

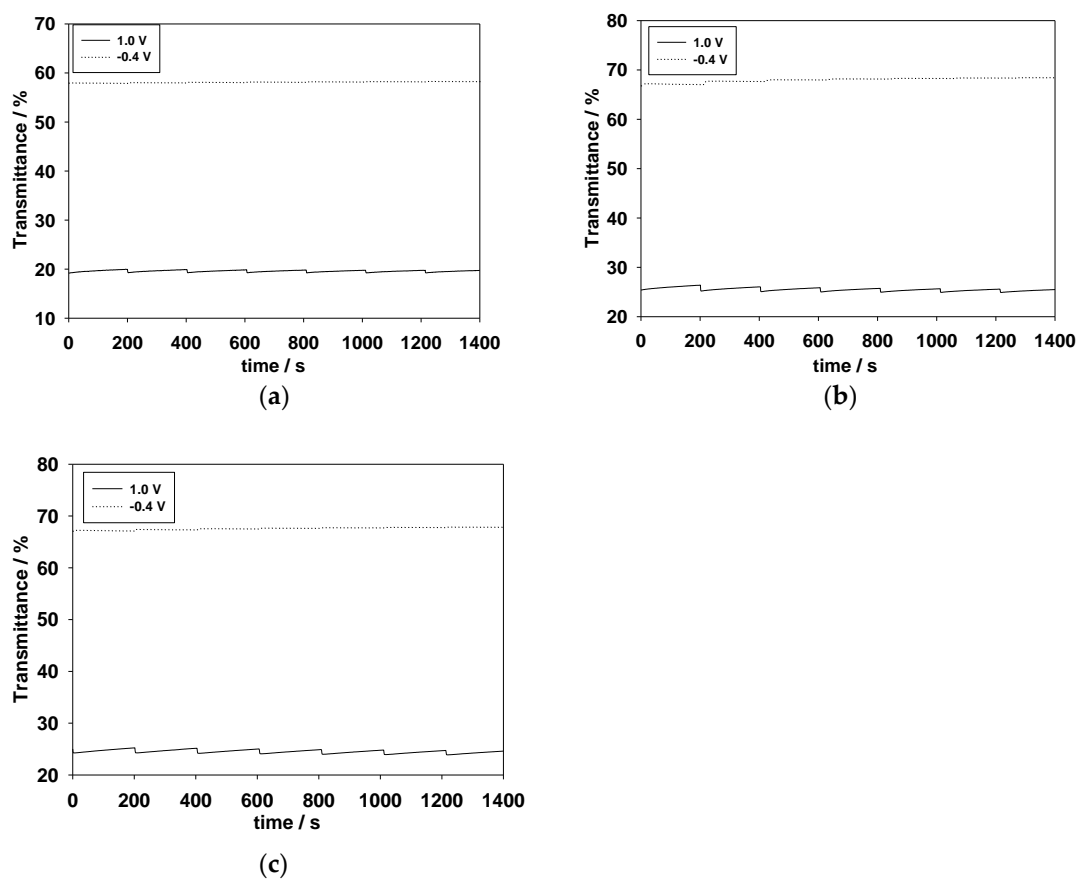
## Supplementary Materials

**Table S1.** Colorimetric values of the copolymer films at various potentials in solution state.

Polymer films	<i>E/V</i>	<i>L</i>	<i>a</i>	<i>b</i>	<i>L*</i>	<i>a*</i>	<i>b*</i>	<i>x</i>	<i>y</i>
P(MPS- <i>co</i> -TTPA)	-0.4	69.18	-1.99	26.05	74.74	-1.16	34.84	0.3842	0.3985
	-0.2	69.32	-1.77	26.41	74.86	-0.91	35.45	0.3858	0.3994
	0	66.79	-5.25	21.22	72.64	-4.83	27.22	0.3628	0.3874
	0.2	69.37	-1.83	26.54	74.9	-0.97	35.65	0.3861	0.3998
	0.4	69.02	-2.4	26.02	74.6	-1.61	34.84	0.3835	0.3991
	0.6	68.05	-3.5	24.45	73.74	-2.84	32.35	0.3767	0.3959
	0.8	65.62	-4.29	20.56	71.6	-3.8	26.44	0.3636	0.3852
	1	60.24	-3.83	13.46	66.74	-3.47	16.48	0.3437	0.3638
	1.2	52.88	-1.48	4.72	59.85	-0.91	5.13	0.3221	0.3339
	1.4	46.16	2.15	-2.58	53.29	3.4	-3.77	0.3067	0.3048
1.6	42.53	5.36	-4.11	49.61	7.37	-5.63	0.3096	0.2946	
P(MPO- <i>co</i> -TTPA)	-0.4	88.51	-2.52	26.56	90.93	-1.33	30.55	0.3655	0.3789
	-0.2	88.4	-2.56	26.57	90.84	-1.37	30.59	0.3655	0.3791
	0	88.35	-2.59	26.54	90.8	-1.4	30.55	0.3654	0.3791
	0.2	88.13	-2.99	25.92	90.63	-1.81	29.7	0.3633	0.3779
	0.4	86.68	-5.04	21.18	89.46	-3.93	23.38	0.3489	0.3681
	0.6	81.18	-0.46	7.65	84.95	0.65	7.28	0.3259	0.3335
	0.8	77.8	0.44	4.44	82.12	1.55	3.83	0.3206	0.3259
	1	79.87	0.02	6.46	83.86	1.13	5.99	0.3242	0.3306
	1.2	82.96	-1.29	10.22	86.42	-0.17	10.13	0.33	0.3396
	1.4	79.75	0.45	6.85	83.76	1.57	6.44	0.3257	0.3312
1.6	79.52	0.2	6.98	83.57	1.31	6.6	0.3257	0.3317	
P(ANIL- <i>co</i> -TTPA)	-0.4	81.02	-6.76	21.85	84.81	-5.92	25.22	0.3511	0.376
	-0.2	82.81	-5.82	24.12	86.3	-4.86	28.14	0.3577	0.3802
	0	79.62	-7.67	19.25	83.65	-6.94	21.81	0.3432	0.3705
	0.2	83.46	-5.53	24.64	86.83	-4.54	28.78	0.3592	0.3808
	0.4	83.25	-5.85	25.18	86.66	-4.87	29.62	0.3603	0.3829
	0.6	82.6	-6.18	24.24	86.12	-5.24	28.36	0.3576	0.3811
	0.8	80.35	-6.31	22.28	84.26	-5.47	25.95	0.3534	0.3774
	1	75.93	-5.97	17.16	80.55	-5.27	19.49	0.3423	0.3655
	1.2	68.66	-4.76	9.95	74.28	-4.21	10.79	0.3272	0.3475
	1.4	60.75	-2.04	3.46	67.21	-1.39	3.23	0.3157	0.3283
1.6	55.69	1.44	0.27	62.52	2.54	-0.43	0.3141	0.3157	

**Table S2.** Colorimetric values of ECDs at various potentials.

ECDs	<i>E/V</i>	<i>L</i>	<i>a</i>	<i>b</i>	<i>L*</i>	<i>a*</i>	<i>b*</i>	<i>x</i>	<i>y</i>
P(MPS-co-TTPA)/PProDOT-Et <sub>2</sub>	-0.8	62.1	5.1	12.0	68.44	6.6	14.2	0.356	0.347
	-0.6	58.5	6.8	9.2	65.2	8.5	10.7	0.353	0.337
	-0.4	56.0	6.2	6.9	62.88	7.9	7.8	0.345	0.331
	-0.2	54.1	6.0	5.5	61.03	7.7	6.1	0.341	0.327
	0	58.3	2.7	6.9	64.98	4.0	7.7	0.337	0.334
	0.2	53.6	5.8	4.1	60.63	7.6	4.3	0.336	0.323
	0.4	53.1	5.7	3.6	60.11	7.5	3.7	0.335	0.322
	0.6	51.9	5.1	2.0	58.94	6.7	1.7	0.328	0.317
	0.8	50.0	3.7	-1.3	57.08	5.2	-2.2	0.314	0.307
	1.0	48.5	2.6	-4.7	55.61	4.0	-6.2	0.301	0.297
P(MPO-co-TTPA)/PProDOT-Et <sub>2</sub>	-0.4	69.9	-2.3	15.7	75.38	-1.4	18.3	0.348	0.362
	-0.2	69.4	-2.7	14.8	74.97	-1.9	17.1	0.344	0.359
	0	67.7	-2.4	12.6	73.48	-1.6	14.3	0.339	0.353
	0.2	61.3	-1.1	5.0	67.72	-0.3	5.1	0.322	0.332
	0.4	51.9	-1.5	-7.2	58.93	-1.0	-8.8	0.285	0.295
	0.6	46.4	-0.3	-14.8	53.58	0.3	-16.8	0.264	0.270
	0.8	42.8	1.6	-19.6	49.88	2.8	-21.5	0.253	0.252
	1.0	40.4	3.4	-22.6	47.4	5.0	-24.3	0.247	0.240
	1.2	38.9	4.5	-24.8	45.86	6.4	-26.3	0.243	0.232
	1.4	38.4	4.7	-25.1	45.37	6.8	-26.7	0.242	0.230
P(ANIL-co-TTPA)/PProDOT-Et <sub>2</sub>	-0.4	74.9	-4.1	19.4	79.74	-3.3	22.8	0.352	0.371
	-0.2	75.0	-4.3	19.3	79.75	-3.5	22.7	0.352	0.371
	0	74.5	-4.6	19.0	79.63	-3.8	22.2	0.350	0.370
	0.2	74.5	-4.9	18.3	79.33	-4.1	21.2	0.348	0.369
	0.4	73.3	-4.61	17.5	78.33	-3.8	19.9	0.346	0.366
	0.6	66.9	-2.7	11.0	72.76	-2.0	12.4	0.334	0.349
	0.8	55.4	-4.9	-2.5	62.29	-5.0	-3.6	0.291	0.313
	1.0	48.5	-4.6	-11.8	55.7	-5.0	-13.6	0.263	0.284
	1.2	44.1	-2.9	-18.3	51.2	-3.0	-20.2	0.246	0.261
	1.4	40.0	-0.3	-24.3	47.0	0.2	-25.8	0.233	0.239



**Figure S1.** Open circuit stability of (a) P(MPS-*co*-TTPA)/PProDOT-Et<sub>2</sub> ECD monitored at 576 nm, (b) P(MPO-*co*-TTPA)/PProDOT-Et<sub>2</sub> ECD monitored at 580 nm, and (c) P(ANIL-*co*-TTPA)/PProDOT-Et<sub>2</sub> ECD monitored at 582 nm.