Supplementary Information

Interlayer-Expanded MoSSe Nanosheets Anchored on Reduced Graphene Oxide for High-Performance Sodium-Ion Batteries

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1 These authors contributed equally to this work.

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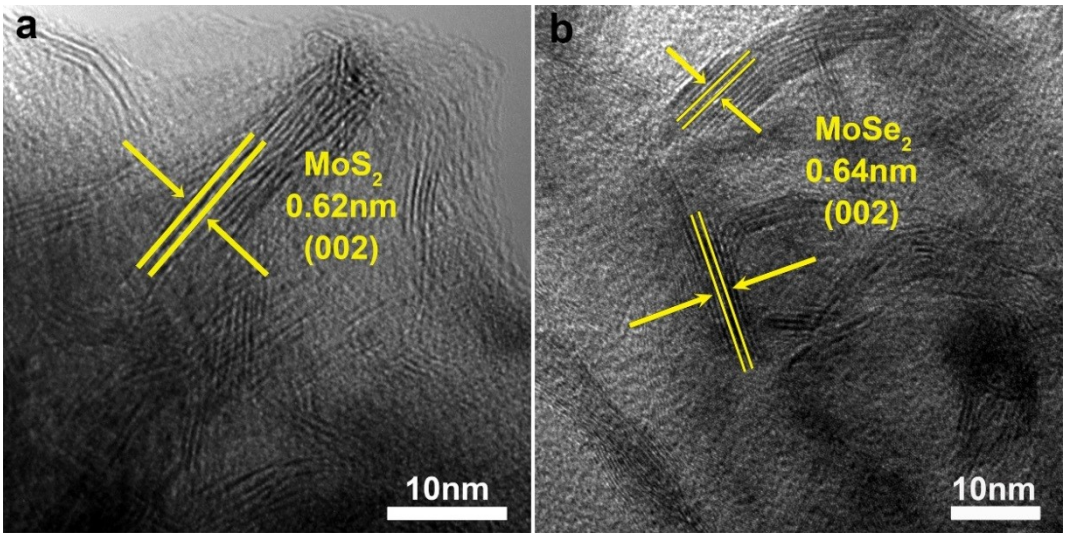

Fig. S1 HRTEM image of (a) the MoS_2/rGO and (b) $MoSe_2$/rGO.

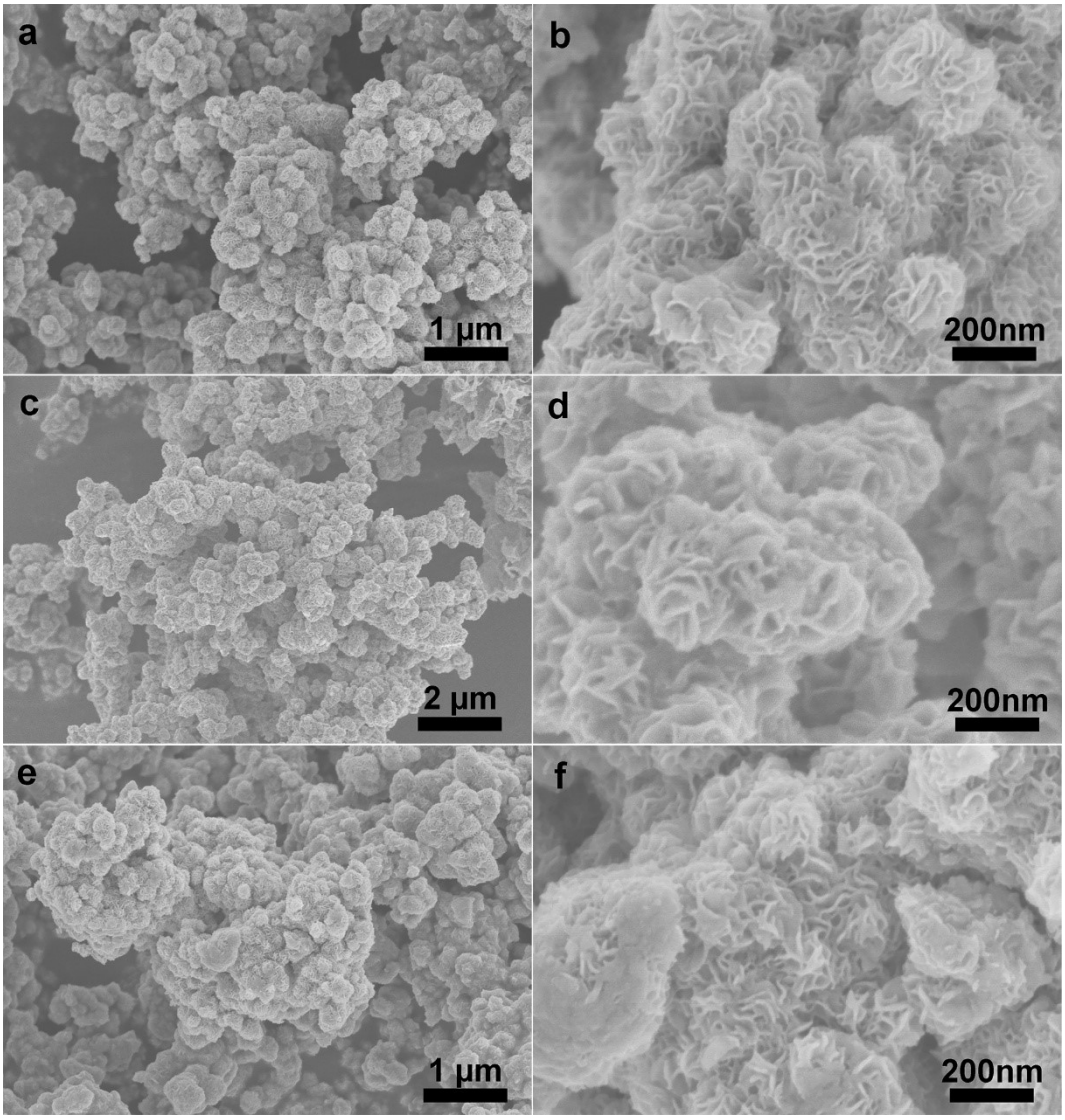

Fig. S2 SEM images of the (a, b) MoS_2, (c, d) $MoSe_2$ and (e, f) MoSSe,

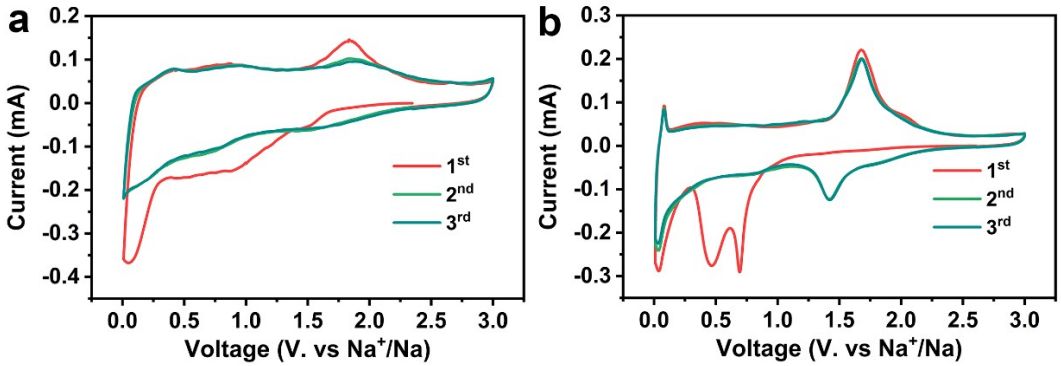

Fig. S3 CV curves of (a) MoS_2/rGO electrode and (b) $MoSe_2$/rGO electrode at 0.1 mV s^{-1}.

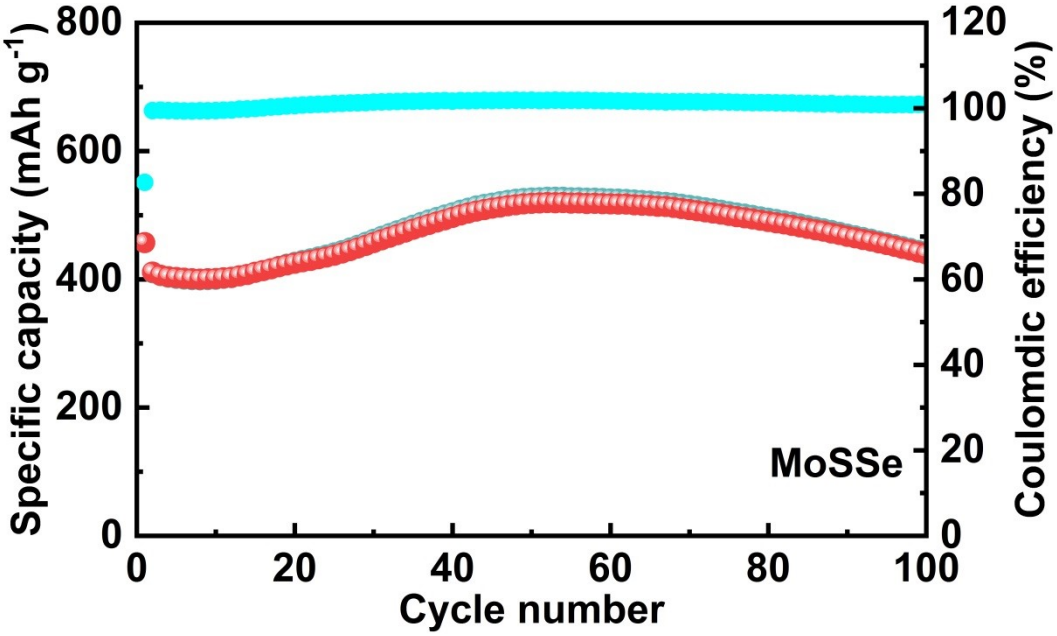

Fig. S4 Cycling performances of the MoSSe electrode at 0.2 A g^{-1}.

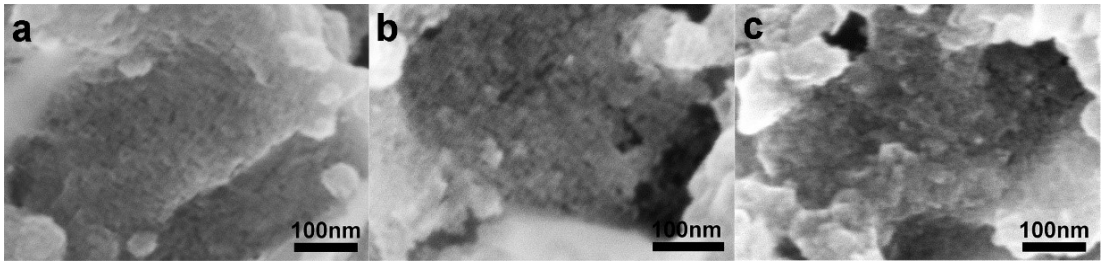

Fig. S5 SEM images of the MoSSe/rGO electrodes after 3 cycles (a), 50 cycles (b) and 100 cycles at 0.2 A g^{-1}, respectively.

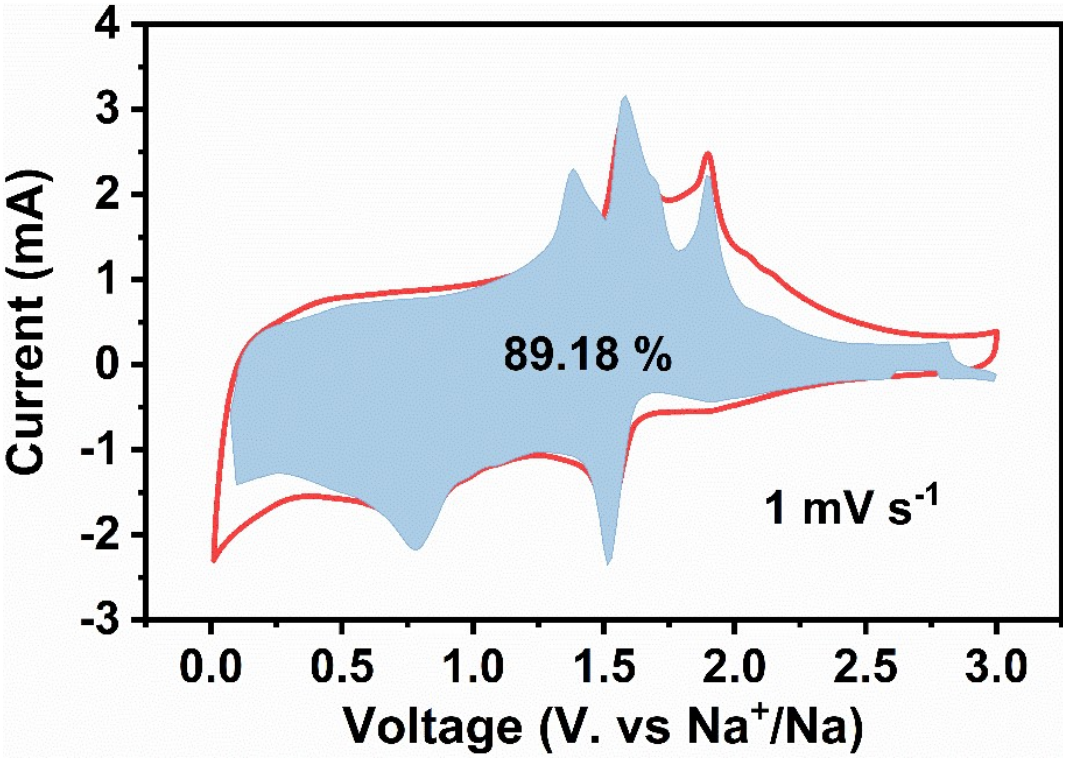

Fig. S6 Pseudocapacitance contribution at a scan rate of 1 mV s^{-1}.

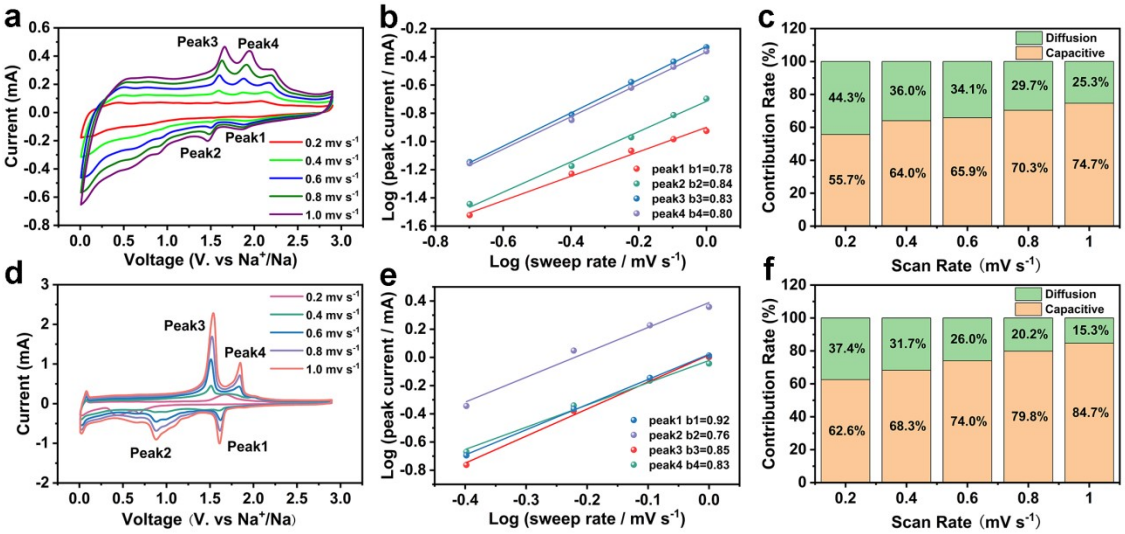

Fig. S7 CV curves of (a) MoS_2/rGO electrode and (d) $MoSe_2$/rGO electrode at different scan rates from 0.2 to 1 mV s^{-1}. Relationship between log(*i*) and log(*v*) of cathodic and anodic peaks of (b) MoS_2/rGO electrode and (e) $MoSe_2$/rGO electrode. Normalized contribution proportions of capacitance and diffusion of (c) MoS_2/rGO electrode and (f) $MoSe_2$/rGO electrode at different scan rates.

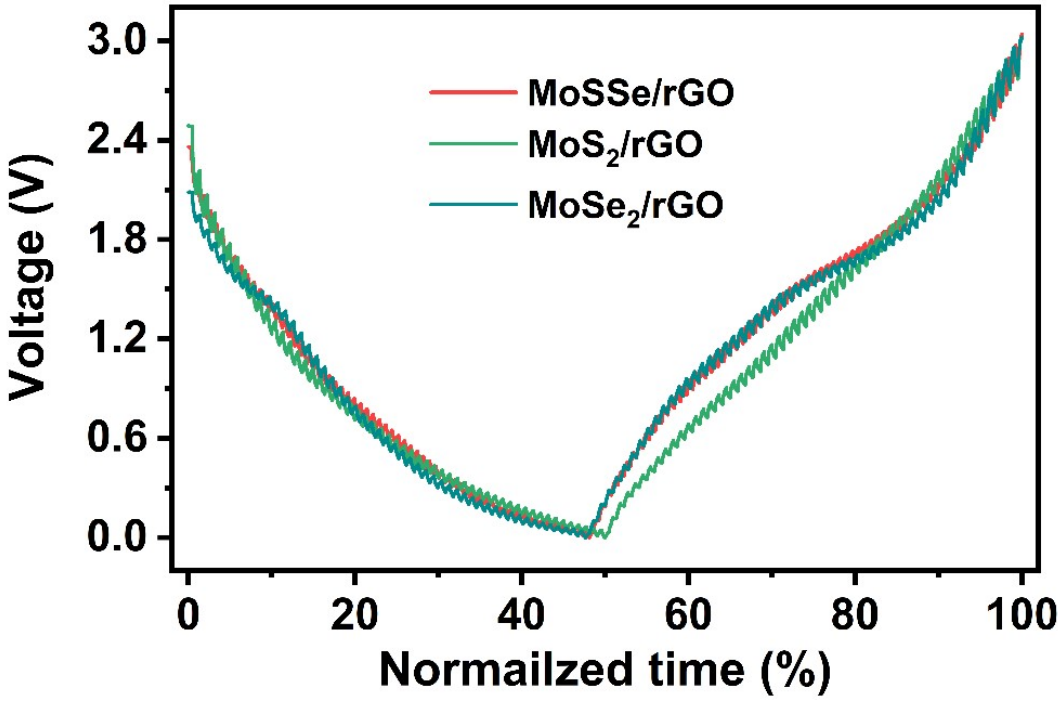

Fig. S8 GITT profiles of MoSSe/rGO, MoS_2/rGO, and $MoSe_2$/rGO electrodes.

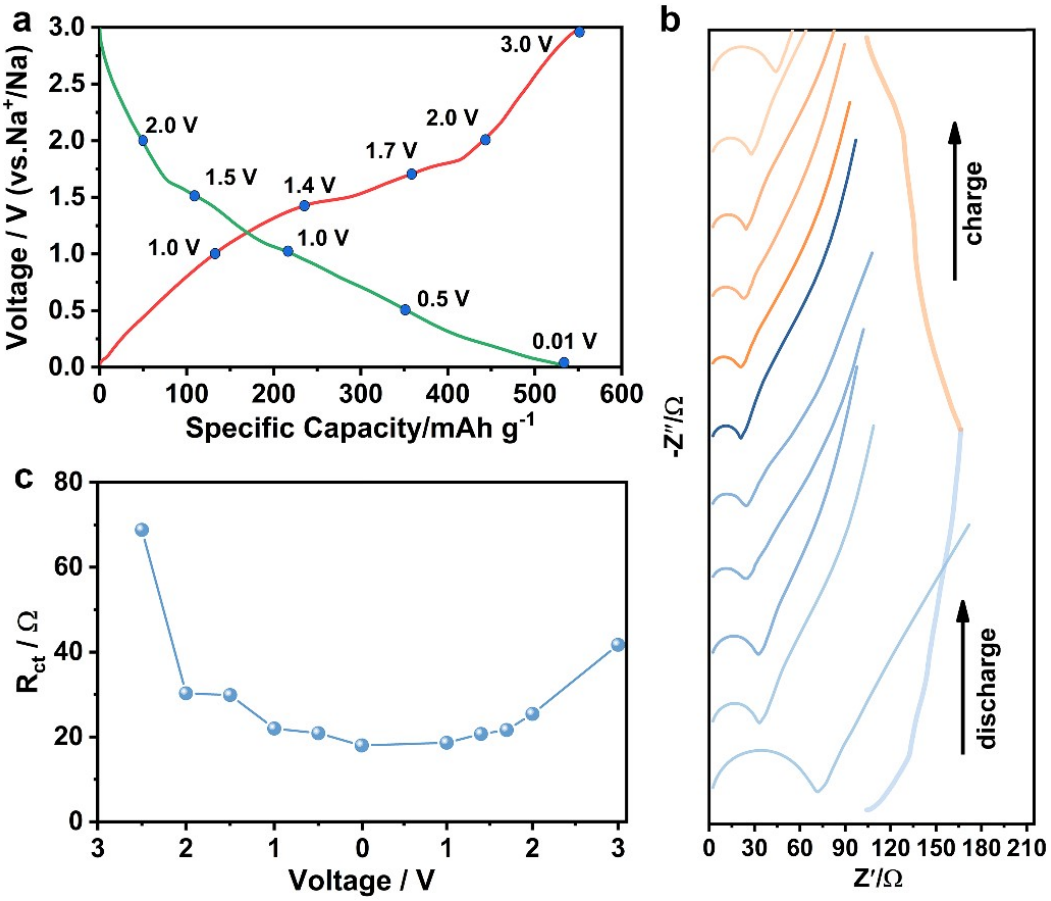

Fig. S9 (a) Galvanostatic charge/discharge curve at 0.1 A g^{-1}. (b) Nyquist plots and (c) R_{ct} values of MoSSe/rGO electrode at different potentials

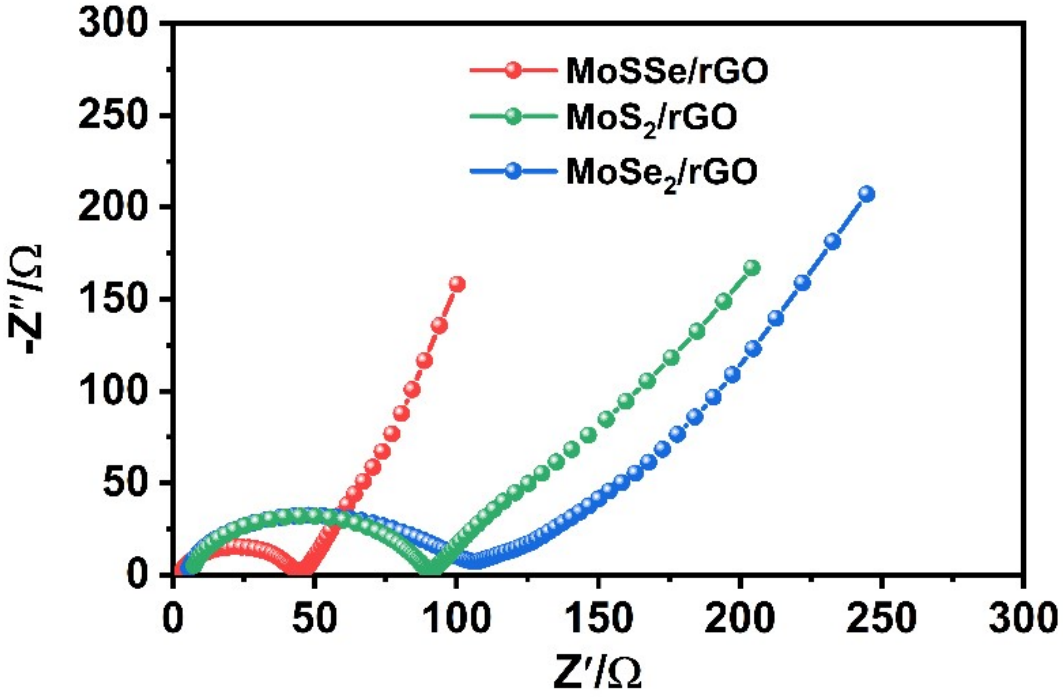

Fig. S10 Nyquist plots of MoSSe/rGO, MoS_2/rGO, and $MoSe_2$/rGO electrodes.

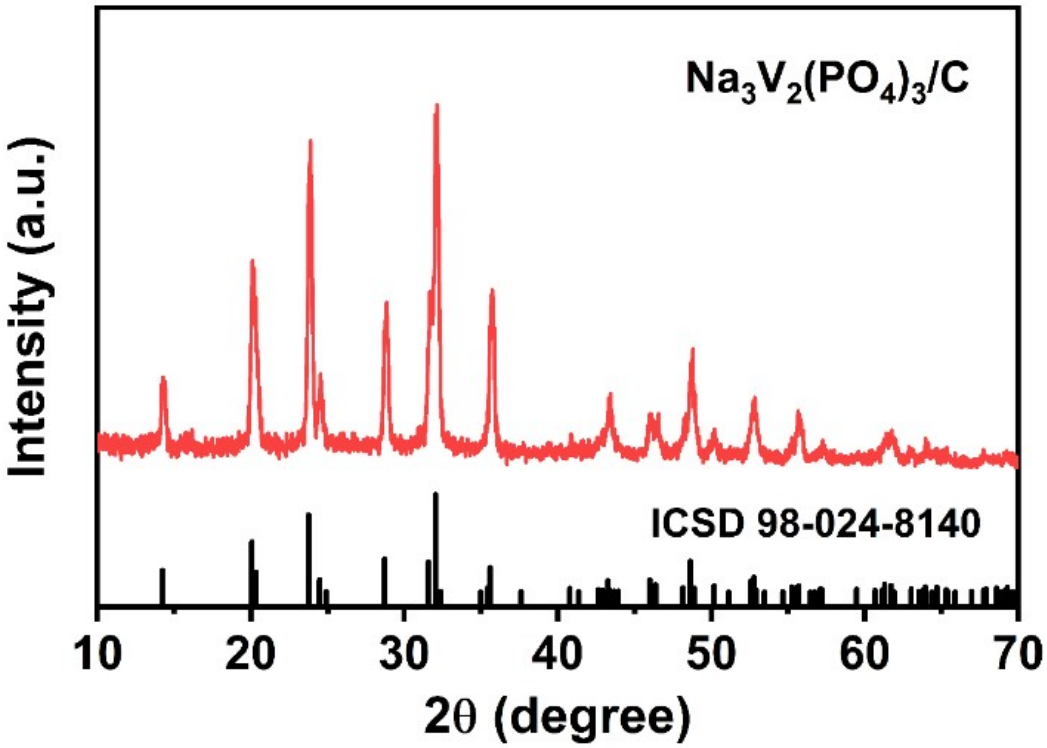

Fig. S11 XRD pattern of $Na_3V_2(PO_4)_3$/C.

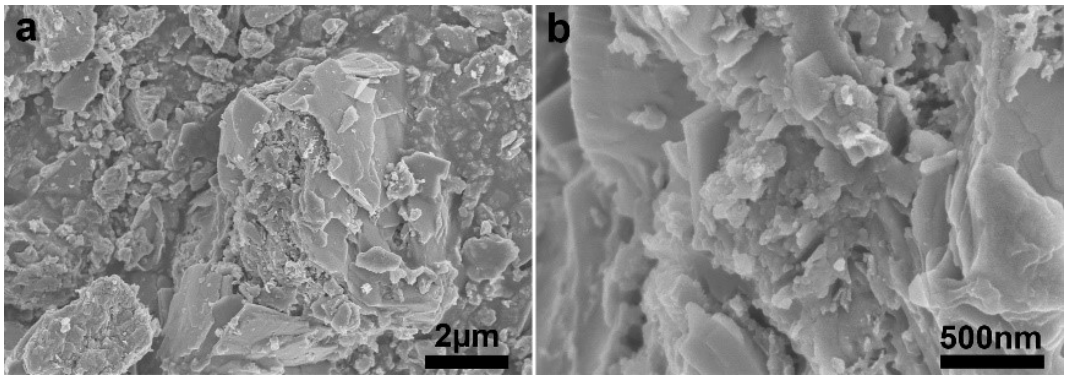

Fig. S12 (a, b) SEM images of $Na_3V_2(PO_4)_3$/C.

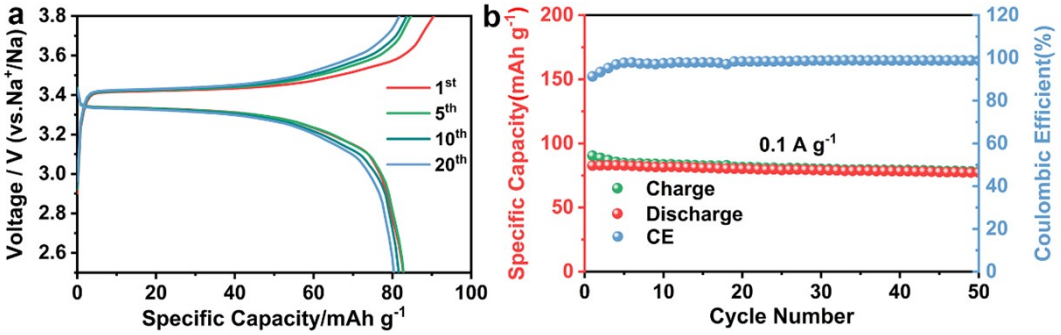

Fig. S13 (a) Galvanostatic charge/discharge curves and (b) cycling performances of $Na_3V_2(PO_4)_3$/C electrodes at 0.1 A g^{-1}.

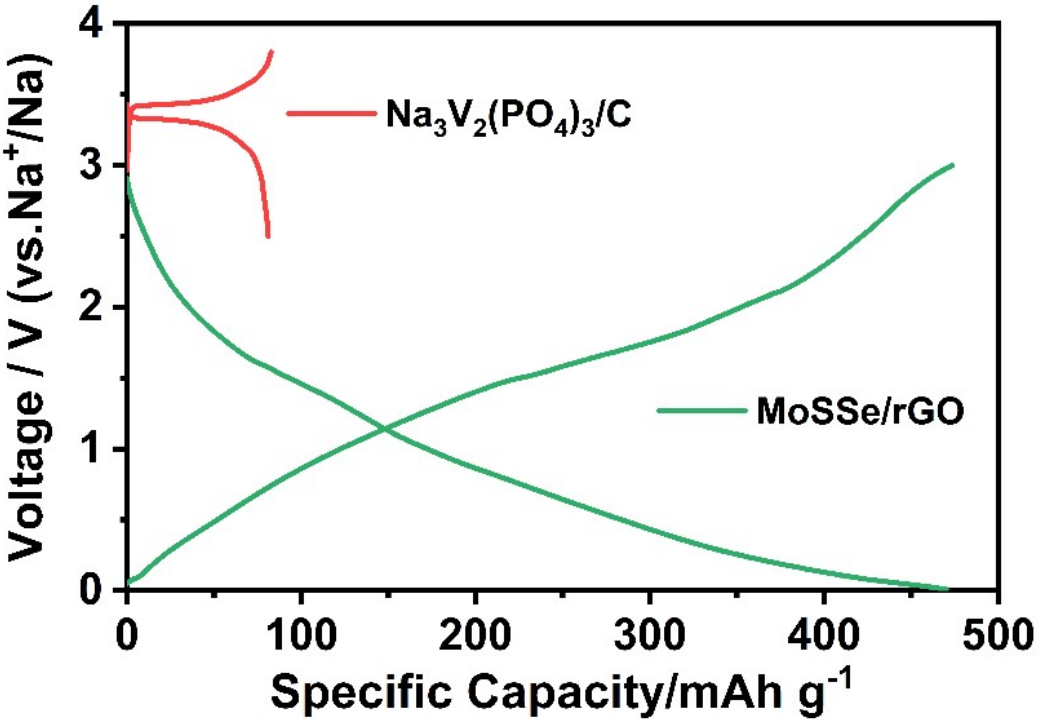

Fig. S14 The charge-discharge curves of MoSSe/rGO anode and $Na_3V_2(PO_4)_3$/C cathode electrodes at 0.1 A g^{-1} in the half-cell.

$(m_{cathode} \times C_{m(cathode)})/(m_{anode} \times C_{m(anode)}) = 1.3$

$m_{cathode}/m_{anode} = C_{m(anode)})/(1.3 \times C_{m(cathode)}) = 470.2/(81.0 \times 1.3) =$

$4.46 \approx 4.5$

where m and C_m are the mass and specific capacity, respectively.