Supporting Information (for submission only).

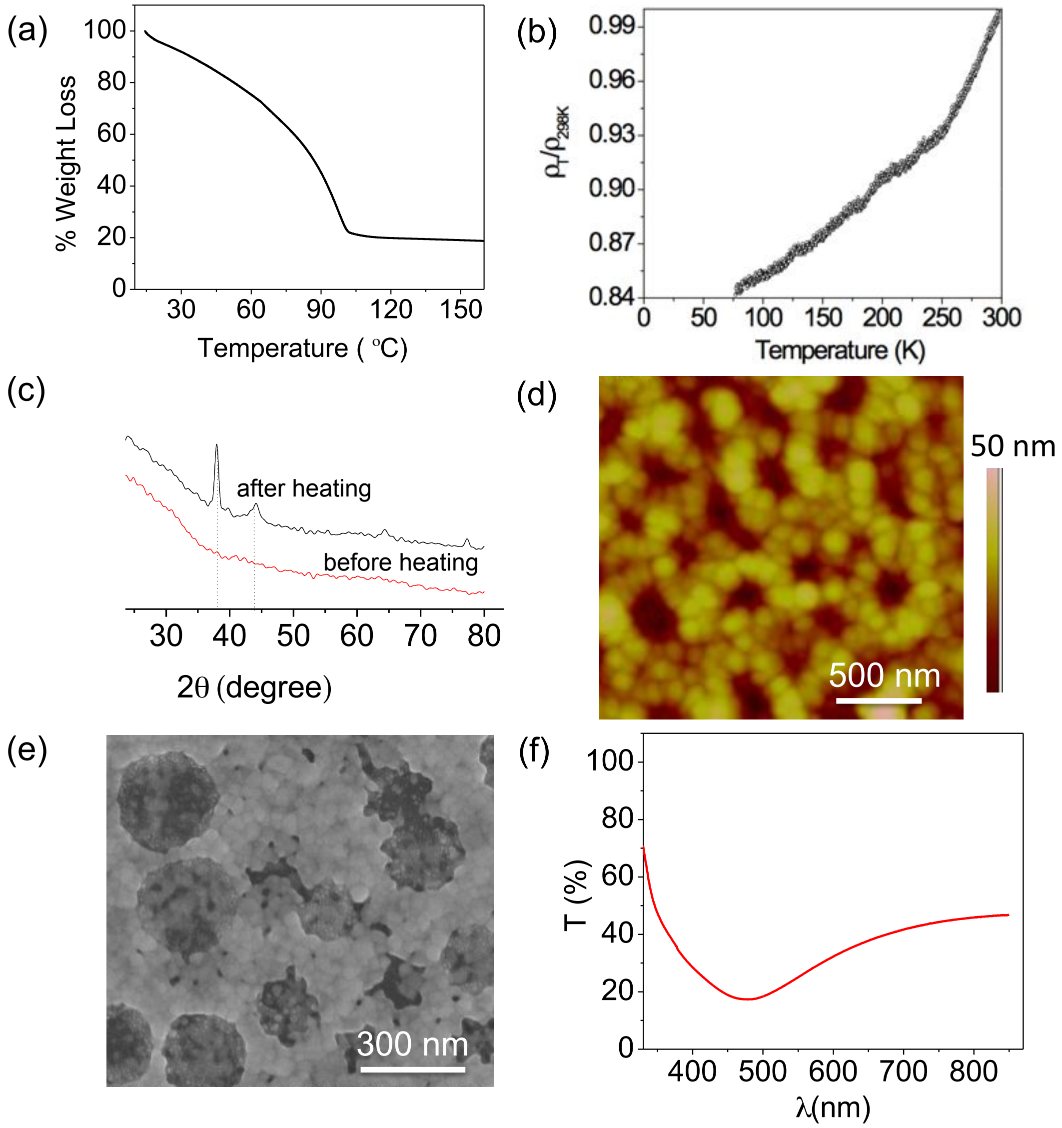

Figure S1 Metallization of Ag ink (a) Thermogravimetric analysis and (b) Four-probe resistance measurement of the thermolysed Ag nanocrystalline film. (c) XRD pattern (d) AFM image over 2 μm × 2 μm scan area (e) SEM image and (f) UV-visible transmission spectra of Ag film formed by thermolysing at 120 °C.

The Ag ink chosen for the study is a metal-organic based complex made commercially (Kunshan Hisense Electronics Co., Ltd., China). It has a low thermal decomposition temperature and readily gives away the organic part, giving rise to shiny Ag mirror like film. The TGA data in Figure S1a clearly indicates complete decomposition of precursor at 120 °C. Room-temperature resistivity of the film is

0.376 μΩ.cm. This value is 3 times higher compared to bulk Ag (0.159 μΩ.cm). The process of metallization was analysed using XRD (Figure S1c). After thermolysing the film for 5 min, the XRD data shows a peak at 38.2° corresponding to Ag(111) in addition to one small peak at 44.1° due to Ag(200). However, the peaks are broad as the diffracting regions are essentially nanoparticles. On thermolysis, the XRD peak at 38.2° became more intense, due to an overall improvement in the crystallinity. A corresponding AFM image in Figure S1d shows that indeed the thermolyzed Ag is composed of interconnected nanoparticles of the size of ~20-30 nm. The SEM image shows the presence of smaller nanoparticles within the holes (Figure S1e). Additionally, Ag film itself is observed to be semi-transparent with an average transmission of ~36% as seen by the UV-visible spectra in Figure S1f. This can be attributed to the presence of randomly distributed nanoholes.

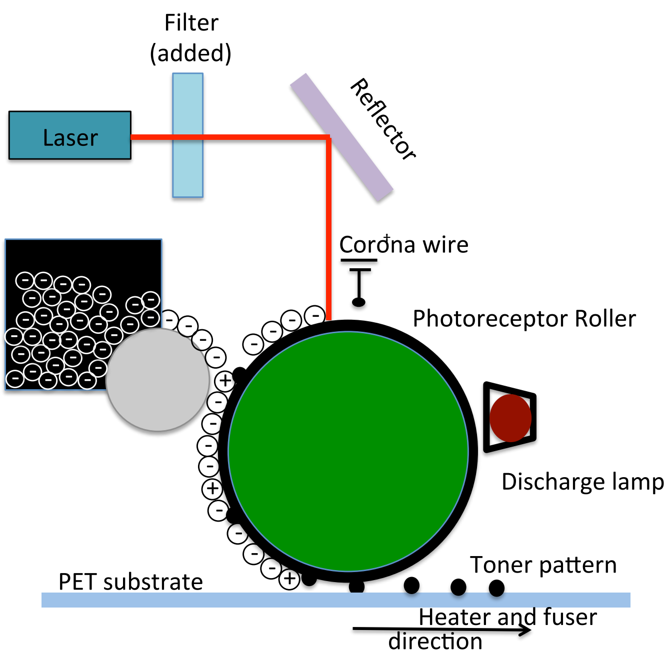

Figure S2 The general method of laser printing with toner.

The laser printing process is well known and commercially adopted technique. The photodrum is entirely negatively charged and exposed with a laser beam according to the image of the original document. The irradiated region becomes positively charged where toner gets transferred immediately. The toner is bonded to the PET sheet by applying heat and pressure with a fixed roll. The printed toner easily comes off in organic solvents such as toluene and acetone. We have used it for printing on PET sheet just as printing on paper.

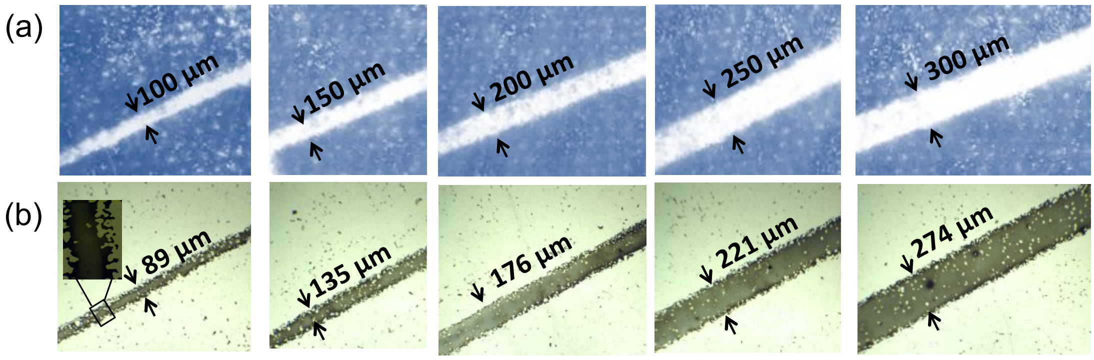

Figure S3 The printing resolution using 1200 dpi printer (a) the printed toner (in blue) with a transparent gap of different width of 100, 150, 200, 250 and 300 µm (b) the Ag line of different widths created after development of toner.

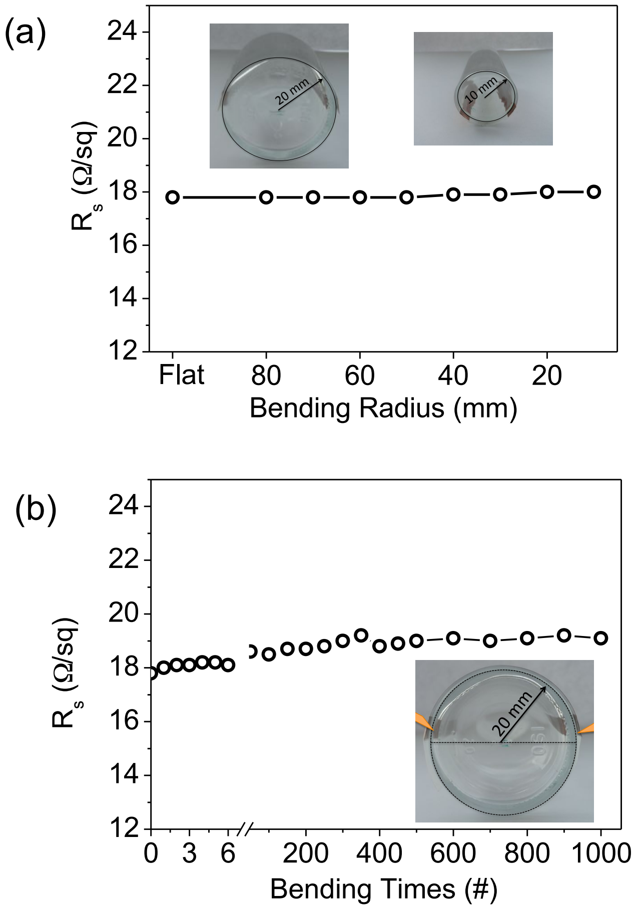

Figure S4 Flexiblity Test. variation in resistance (a) at different bending radius. (b) for different bending cycles at a fixed bend radius of 20 mm.

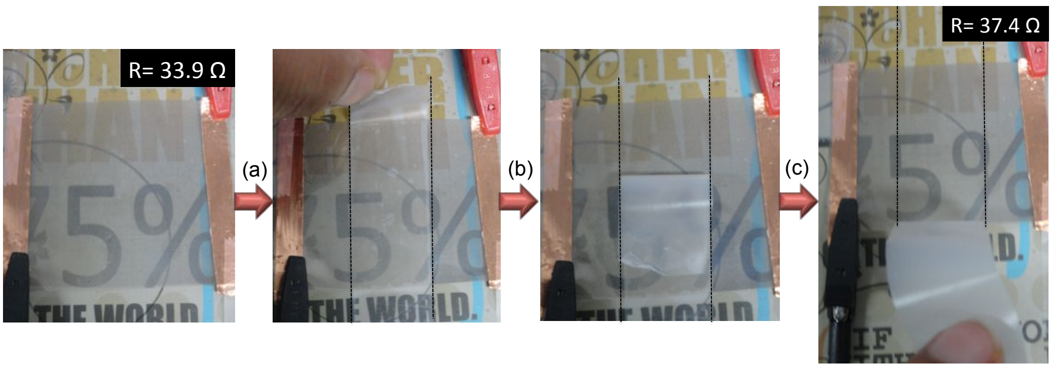

Fig. S5 Adhesion Test for Ag/PET electrode for 14% grayscale. The marked lines in black shows the region where scotch tape was pasted and peeled off for testing.