

Supplementary Material

1 DETERMINATION OF THE LAYER THICKNESS

$$h = N \times \frac{h_0}{\left(1 + \frac{4\rho\omega^2}{3n} . h_0^2 . t\right)^{\frac{1}{2}}}$$
(S1)

Where N = 4 is the number of deposition steps; $h_0 = 6, 4mm$ is the initial thickness of the solution layer deposited on the substrate; $\rho = 4, 73 \times 10^3 kg/m^3$ is the density of the solution; $\omega = 1.000 rpm$ is the angular velocity; n = 0,011 Pas is the solution viscosity and t = 30 s is the time.

2 PHOTOLITHOGRAPHY - TLM STRUCTURE



(1a) Intermediate stage of the photolithographic process

(1b) TLM structure formed by photolithography





Figure S2. (A) TEM image of silver nanoparticles with 100000x amplification. TEM JEOL, model 100CXII. (B) Size distribution of the nanoparticles. The distribution exhibits a slight departure from a normal Gaussian distribution.



Figure S3. Test of the developed ink on an Epson TX-135 consumer printer. A 5 cm diameter silver sperial was printed on PET.

3 MEASUREMENTS DURING DRYING



Figure S4. Image of the probe tips contacting the sample, with a distance of 25 mm.



4 INK RESISTIVITY DETERMINATION

Figure S5. I-V curves for different segments of the TLM structure. Segment A (Blue), Segment B (Red), Segment C (Green), Segment D (Yellow), Segment E (Black).

5 POROSITY DETERMINATION



Figure S6. Determination of the surface porosity of ink at different sintering times using the Abdullah's method. The fraction of the voids are, SEM 1: 68%; SEM 2: 57%; SEM 3: 49%; SEM 4: 45%.



Figure S7. Exponential relationship between the real value of the impedance and the void fraction(f_v).