Electronic Supplementary Information

Two-terminal DSSC/Silicon Tandem Solar Cells exceeding 18%-Efficiency.

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Characterizations

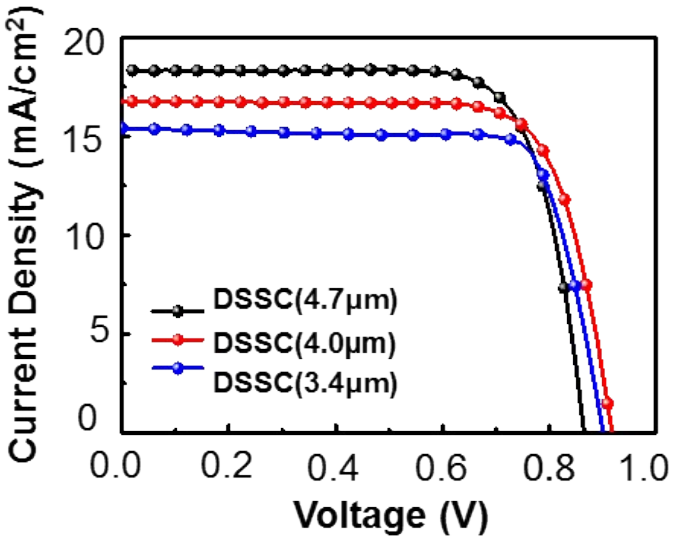

Fig. S1. The DSSC performances as a function of TiO_2 film thickness.

Table S1. Current-voltage characteristics of DSSCs depending on the TiO_2 thickness.

Devices	Jsc (mA/cm^2)	Voc (V)	FF (%)	Efficiency (%)
DSSC (4.7 μm)	18.3	0.864	75.7	12.0
DSSC (4.0 μm)	16.8	0.907	75.7	11.4
DSSC (3.4 μm)	15.4	0.900	78.8	11.0

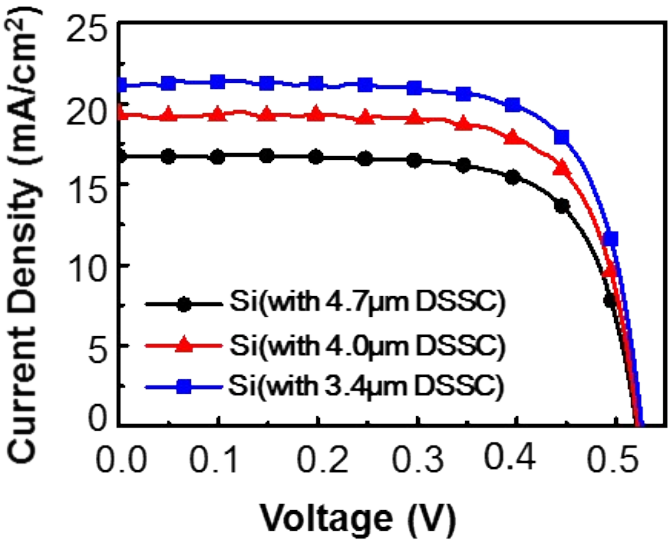

Fig. S2. The performances of the bottom c-Si devices filtered by the top DSSC.

Table S2. Current-voltage characteristics of bottom c-Si devices filtered by the top DSSC.

Devices	Jsc (mA/cm^2)	Voc (V)	FF (%)	Efficiency (%)
Si (with 4.7 μm DSSC)	16.7	0.521	71.5	6.23
Si (with 4.0 μm DSSC)	19.2	0.522	71.9	7.23
Si (with 3.4 μm DSSC)	21.2	0.526	72.6	8.09

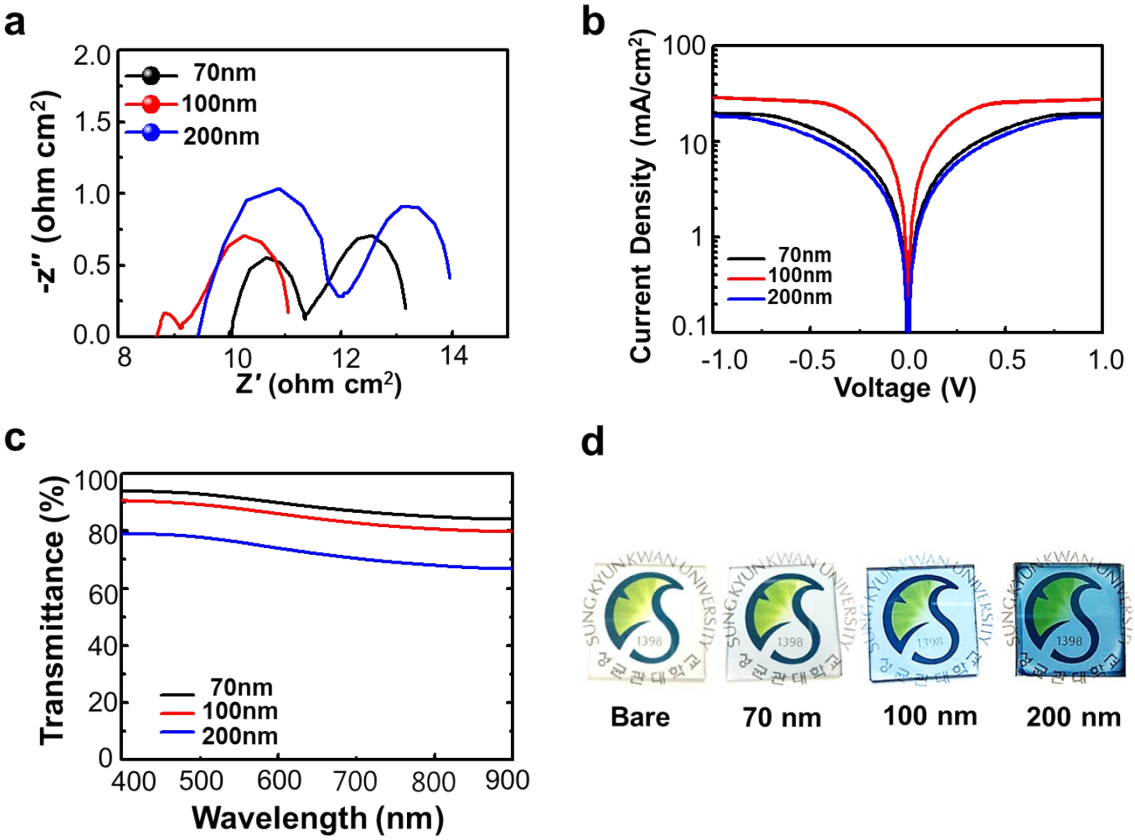

Fig. S3. (a) Nyquist plots, (b) Tafel-polarization curves of different thickness of PEDOT dummy cells, (c) Transmittance and (d) photo images of the different thickness of PEDOT on glass substrates.

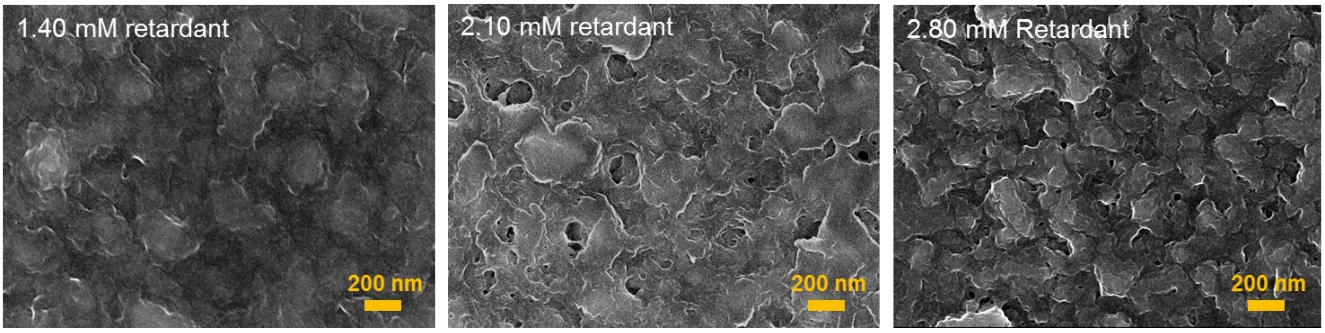

Fig. S4. The morphologies of PEDOT:FTS layers depending on the amount of retardant.

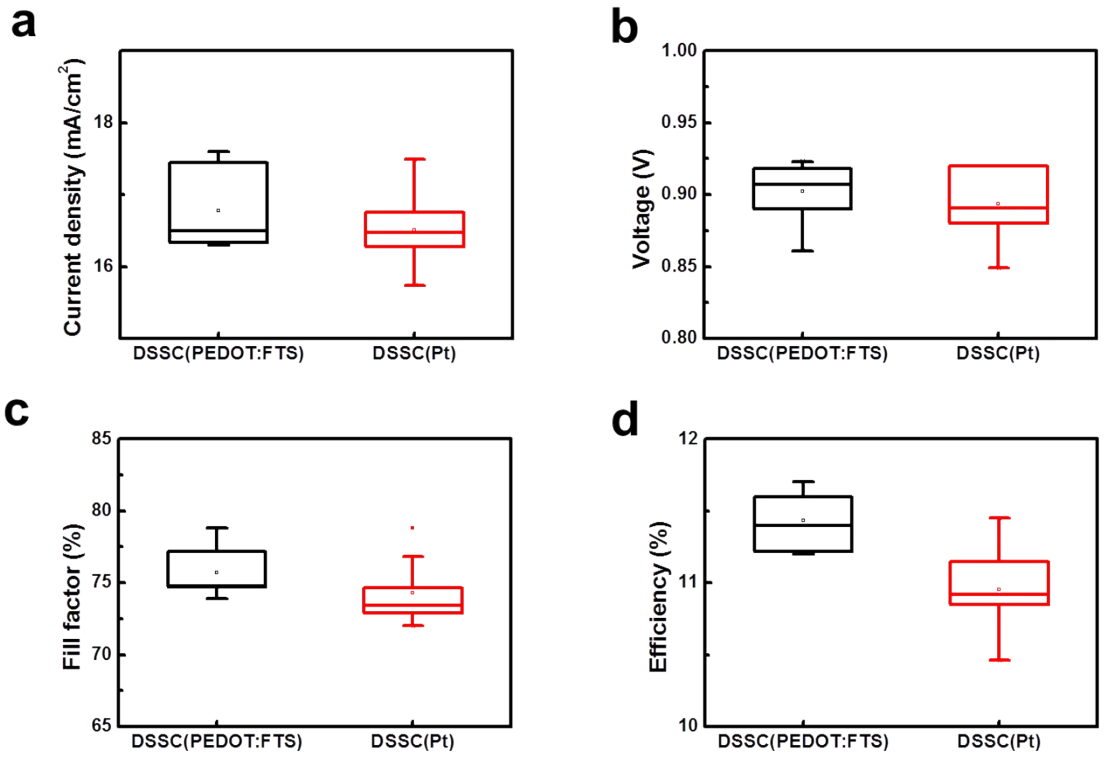

Fig. S5. J_{sc}, V_{oc}, FF and PCE of DSSC with Pt and PEDOT:FTS CEs. Error bars represents minimum and maximum values, and the middle line in each box represents the median value. Upper and lower error bars in the box represent the third quartile (Q3) and first quartile (Q1), respectively, and box thickness represents interquartile Q3–Q1. Squares indicate mean values

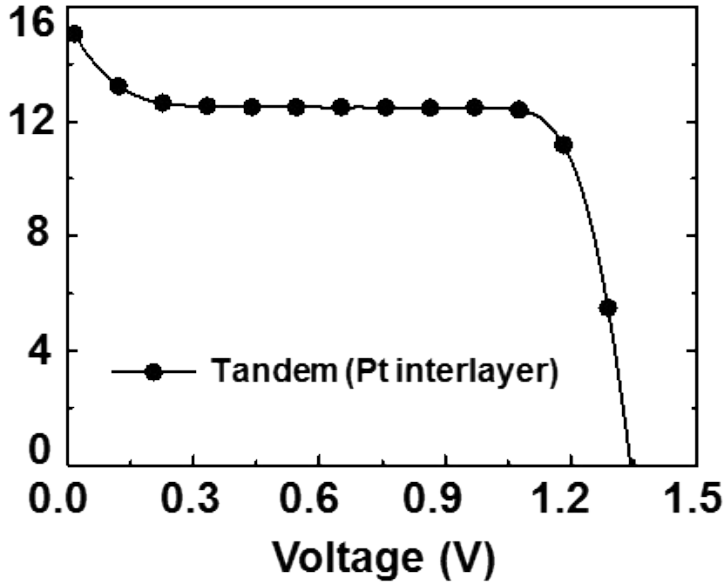

Fig. S6. J-V curve of tandem solar cell with Pt interlayer.

Table S3. Current-voltage characteristics of tandem solar cell with Pt interlayer.

Jsc (mA/cm^2)	Voc (V)	FF (%)	Efficiency (%)
15.21	1.34	66.95	13.67

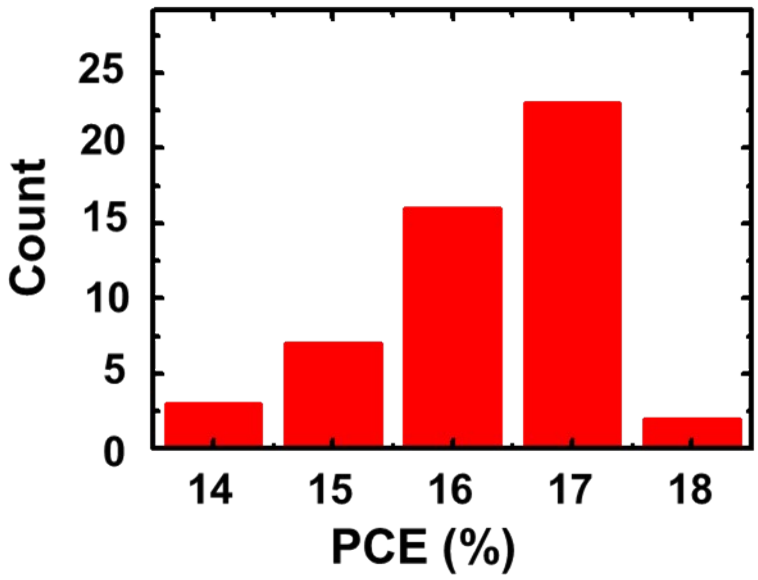

Fig. S7. PCE histograms of 65 devices for the internal tandem solar cells.

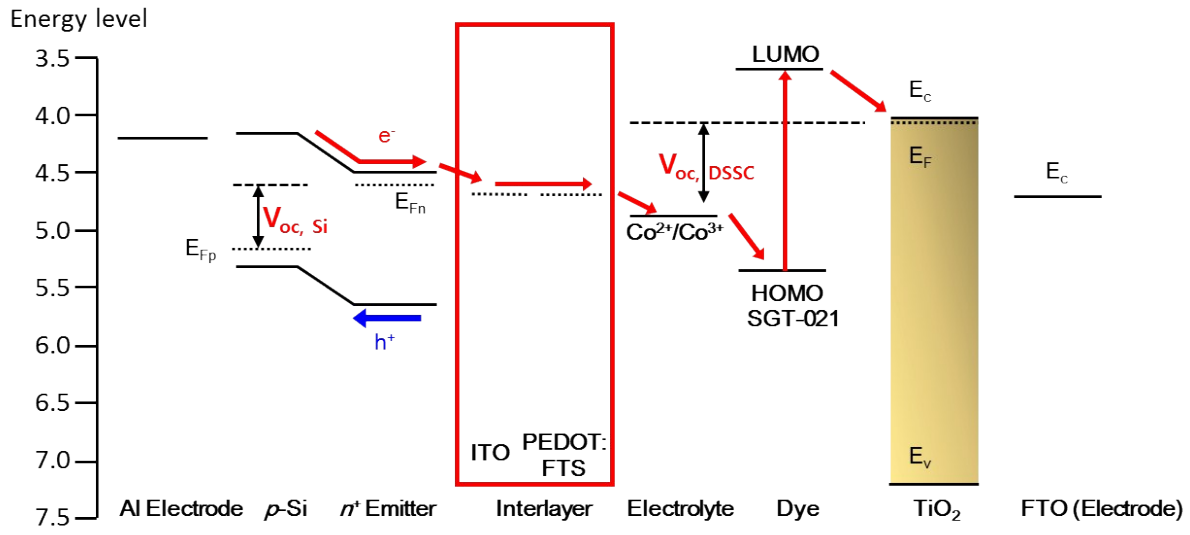

Fig. S8. The energy level diagram of the 2-terminal tandem solar cell.

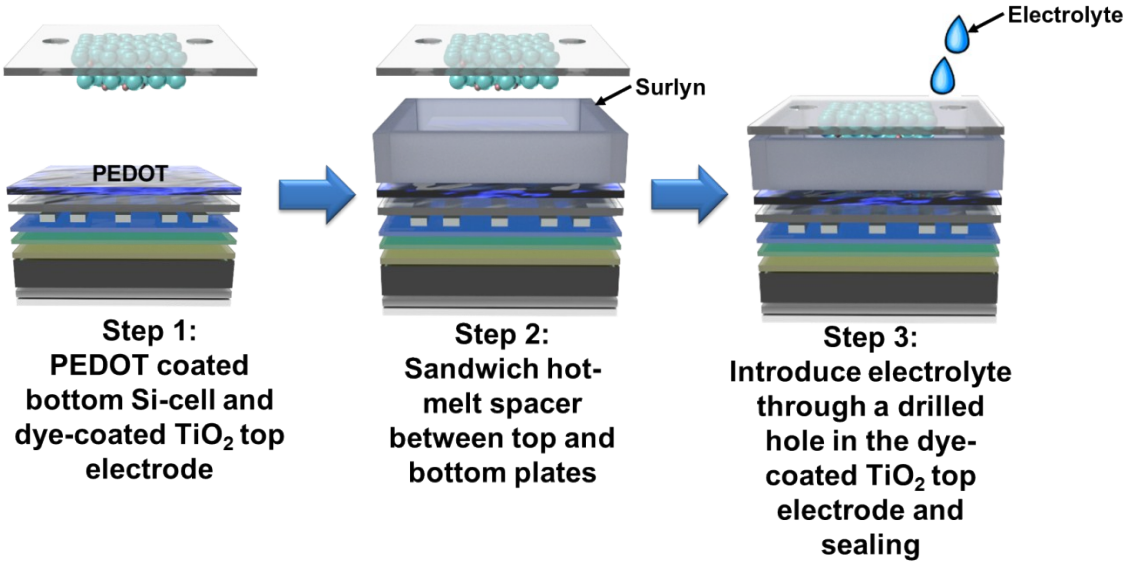

Fig. S9. Fabrication process of DSSC/Si tandem solar cell.