

# Voltera Flexible Conductor 2 (1000383)

## Description

The second-generation flexible conductive ink allows for higher conductivity, better printing resolution, improved bending performance, and more robust soldering - all the ingredients required to print your own flexible circuits.

Compatible with PET, polyimide, and other flexible polymer substrates.

## Application Notes

### Printing and Curing

Apply adhesive-backed polyimide to a rigid substrate and print as normal.

For best curing results, follow recommendation in Table 4.

For curing on the V-One, flip and cure as normal using the automatic bake cycle. Carefully peel once cool-down temperature reaches 50°C.

**Cure immediately – any delay may affect flexibility.**

### Soldering

Use SMD291 flux. For best results, burnish before soldering for 20[s] with supplied abrasive burnishing pad.

180°C – excellent solderability and rework.

### Recommended Substrates

- PET (polyethylene terephthalate) – 5 [mil]/125 [µm]
- Polyimide – 5 [mil]/125 [µm]

### Design recommendations

For circuit board applications with the standard 250µm nozzle, consider these design recommendations:

- Minimum IC pin-to-pin pitch: 0.65 [mm]
- Minimum 2-terminal package: 0402 (imperial)
- Minimum tracewidth: 8 mil/200 [µm] (recommend 10mil)

### Safety and Handling

See MSDS for safety, handling, and disposal information.

**Table 1: Physical & Electrical Properties (Post-cure)**

Test	Value
Sheet Resistance: (45 µm film thickness)	3.29 [mΩ/sq]
Resistivity (4-point-probe):	1.36 x 10 <sup>-7</sup> [Ω. m]
Typical cured film thickness:	40 – 70 [µm]
Film shrinkage, post-cure:	Not measured
*Bend radius at fracture:	< 0.7 [mm]
Joint strength (lbs force):	Not measured
Adhesion (cross-hatch tape test):	No transfer

\*Test fracture on 5mil PET

**Table 2: Composition Properties**

Test	Value
Viscosity recovery ratio: <i>1° Cone and plate, 25°C</i>	Not measured
Recovery viscosity [Pa. s]: <i>1° Cone and plate, 25°C</i>	Not measured
Viscosity target [Pa. s]: <i>1° Cone and plate, 25°C</i>	Not measured
Density:	3.35 [g/mL]
Clean-up solvent:	Isopropyl Alcohol (99%)

**Table 3: Printing Properties**

Test	Value
Trace spread after print:	< 20%
Recommended Nozzle ID:	150 – 225 [µm]
Typical Line Width:	6-10 [mil] 150-250 [µm]
** Typical Print Height:	50 – 80 [µm]
** Typical Feedrate:	300 – 500 [mm/min]
** Typical Kick:	0.35 [mm]

\*\* V-One specific settings

**Table 4: Processing Parameters**

Test	Value
Curing:	30 [min], 170°C
Compatible solder:	SnBiAg <sub>1</sub> SnBiAg <sub>0.4</sub>
Typical shelf life:	12 months, unopened
Storage:	4 – 10°C, sealed container.