

### Supporting Information

#### Temperature-boosted photocatalytic H<sub>2</sub> production and charge transfer kinetics on TiO<sub>2</sub> under UV and visible light

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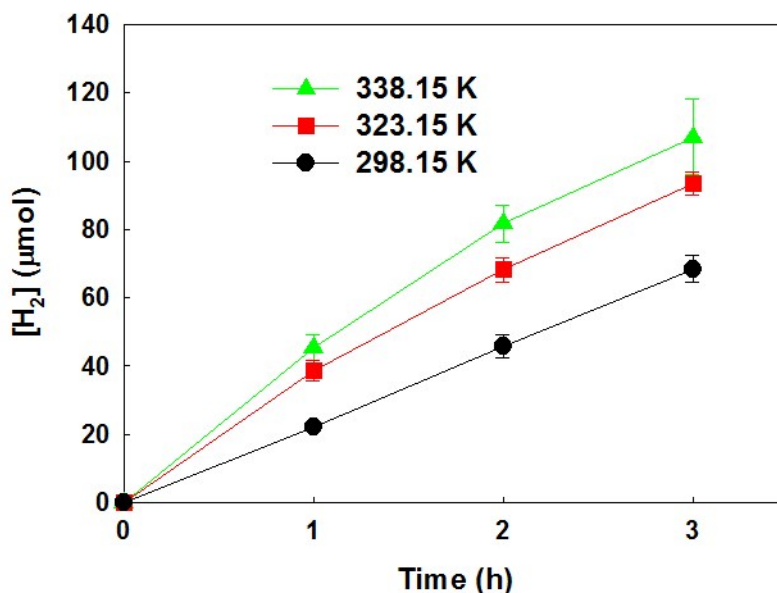


Figure S1. Time profile of temperature-dependent photocatalytic H<sub>2</sub> production under UV light ( $\lambda > 320$  nm) in the presence of [formic acid] = 10 mM.

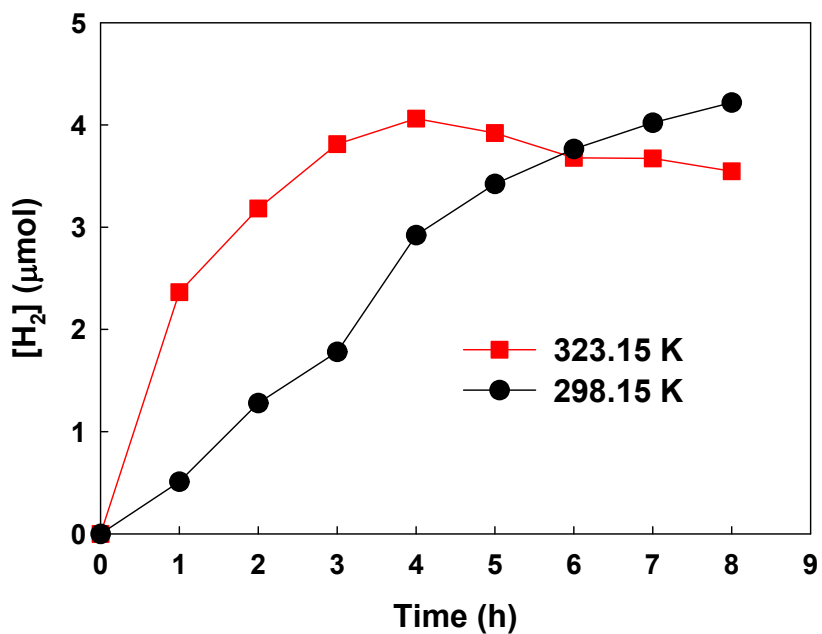


Figure S2. Photocatalytic H<sub>2</sub> production in aqueous Pt/TiO<sub>2</sub> suspensions under UV ( $\lambda > 320$  nm, pH 3).

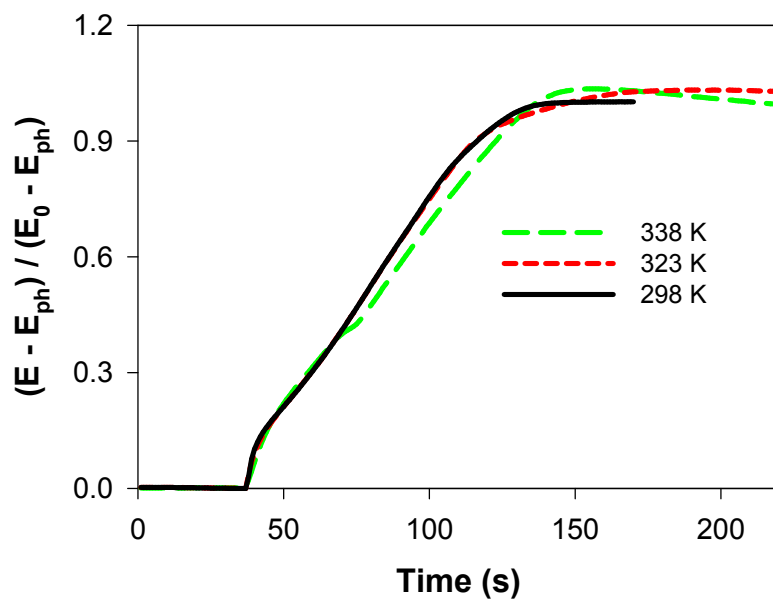


Figure S3. Time profiles of the open-circuit potential ( $E_{oc}$ ) decay

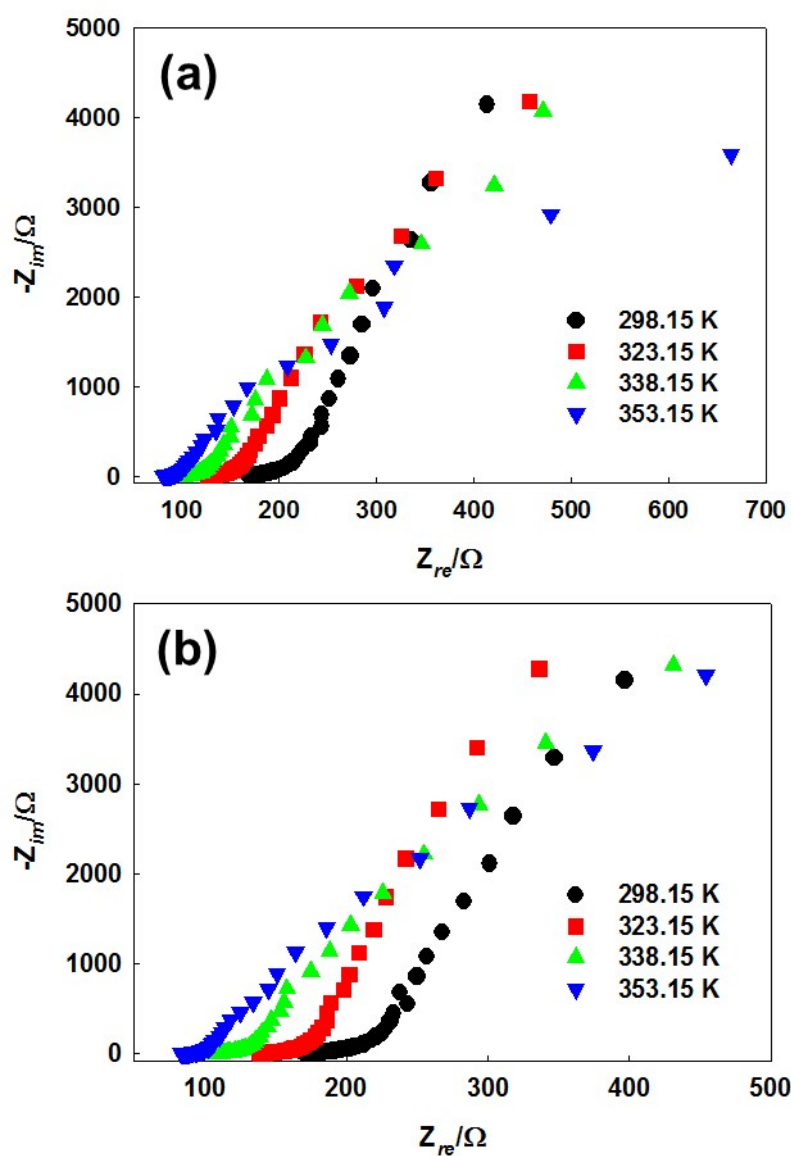


Figure S4. Electrochemical impedance spectroscopy (EIS) Nyquist plots obtained at the different temperature under (a) visible light irradiation ( $\lambda > 420$  nm) and (b) dark condition