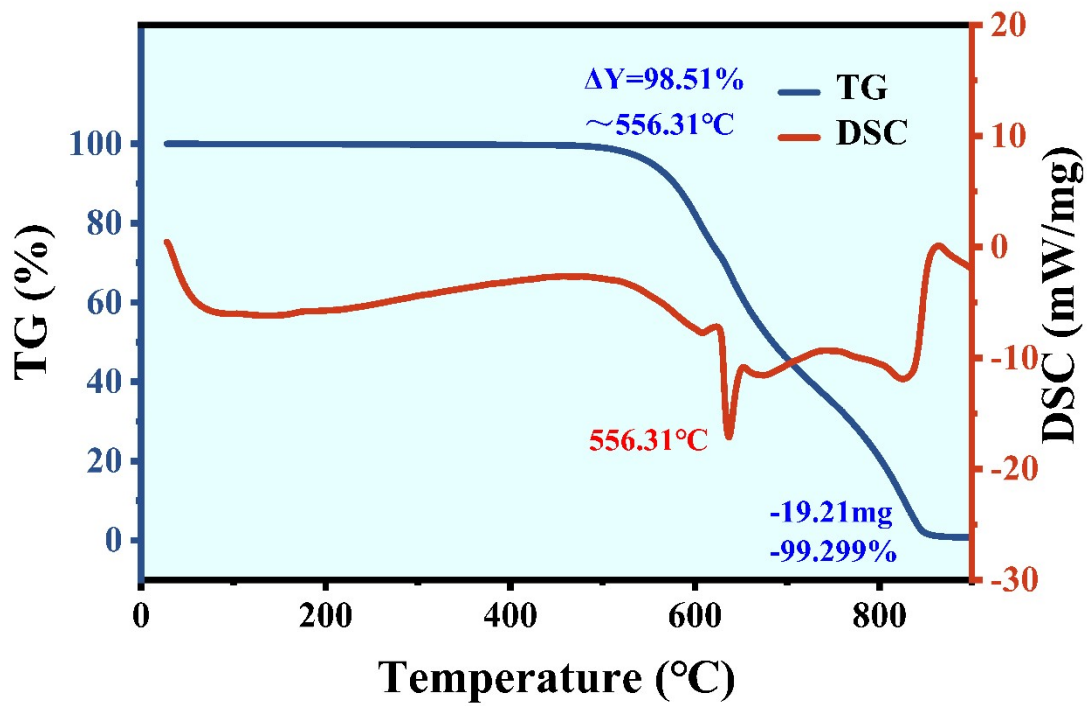


Figure S3. TG-DTA curve of $\text{Cs}_3\text{Bi}_2\text{Br}_9$ single crystal.

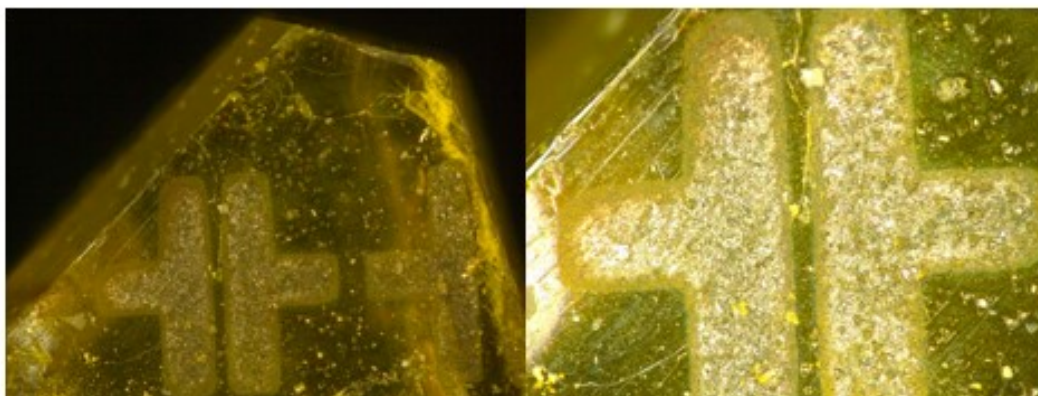


Figure S4. Device surface images under 50-fold and 100-fold microscopes.

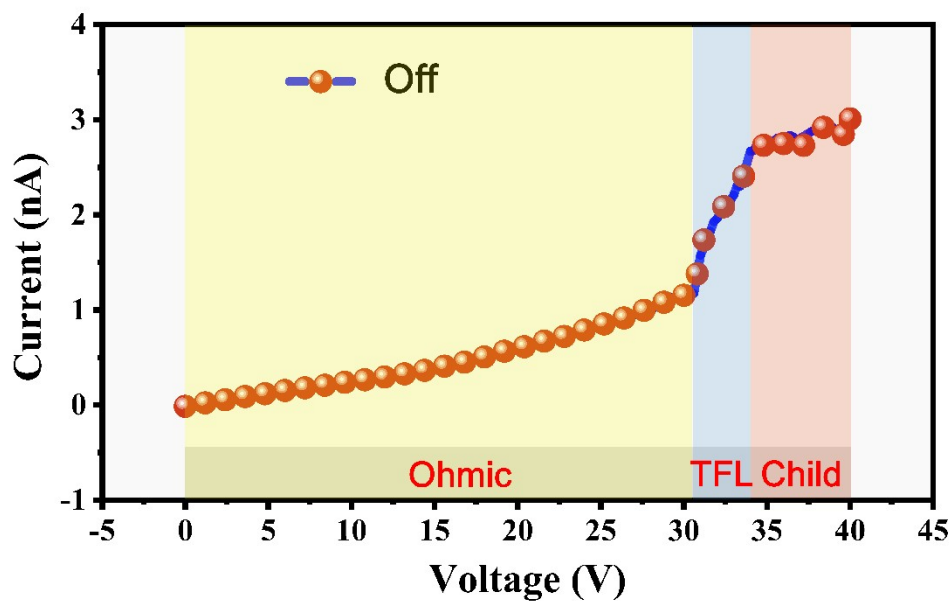


Figure S5. $I \approx V^n$ curve based on $\text{Cs}_3\text{Bi}_2\text{Br}_9$ single crystal wafer.

Table S1. Comparison of the characteristic parameters of $\text{Cs}_3\text{Bi}_2\text{Br}_9$ single crystal photodetector and other UV-photodetector devices.

Material	λ (nm)	Detectivity (jones)	References
$\text{CH}_3\text{NH}_3\text{PbCl}_3$ single crystal	365	1.2×10^{10}	1
$\text{Cs}_2\text{AgInCl}_6$ single crystal	365	10^{12}	2
MAPbCl_3 quantum dots	390	6.07×10^{11}	3
CsPbCl_3 microcrystal films	365	5.6×10^{12}	4
$\text{Cs}_3\text{Bi}_2\text{Br}_9$ single crystal	375	5.9×10^{12}	This work

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