Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Supporting Information

High energy density all-solid-state asymmetric supercapacitor based on MoS_2/graphene nanosheet and MnO_2/graphene hybrid electrodes

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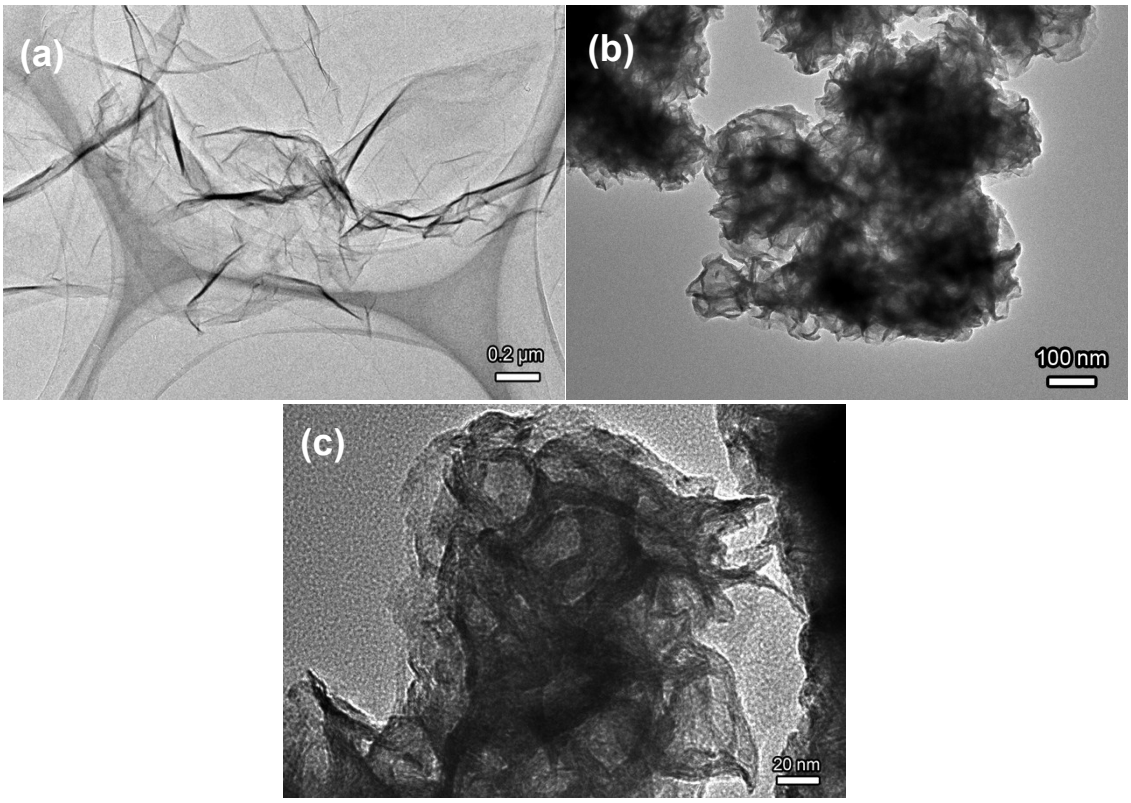

Fig. S1. TEM images of (a) GNS and (b, c) bare MoS_2.

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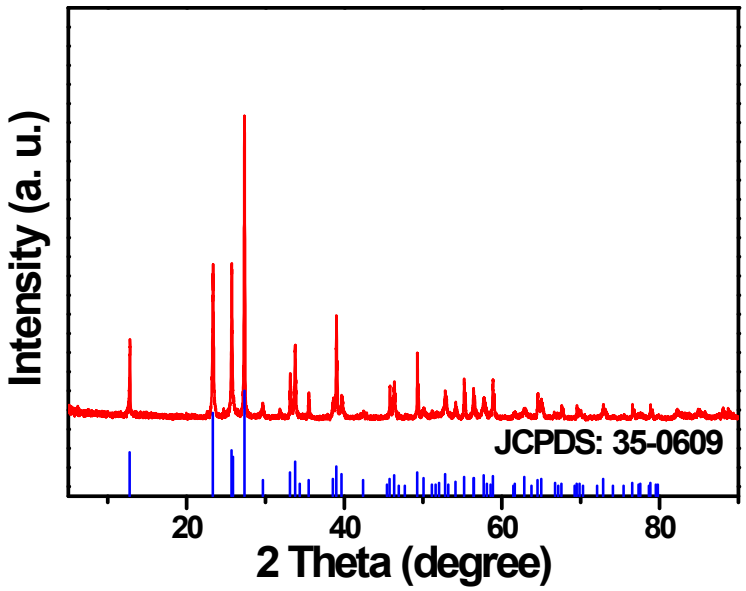

Fig. S2. XRD pattern of bare MoS_2 after thermal treated at 600 °C for 2 h in air.

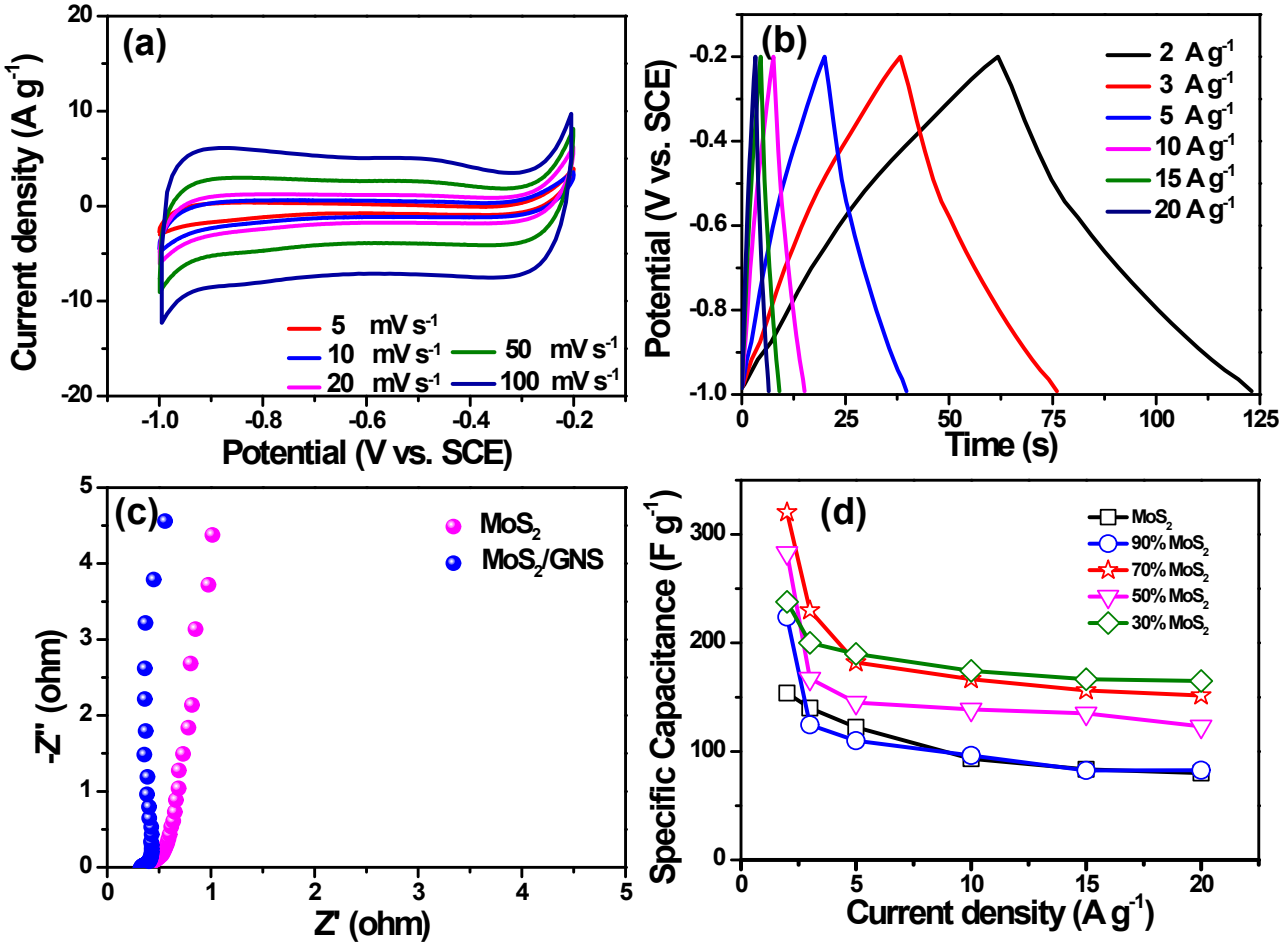

Fig. S3. Three-electrode electrochemical measurements of the MoS_2 in 1 M Na_2SO_4 aqueous solution: (a) CV curves of the MoS_2. (b) Galvanostatic charge-discharge curves of the MoS_2 electrode at various current densities. (c) Nyquist plots of MoS_2 and MoS_2/GNS electrodes. (d) Specific capacitance of different proportion of MoS_2 and GNS.

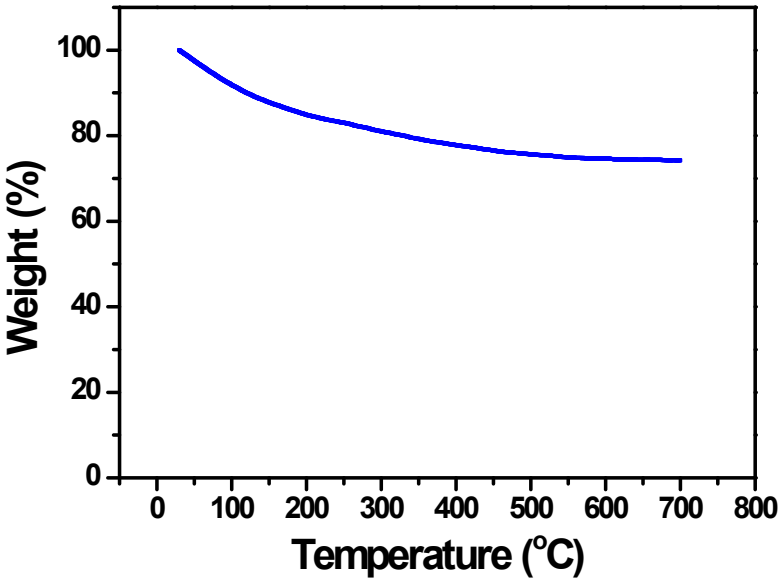

Fig. S4. TGA curves of MnO_2/GNS hybrid.

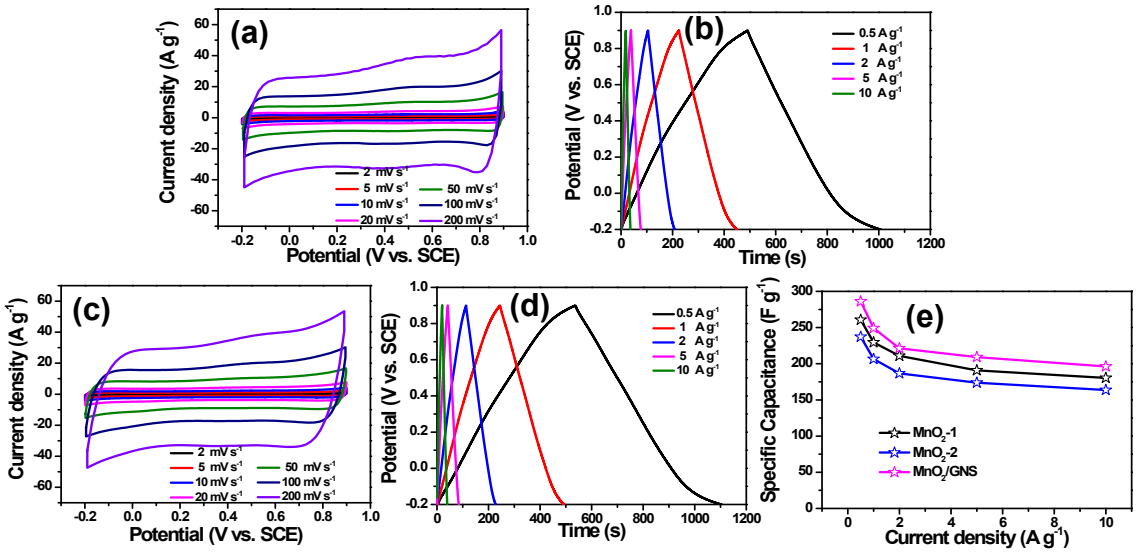

Fig. S5. Three-electrode electrochemical measurements of bare MnO_2 in 1 M Na_2SO_4 aqueous solution: (a) and (c) CV curves at various scan rates, (b) and (d) galvanostatic charge-discharge curves and (e) specific capacitance of bare MnO_2 electrodes at various current densities.

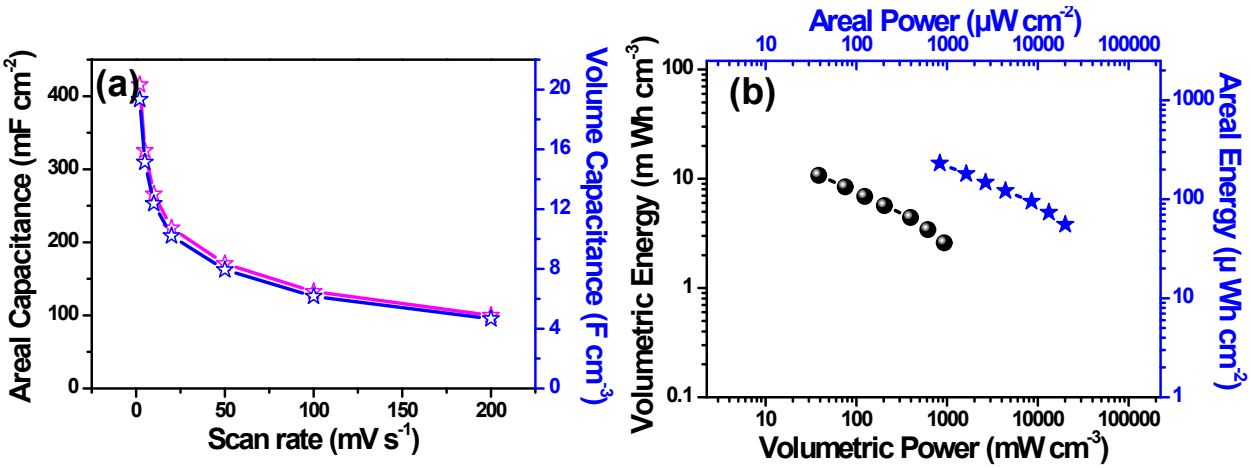

Fig. S6. (a) Dependence of areal and volumetric capacitance on the various scan rates for ASC device. (b) Ragone plots of ASC device.

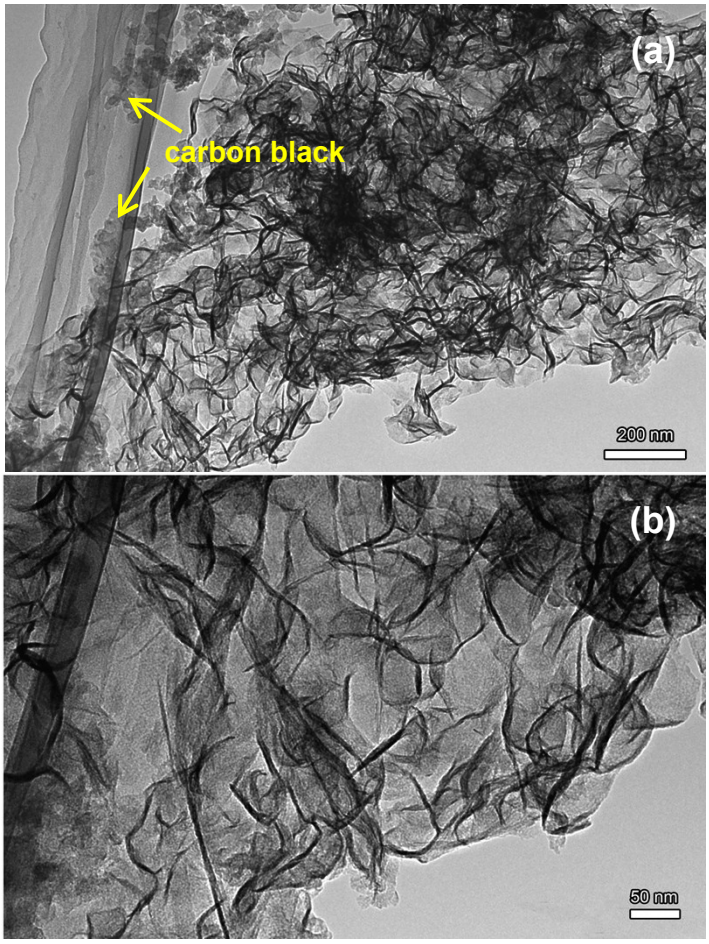

Fig. S7. TEM images of MoS_2/GNS after cycling test for 5000 cycles.

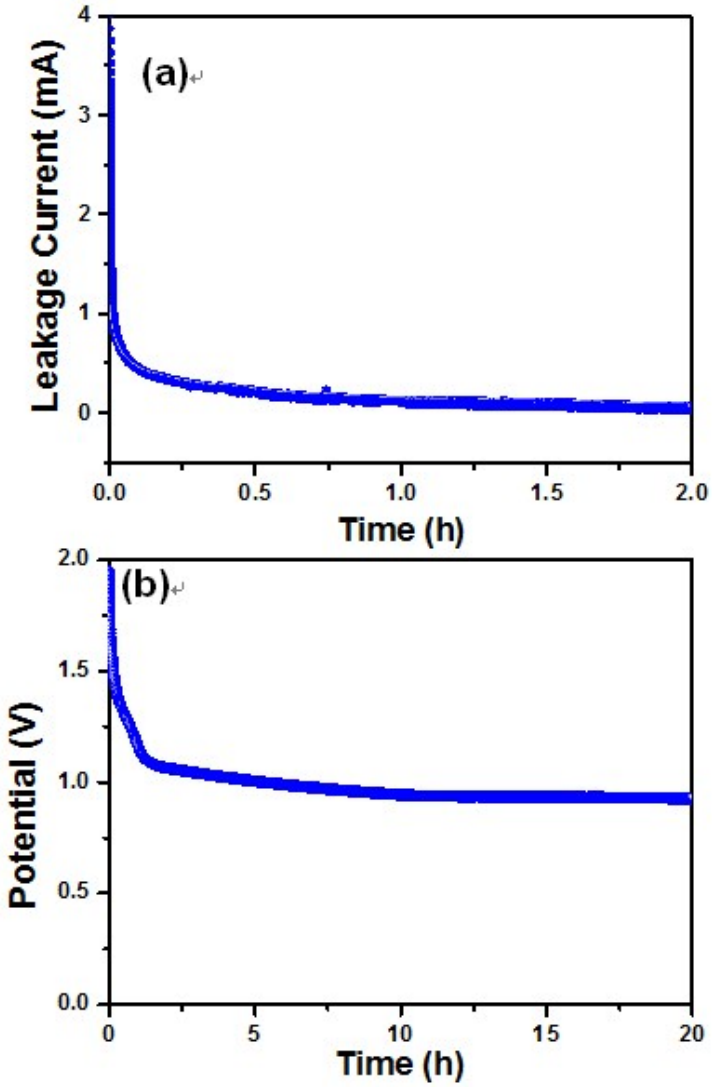

Fig. S8. (a) Leakage current and (b) self-discharge curves of the solid-state device.