Supplementary Information

Characterization

Field-effect scanning electron microscope (FE-SEM)

Since the annealed P3HT is not soluble in tetrahydrofuran (THF) butPHEMAAA iswell-dissolved in THF, the selective dissolution of the PHEMAAA in the 25/75 blend film was successfully performed. The 25/75 blend film morphologies before and after dissolution of PHEMAAA were characterized using a FE-SEM. (JEOL JSM-6701F)

Contact angle

The contact angles of deionized water anddiiodomethane (MI) were measured at room temperature and ambient relative humidity using a Kruss DSA 10 contact angle analyzer interfaced to drop shape analysis software.The Owens-Wendt-Rabel-Kaelble (OWRK) method [1] was used to calculate the surface energy of the polymer films.
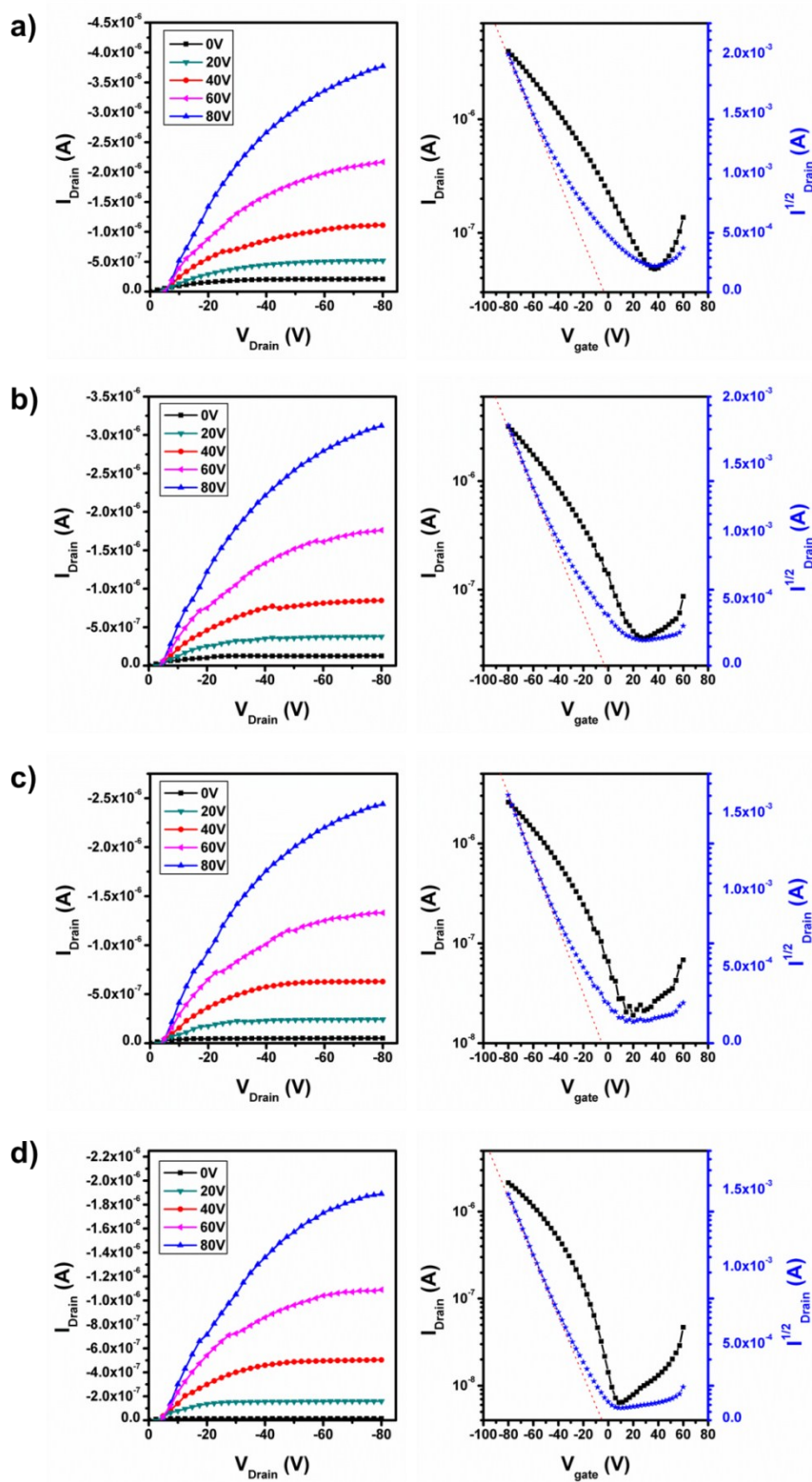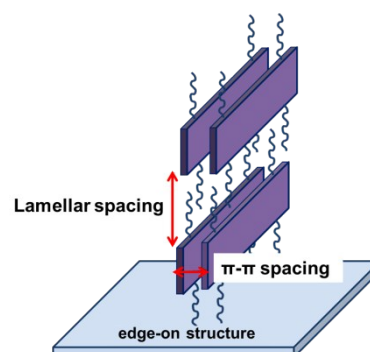
Fig. S1 Output and transfer curves obtained from a) P3HT, b) 75/25 blend, c) 50/50 blend, and d) 25/75blend.

Table S1. The *d*-spacings of P3HT/PHEMAAA blend films determined from GIWAXD measurements.

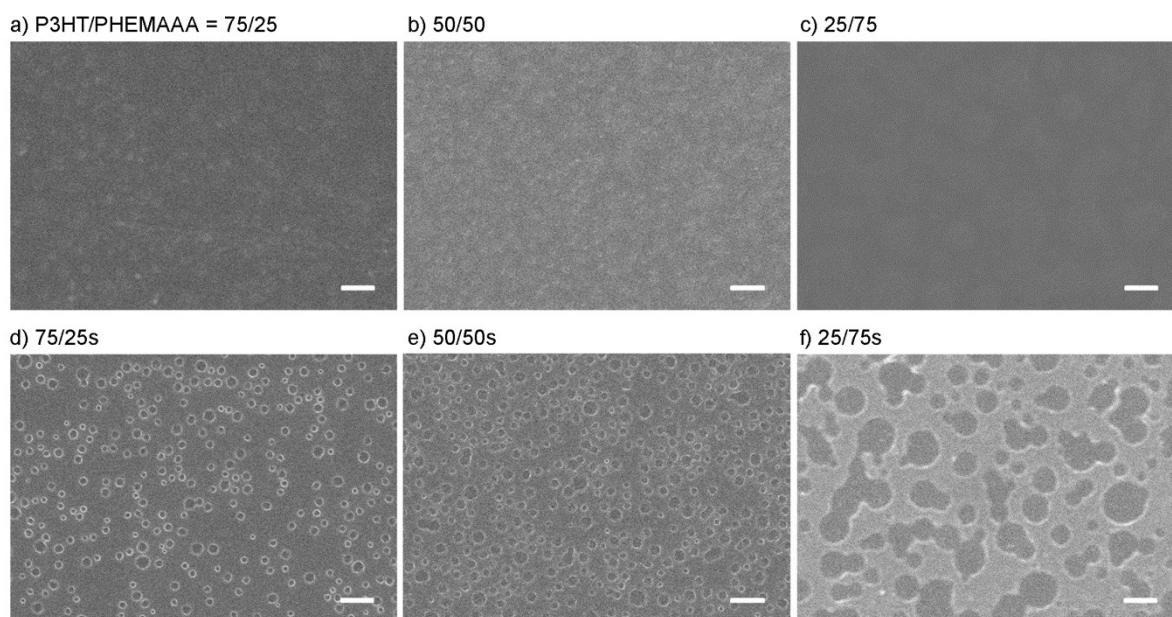| *d* - spacing	P3HT	P3HT/PHEMAAA (wt%)		
		75/25	50/50	25/75
Lamellar spacing	16.3 Å	16.8 Å	16.3 Å	16.8 Å
π-π spacing		4.2 Å		

Fig. S2FE-SEM images of P3HT/PHEMAAA blend films a)-c) before and d)-f) after selective dissolution of PHEMAAA part using THF. (scale bar = 1 μm) The connective networks of P3HT domain were observed from all blend surfaces by measuring the film morphologies obtained after selective dissolution of PHEMAAA.

Table S2. The contact angles of deionized water and DIM measured on the P3HT and PHEMAAA films and the surface energies of the polymers.

Sample	Contact angles [degrees][a]		Surface energy (mN/m)[b]
	DI-water	Diiodomethane (DIM)	
P3HT	104.0 (0.8)	49.9 (1.2)	34.3
PHEMAAA	72.7 (1.1)	36.7 (0.9)	44.6

[a]Standard deviations are given in parentheses. [b]Calculated using Owens-Wendt-Rable-Kaelble method.

References

1. D.K. Owens, R.C. Wendt, et al., J. Appl. Polym. Sci., 1969, 13, 1741