Supporting Information

High-performance Amorphous Organic Semiconductor-based Vertical Field-Effect Transistors and Light-Emitting Transistors

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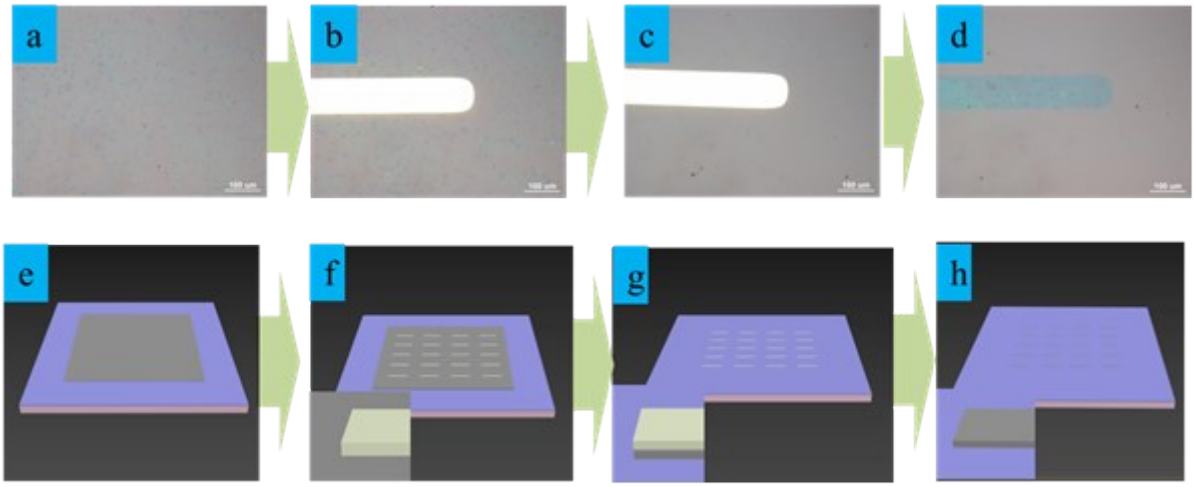

Figure S1 Images of graphene and the corresponding 3D models at each period of pattern: (a, e) before pattern. (b, f) aluminum deposition. (c, g) needless graphene removed with plasma; (d, h) aluminum removed.

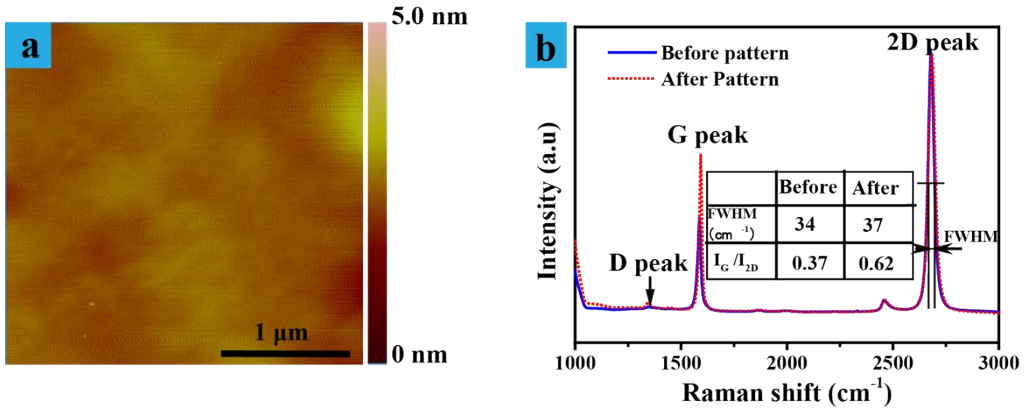

Figure S2 (a) AFM image of the graphene, with a roughness of 0.2 nm. (b) Raman spectra of the graphene before and after pattern. The three peaks are D peak 1350 cm^{-1}, G peak at 1593 cm^{-1} and 2D peak at 2680 cm^{-1}. The small D peak suggests the absence of sp^3 carbon atoms and defects.[1]

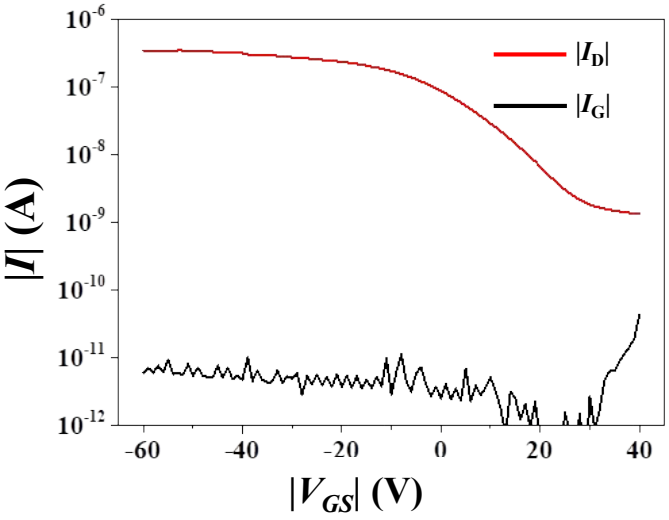

Figure S3 Typical transfer curve of an NPB-based VOFET

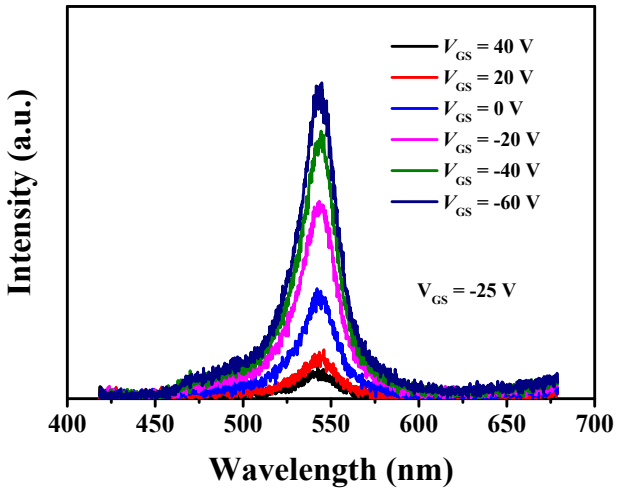

Figure S4 Spectra of NPB-Alq_3-based VOLETs based on unreduced graphene electrode

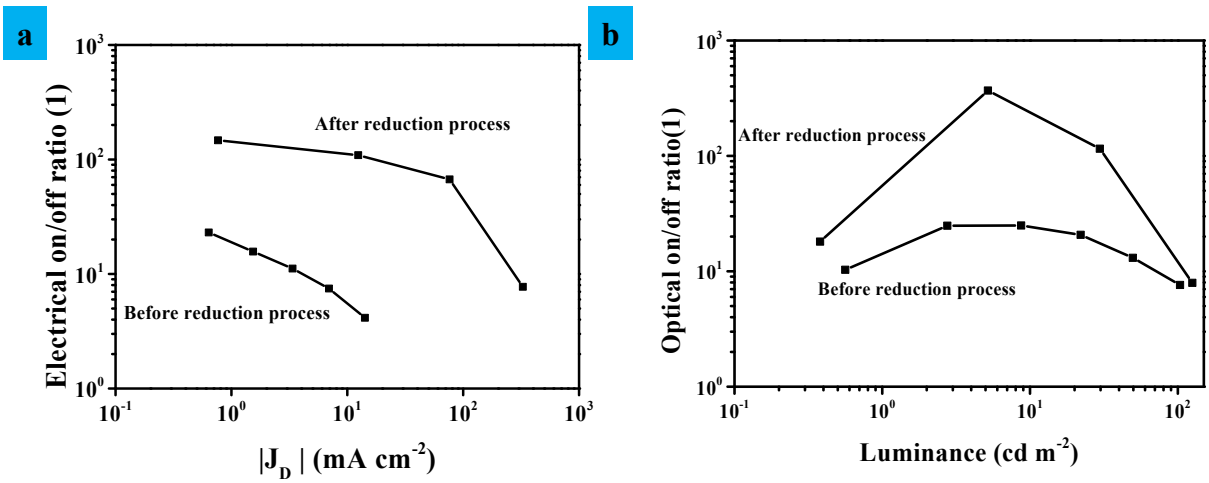

Figure S5 The **(a)** electrical and **(b)** optical on/off ratio of the VOLETs based on graphene before and after the reduction process.

References

[1] Peng Z, Yan Z, Sun Z*, et al., ACS Nano*, 2011, 5: 8241.