Electronic Supplementary Material (ESI) for Nanoscale.

High performance printed organic electrochromic devices based on an optimized UV curable solid-state electrolyte

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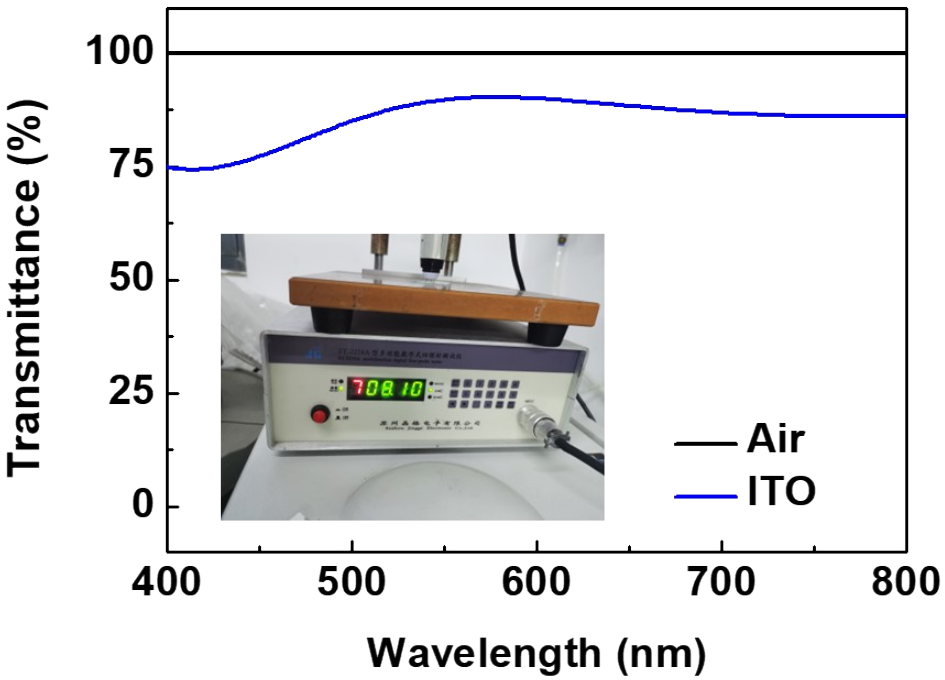

Figure S1 a) Transmittance spectra of ITO substrate, inset is the four-probe test results of the ITO substrate.

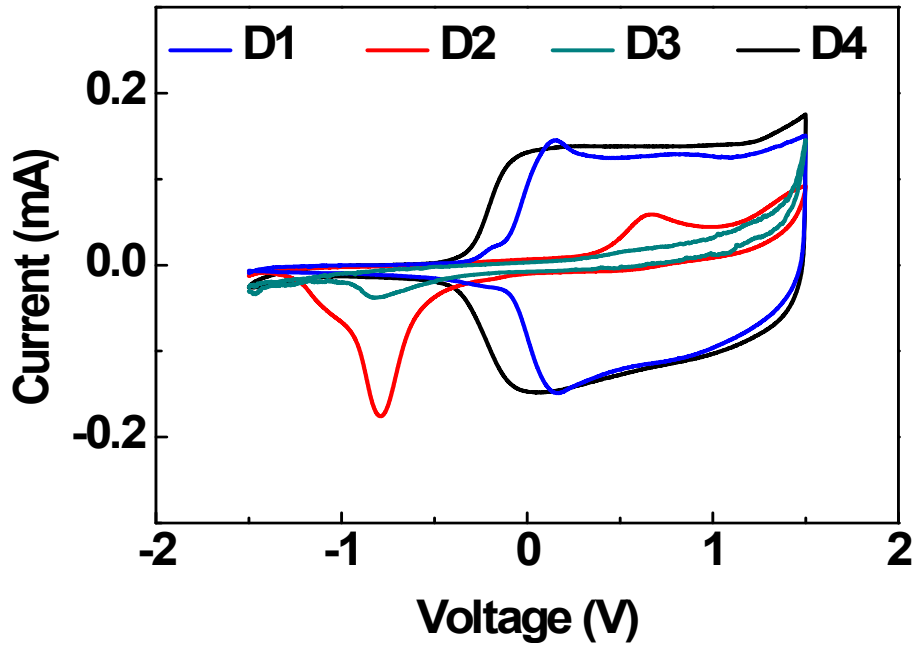

Figure S2 Cyclic voltammograms of D1-D4 with a scan rate of 50 mV s^{-1}.

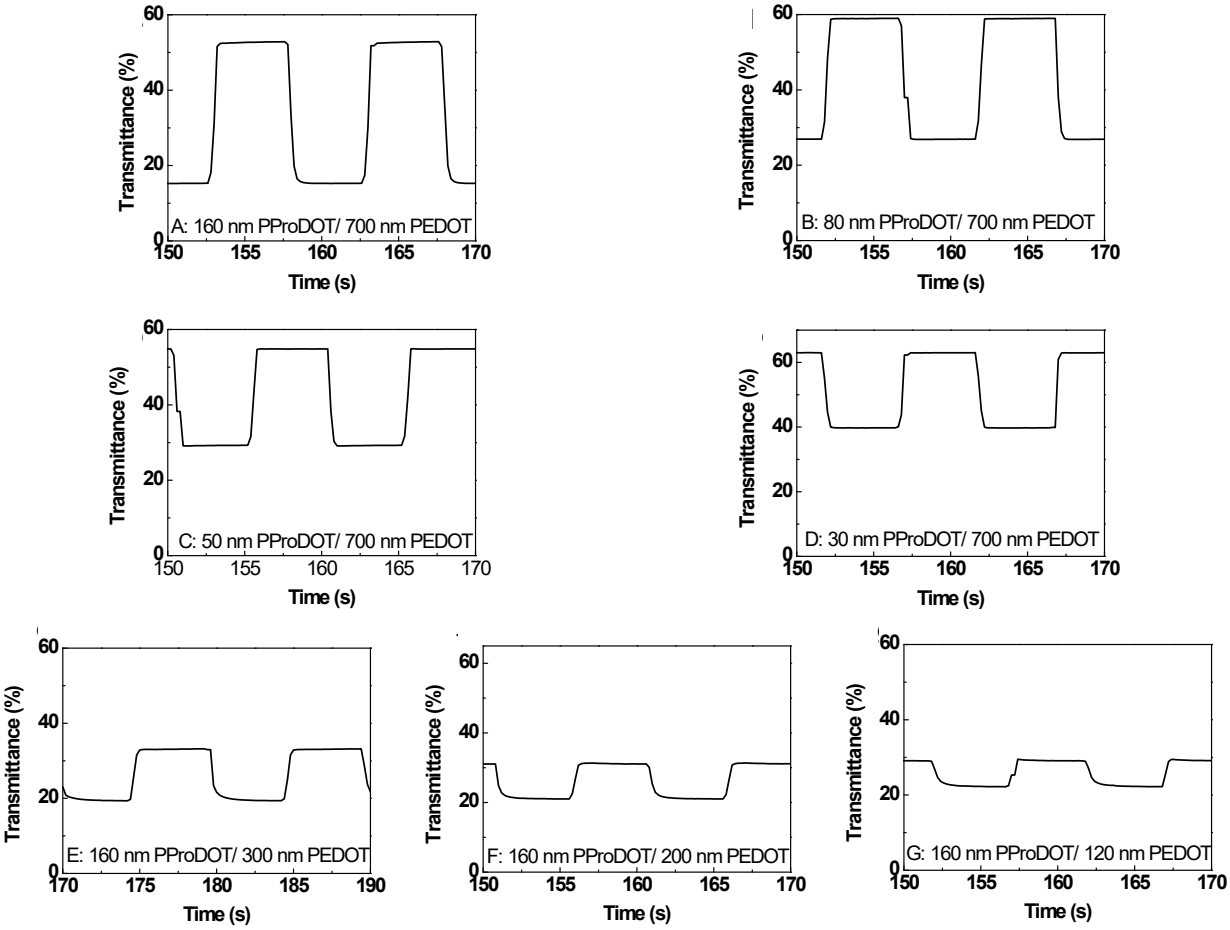

Figure S3 (A)-(G) Transmittance change (Δ*T*, %) at 550 nm of A-G, respectively.

Device A: ITO/ PProDOT ~160 nm/ Electrolyte 2/ PEDOT ~700 nm/ ITO;
Device B: ITO/ PProDOT ~80 nm/ Electrolyte 2/ PEDOT ~700 nm/ ITO;
Device C: ITO/ PProDOT ~50 nm/ Electrolyte 2/ PEDOT ~700 nm/ ITO;
Device D: ITO/ PProDOT ~30 nm/ Electrolyte 2/ PEDOT ~700 nm/ ITO;
Device E: ITO/ PProDOT ~160 nm/ Electrolyte 2/ PEDOT ~300 nm/ ITO;
Device F: ITO/ PProDOT ~160 nm/ Electrolyte 2/ PEDOT ~200 nm/ ITO;
Device G: ITO/ PProDOT ~160 nm/ Electrolyte 2/ PEDOT ~120 nm/ ITO.

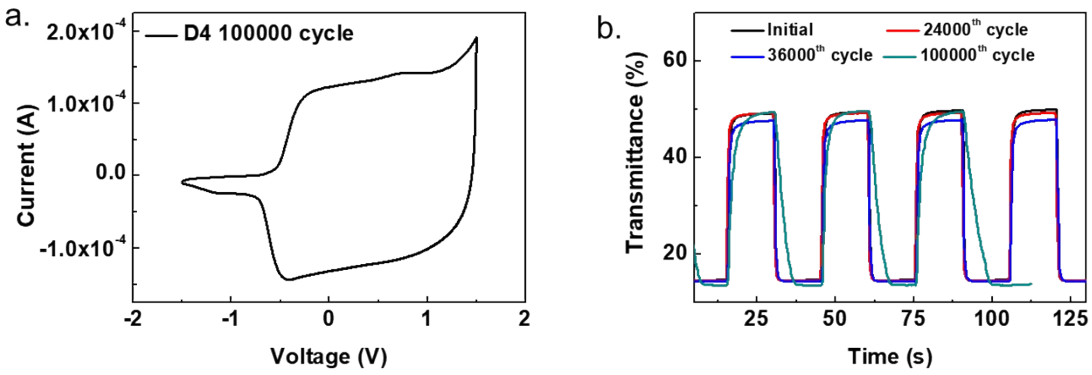

Figure S4 a. CV curve of D4 after 100000 cycles at a scan rate of 50 mV s^{-1} in the potential range of −1.5 to 1.5 V; b. The change in the transmittance with time upon potential switching between 0.6 V and -0.5 V of D4.

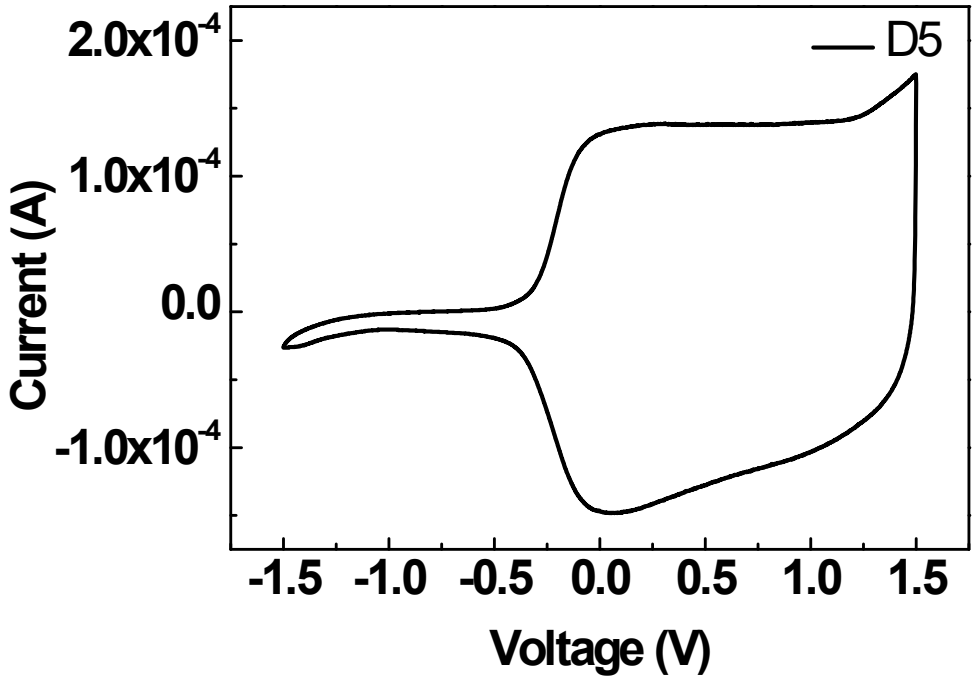

Figure S5 CV curve of D5 at a scan rate of 50 mV s^{-1} in the potential range of −1.5 to 1.5 V.

Table S1 Performance summary of A-G

Device	Thickness		Bleaching (V)	Coloration (V)	ΔT^c(at 550 nm)	Response Time (s)	
	EC[a]	CE[b]				Bleaching	Colouring
A	~160 nm	~700 nm	0.6	-0.5	37.2	0.6	0.6
B	~80 nm	~700 nm	0.6	-0.5	32.1	0.6	0.6
C	~50 nm	~700 nm	0.6	-0.5	25.8	0.6	0.4
D	~30nm	~700 nm	0.6	-0.5	23.3	0.6	0.5
E	~160 nm	~300 nm	0.6	-0.5	13.7	0.4	0.4
F	~160 nm	~200 nm	0.6	-0.5	10.2	0.7	0.6
G	~160 nm	~120 nm	0.6	-0.5	7.0	0.7	0.4

[a]electrochromic layer, [b]counter electrode, [c]The optical contrast,
ΔT, is the transmittance loss of the device between bleached and colored state.