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Supporting Information

Flexible Polymer Solar Cells with Power Conversion Efficiency of 8.7%

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The sheet resistance of the PET/ITO as a function of bending angle and bending cycle test for a typical PTB7 devices (after storing in N2 atmosphere for 150 days)

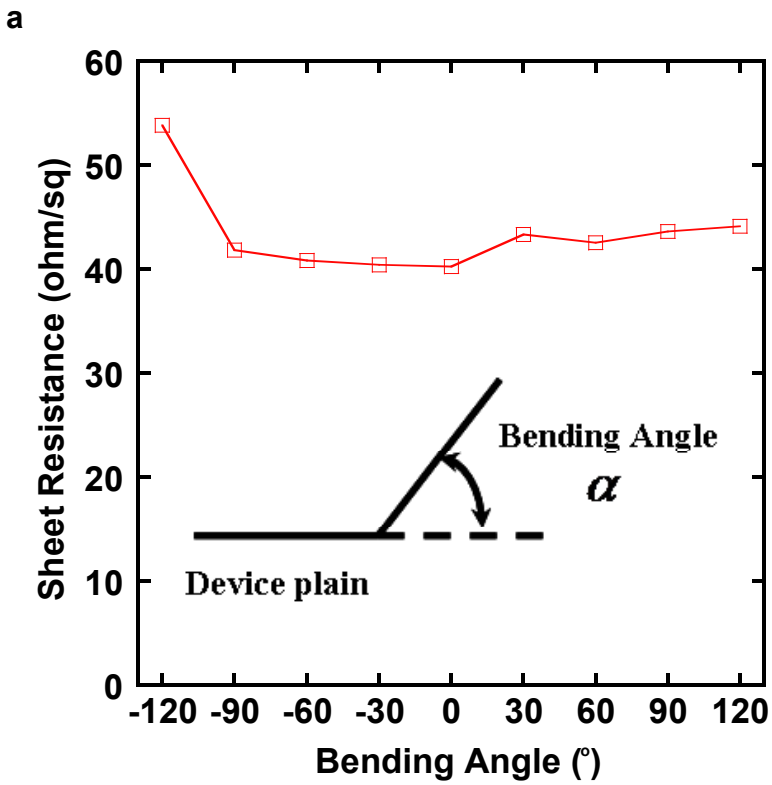
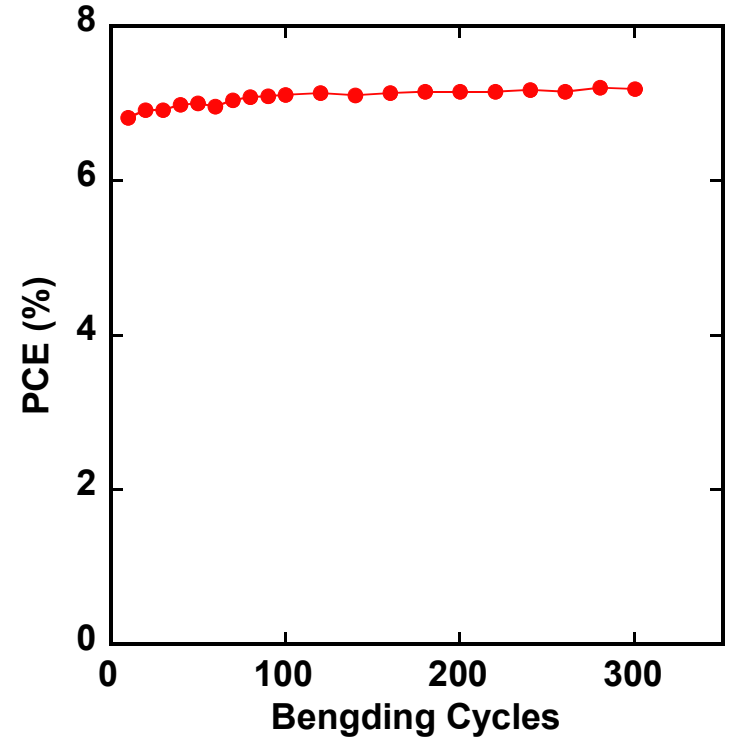
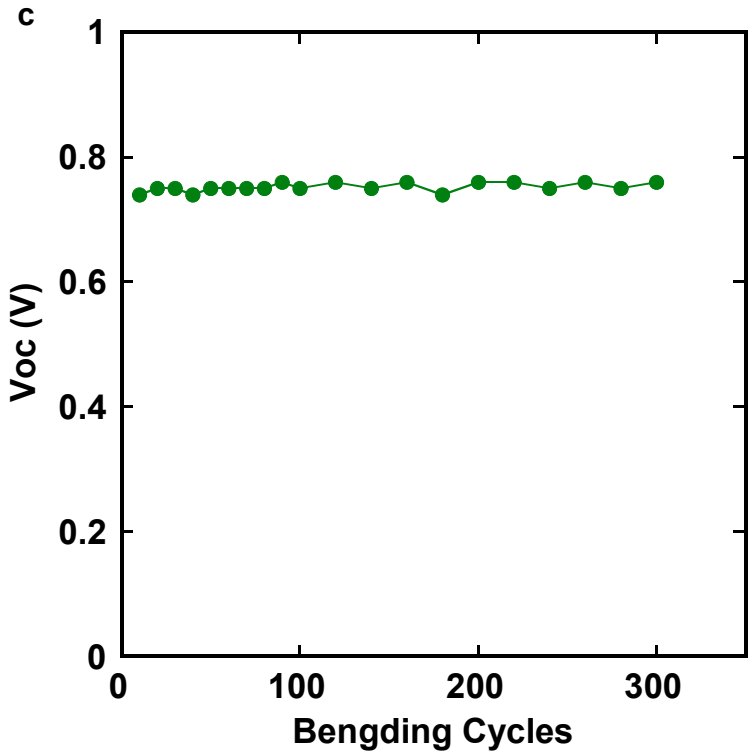


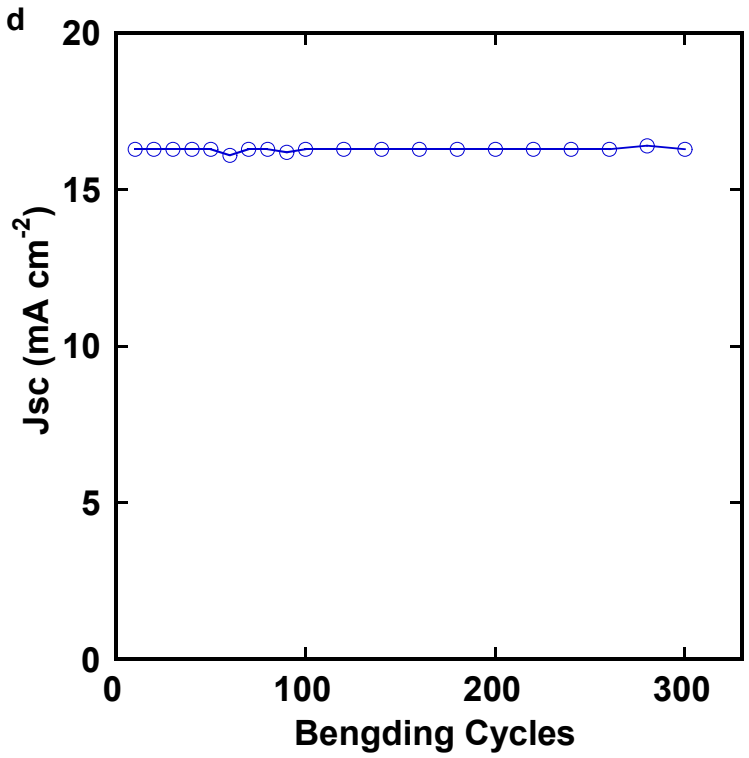
Figure S1. a) the sheet resistance of the PET/ITO under different bending conditions. Note that the unfolded substrate showed a sheet resistance of 40 ohm/square.

b


8
6
4
2
0
PCE (%)
0
100
200
300
Bengding Cycles

c


1
0.8
0.6
0.4
0.2
0
Voc (V)
0
100
200
300
Bengding Cycles



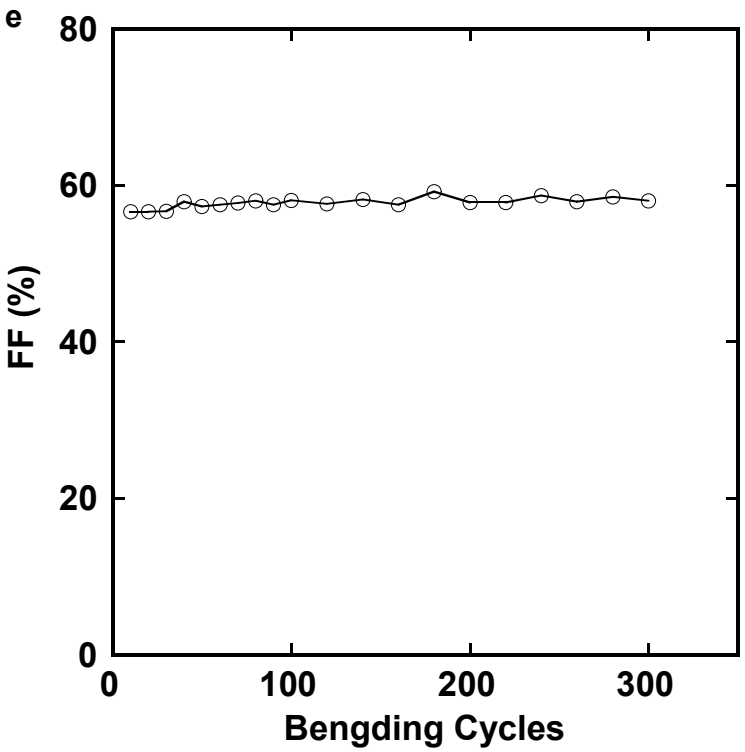


Figure S1. b)~e). The PCE (b), Voc (c), Jsc (d) and FF (e) of the a typical PTB7 devices (stored in N_2 atmosphere for 150 days) for as a function of bending cycles at fixed bending angle of 30 °.

J-V characteristics and performance parameters of a typical flexible Device 2 during shelf storage

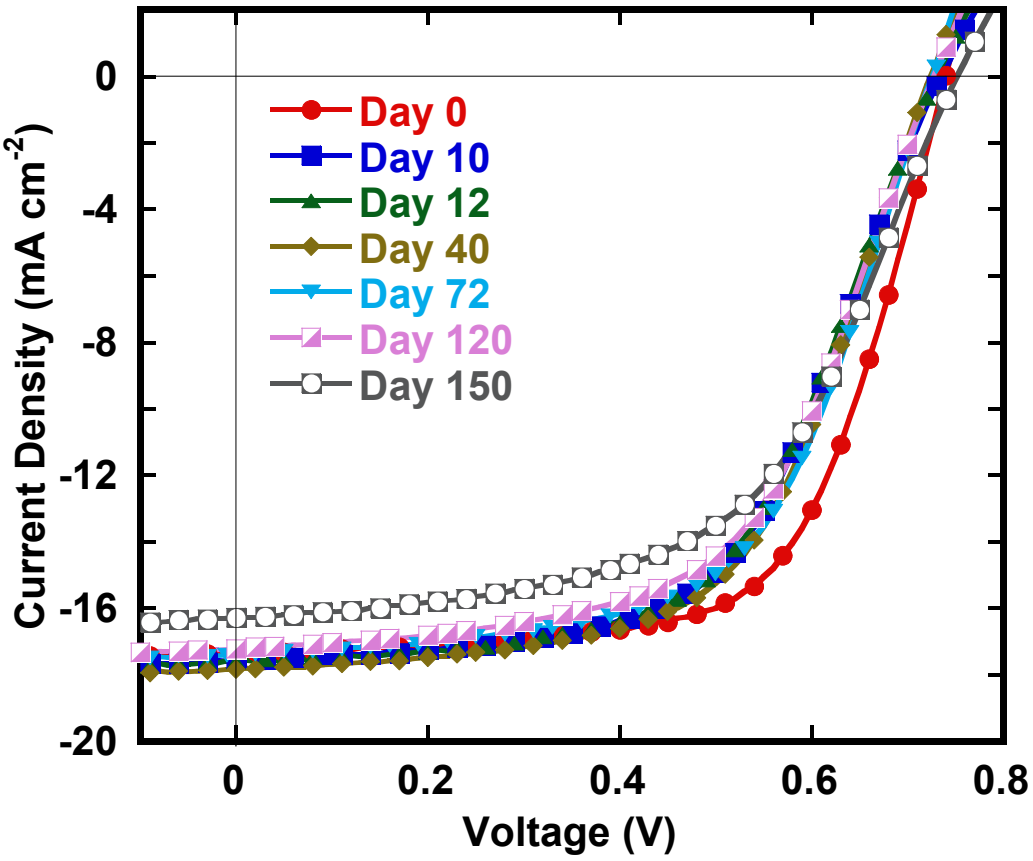


Figure S2. The *J*-V characteristics of a typical flexible Device 2 obtained during shelf storage period.

Table S2. Device performance parameters of a typical Device 2 tested during different shelf storage period.

Days	Voc	Jsc	FF	PCE
	[V]	[mA cm^{-2}]	[%]	[%]
0	0.74	17.4	64.4	8.28
10	0.74	17.5	57.6	7.47
12	0.73	17.6	57.9	7.45
40	0.72	17.8	59.5	7.64
72	0.73	17.4	59.3	7.53
120	0.72	17.2	58.4	7.24
150	0.75	16.3	55.9	6.83

J-V characteristics and performance parameters of a typical flexible Device 2 upon thermal annealing

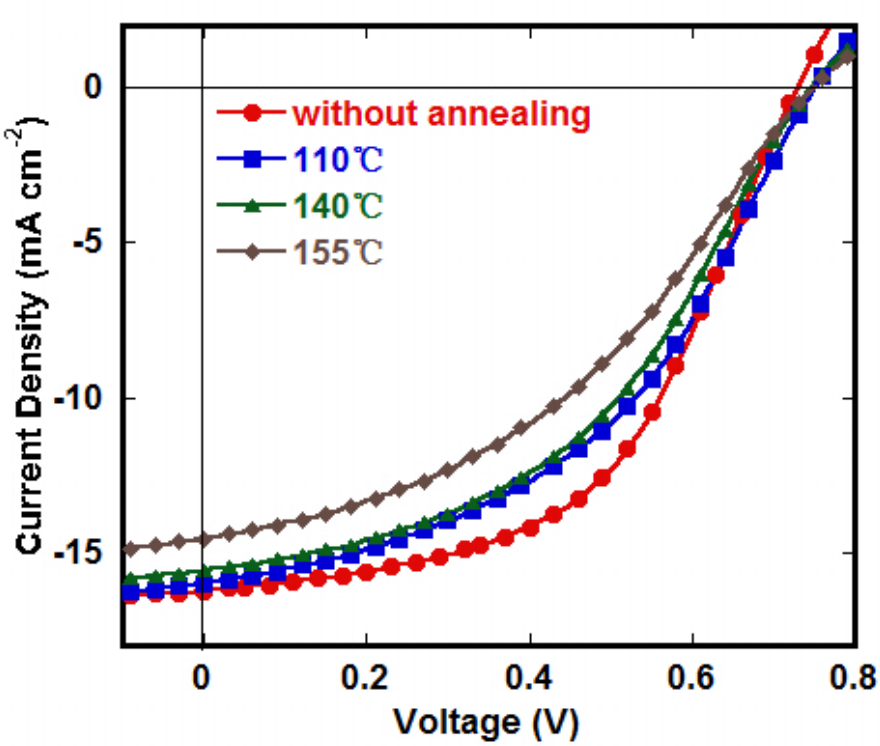


Figure S3. The *J*-V characteristics of a typical device 2 after 110, 140 and 155℃ annealing for 10 min.

Table S3. Device performance parameters of a typical Device 2 (after storage for more than 150 days)

Post-thermal annealing	Voc	Jsc	FF	PCE
	[V]	[mA cm^{-2}]	[%]	[%]
N.A.	0.73	16.2	52.1	6.17
110℃ 10 min	0.75	16	45.2	5.42
140℃ 10 min	0.75	15.5	44.6	5.20
155℃ 10 min	0.75	14.9	43.6	4.88