Supplementary Material (ESI) for RSC Advances

Fabrication of glass-based microfluidic devices with dry film photoresist as pattern transfer mask for wet etching

Supplementary Material

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Supplementary Figures S1-S6.

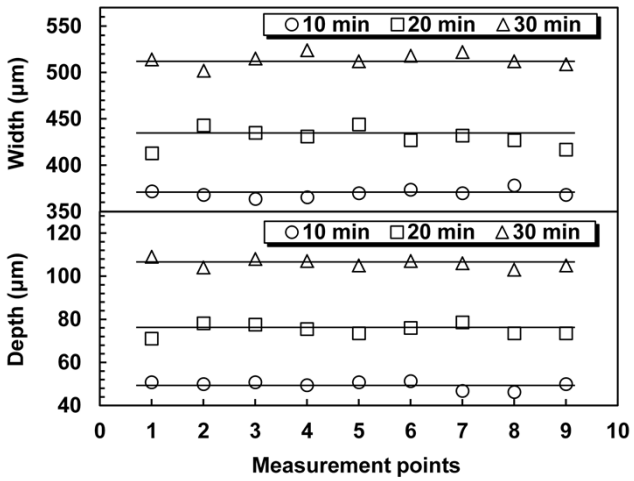

Fig. S1 Perfect reproducibility of microchannels etched with our method, in which the widths and depths of 9 devices are presented with the same geometry.

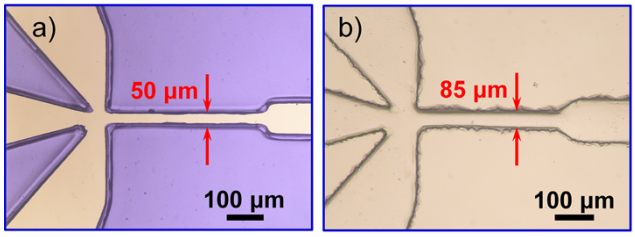

Fig. S2 Minimum pattern transfer size of Etertec HT-115T DFR. (a) Minimum developing size of Etertec HT-115T DFR. (b) Dimensions of the microchannels after a 5 min etching with the pattern in (a) as an etching mask.

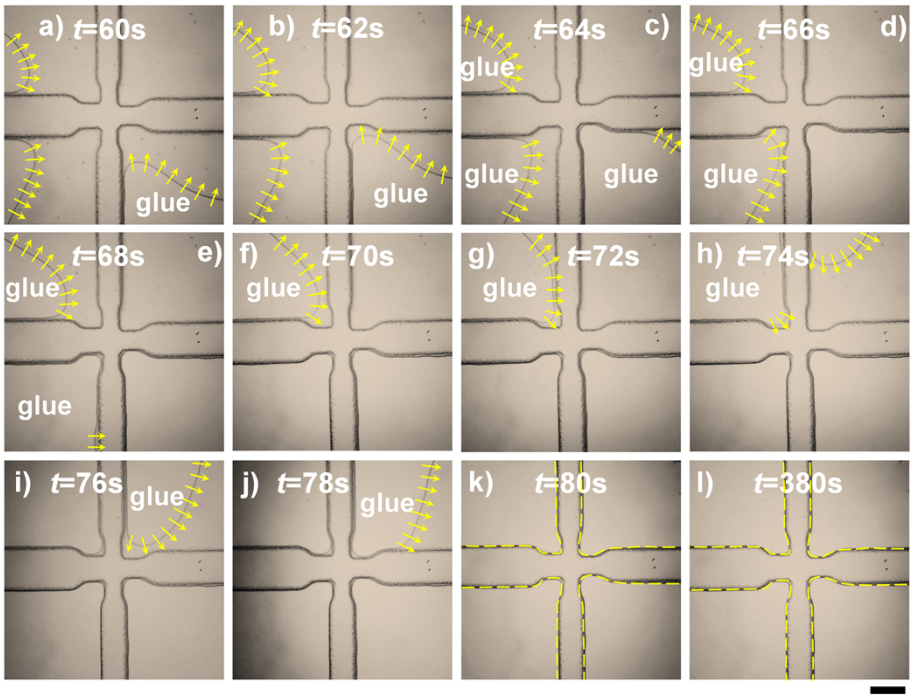

Fig. S3. Optical micrographs showing the dynamic spreading positions of UV-glue between the two pieces of glass plates during the glue-introducing process. The scale bar is 400 μm.

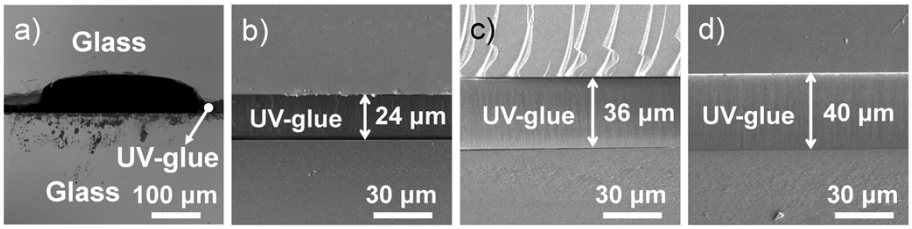

Fig. S4 SEM views of the sealed microchannel. (a) Cross-sectional view of the microchannel after UV bonding. (b-d) Resulting thicknesses of the UV-glue layers after bonding process when the volumes of the UV-glue used are 20 μl (b), 30 μl (c) and 40 μl (d) respectively.

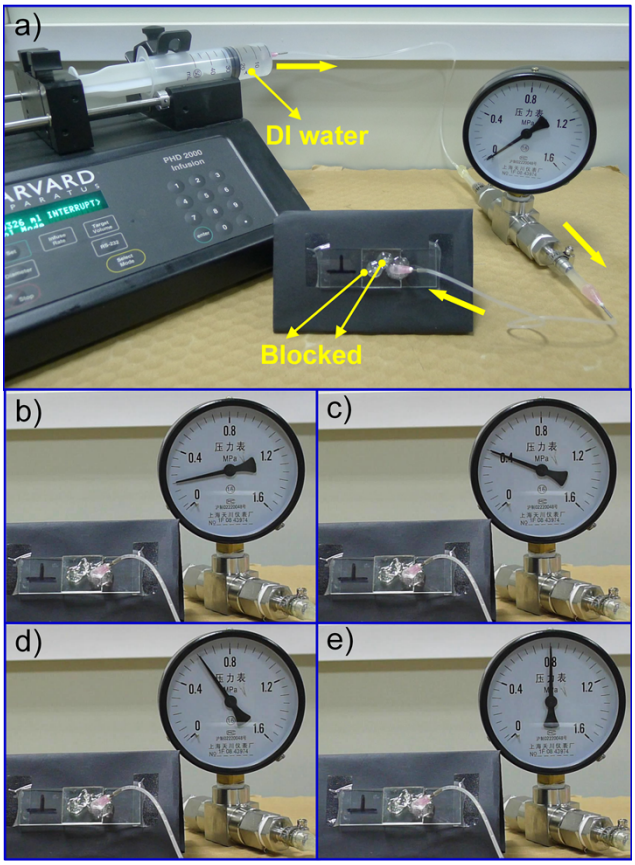

Fig. S5 Pressure test of the UV-bonded glass microchip. The photographs of the pressure test setup (a), in which the single T-junction device is intact without any fluid leakage as the driving pressure increases from 0.2 (b), 0.4 (c), 0.6 (d) to 0.8 MPa (e).

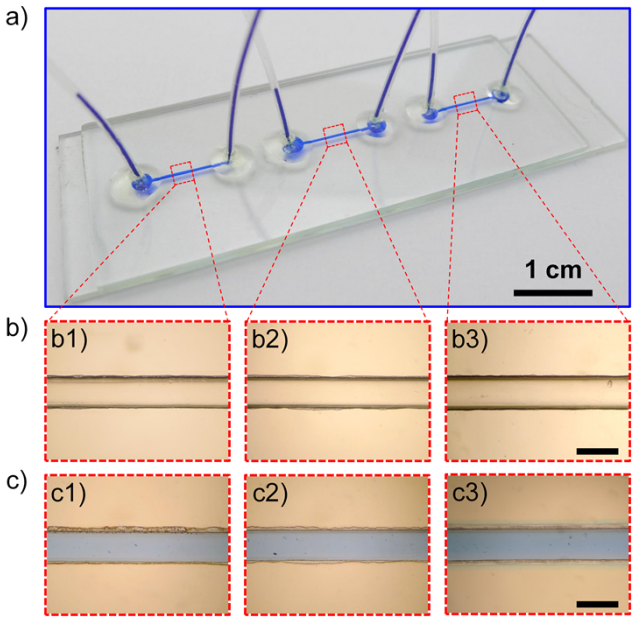

Fig. S6 Satisfactory chemical resistance of the UV-bonded microchannels. (a) Photograph of microfluidic devices filled with methylene blue dye. (b) Magnified views of microchannels in Fig.

a after rinsed with DI-water. (c) Optical micrographs of microchannels filled with methylene blue dye after rinsed with 1 mol L^{-1} NaOH (c1), 1 mol L^{-1} HCl (c2) and acetone (c3) for 10 min respectively. Microchannels shown in (c1), (c2) and (c3) are the same ones as shown in (b1), (b2) and (b3) respectively. The scale bars in (b) and (c) are 500 μm.