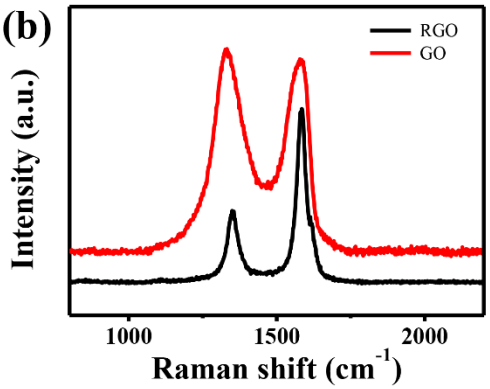
Supplementary Information

(a)

	Element	Weight %	Atomic %
GO	C	55.02	61.97
	O	44.98	38.03
RGO	C	73.88	79.03
	O	26.12	20.97



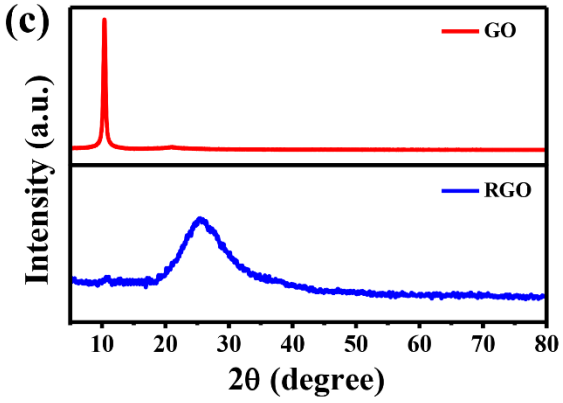


Fig. S1 (a) Energy-dispersive X-ray spectra (EDS), (b) Raman spectra, and (c) X-ray diffraction spectra (XRD) of the GO and RGO part for the RGO-GO-RGO foam, respectively.

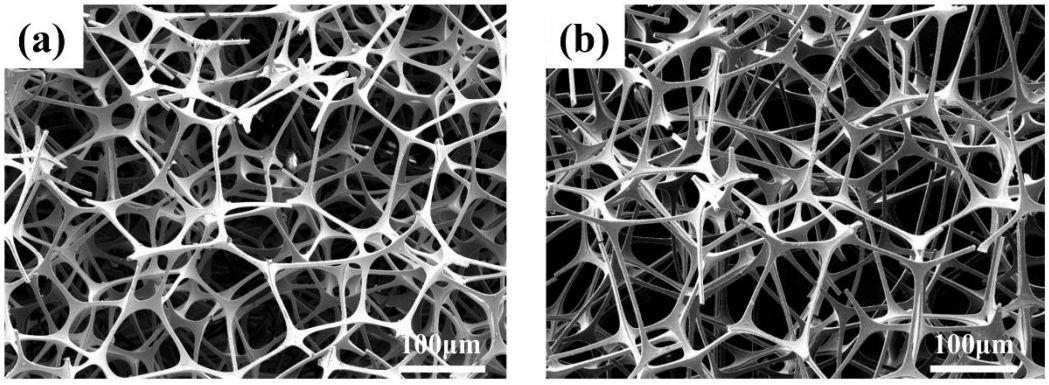


Fig. S2 Scanning electron microscopy (SEM) images of the pure melamine foam (MF) before (a) and after (b) laser irradiation.

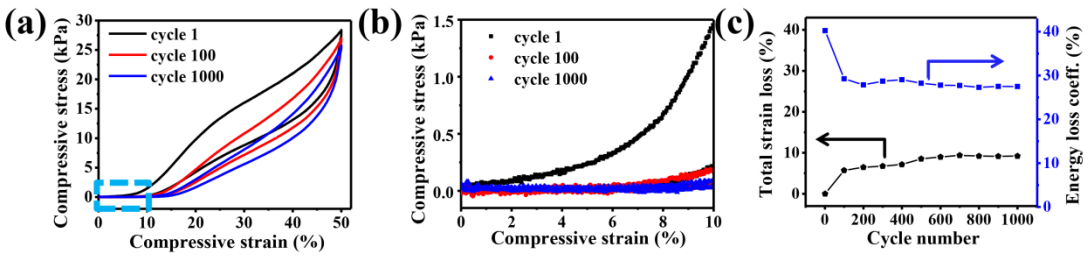


Fig. S3 (a) The stress-strain curves of sample at strain of 50% for 1000 cycles. (b) The corresponding magnified plots of the low strain region in rectangle of (a), showing no obvious collapse at the first cycle. (c) The total strain loss and energy loss coefficients at 50% strain during 1000 cycles.

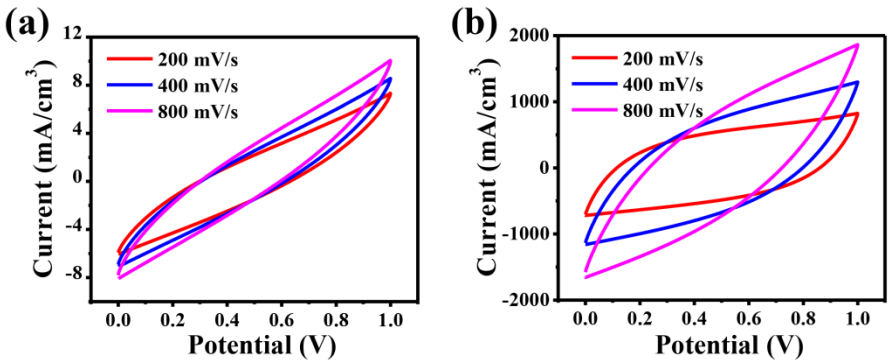


Fig. S4 Cyclic voltammetry (CV) curves of the as-fabricated supercapacitor under different set strain (a) 0, (b) 90%.

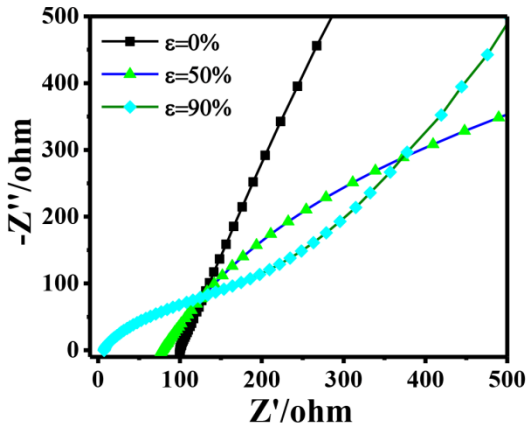


Fig. S5 Nyquist plot of the as-fabricated supercapacitor under different set strains.

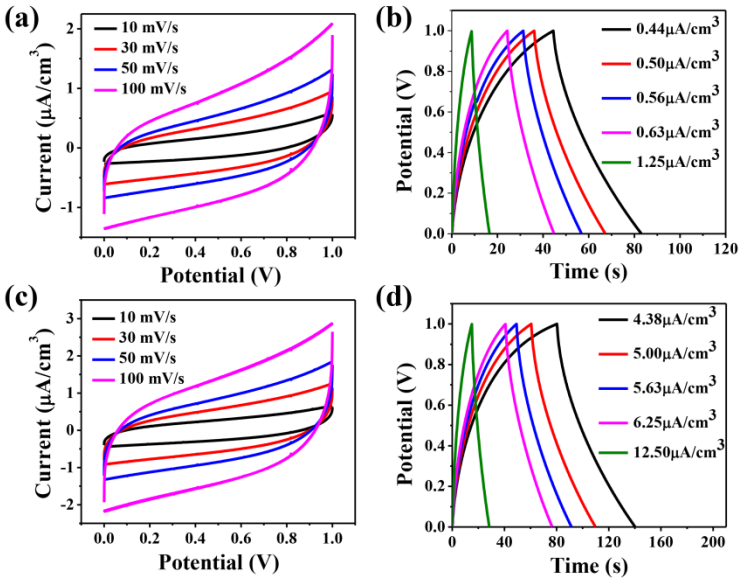


Fig. S6 Electrochemical property of the original MF after laser treatment. CV curves at various scan rates and galvanostatic charge/discharge curves under different set strains of 0 (a, b) and 90% (c, d).

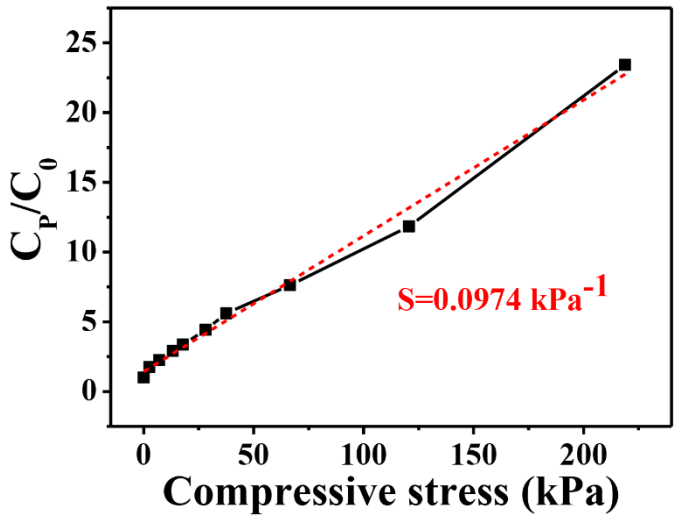


Fig. S7 Strain sensitivity curve of the as-prepared supercapacitor.

In order to investigate the relationship of strain and capacitance of the capacitor, strain sensitivity curve is measured, in which strain sensitivity is defined as $S = (C_p/C_0)/ P$, where C_0 and C_p refer to the specific volumetric capacitance of supercapacitor without and with compressive stress, respectively, P presents the applied pressure. As shown in Fig. S7, a linear region of relationship can be observed between C_p/C_0 and the applied pressure. The rate of C_p/C_0 increases with the increasing compressive stress. The strain sensitivity calculated from slope of the fitted curve is 0.0974 kPa^{-1}. The results reveal that the capacitance variation is mainly depended on the external compressure situation.

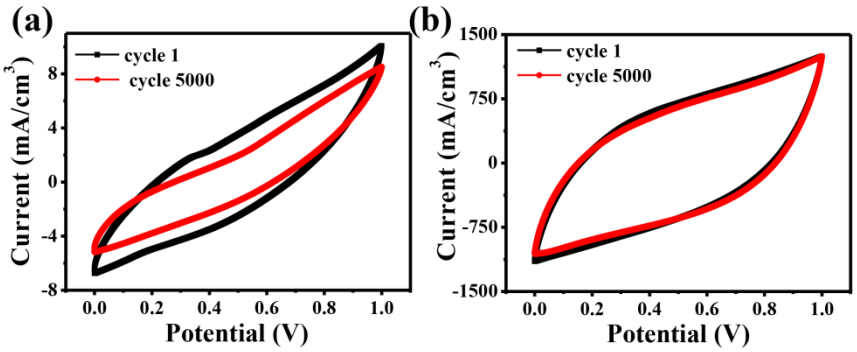


Fig. S8 The cycle stabilities of the as-fabricated supercapacitor under different set strains of 0 (a) and 90% (b).

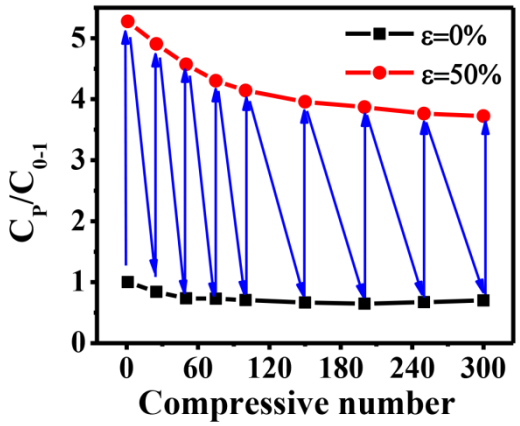


Fig. S9 The capacity stability of supercapacitor under the compressive strain of 50% during repetitive loading/unloading process. The $C_{0\text{-}1}$ refers to the specific volumetric capacitance of supercapacitor without compression.

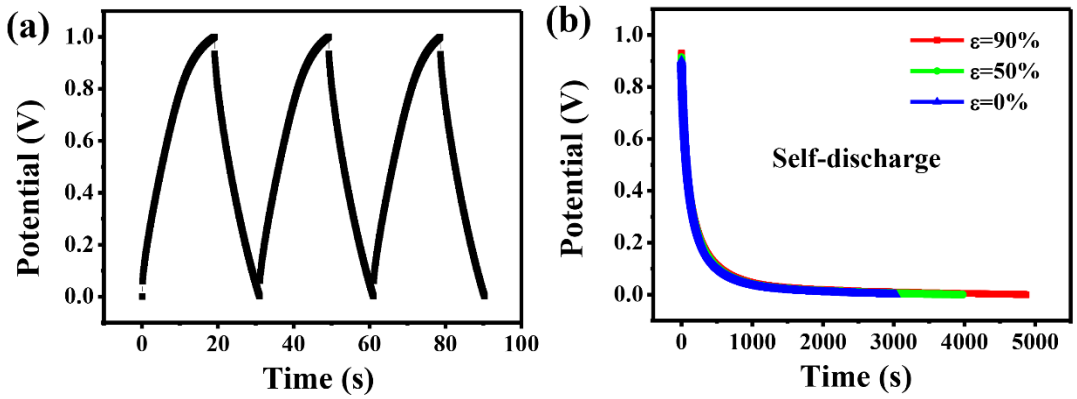


Fig. S10 (a) The galvanostatic charge/discharge curves under the set strains of 90% with charging current density of 120 mA/cm^3. (b) The corresponding self-discharge curves of the sample at different strains (red: 90%, green: 50%, blue: 0%) after charging at high strain of 90% with the charging current density of 120 mA/cm^3.