# IPC-6903A

## 2018 - January

# Terms and Definitions for the Design and Manufacture of Printed Electronics

Supersedes IPC-6903
October 2015

*An international standard developed by IPC*

*Association Connecting Electronics Industries*

IPC®

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**Standards Should:**

- Show relationship to Design for Manufacturability (DFM) and Design for the Environment (DFE)
- Minimize time to market
- Contain simple (simplified) language
- Just include spec information
- Focus on end product performance
- Include a feedback system on use and problems for future improvement

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- Increase time-to-market
- Keep people out
- Increase cycle time
- Tell you how to make something
- Contain anything that cannot be defended with data

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Thank you for your continued support.

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# Terms and Definitions for the Design and Manufacture of Printed Electronics

Developed by the D-64a Printed Electronics Terms and Definitions Task Group of the D-64 Printed Electronics Final Assembly Subcommittee of IPC

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Users of this publication are encouraged to participate in the development of future revisions.

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# Terms and Definitions for the Design and Manufacture of Printed Electronics

## 1 SCOPE

This standard provides industry-approved terms and definitions for the design and manufacture of printed electronics.

**1.1 Purpose** The purpose of this standard is to provide the electronics industry with terms and definitions for specifying, designing and manufacturing printed electronics (additive processes).

The reader is encouraged to also reference IPC-2291, IPC-4591, IPC-6901 and IPC-9204, which have additional industry-approved terms and definitions.

**1.2 Precedence** Terms and definitions in this standard will be submitted to working groups in the IPC Printed Electronics Committee and the IPC Terms and Definitions Committee for inclusion in IPC-T-50 and other IPC standards for printed electronics. The definition of terms in those standards **shall** take precedence over those published in this standard. For ease of use, some terms from IPC-T-50 have been included in this standard and are marked with an asterisk (*).

**1.3 Revision and Submitting New Terms** This standard **shall** undergo revision or amendments in instances in which:

- A term(s) is presented to the D-64a Task Group and that term does not fit the scope or need of another standard
- A revision or amendment of this standard can be approved faster than the standard for which the term(s) was developed.

## 2 APPLICABLE DOCUMENTS

**2.1 IPC**[1]

**IPC-T-50** Terms and Definitions for Interconnecting and Packaging Electronics Circuits

**IPC-2291** Design Guideline for Printed Electronics

**IPC-4591** Requirements for Printed Electronics Functional Conductive Materials

**IPC-6901** Application Categories for Printed Electronics

**IPC-9204** Guideline on Flexibility and Stretchability Testing for Printed Electronics

## 3 TERMS AND DEFINITIONS FOR PRINTED ELECTRONICS

**Aerosol Printing** Printing technology that deposits material in a form of high-speed mist stream of microdroplets, capable of producing high-resolution in patterns on planar and nonplanar substrates.

**Aggregates** A collection of particles joined together which cannot be broken down.

**Alignment (Registration)** Use of an outer-positioning camera or sensor to move a substrate to the correct position manually or in automated form.

**Anilox** A cylinder with etched or engraved wells.

**Annealing, Metals** A treatment that alters the microstructure of a material, causing changes in properties such as strength and hardness, to induce ductility and relieve internal stresses.

**Annealing, Plastics** A treatment that alters the microstructure of a material causing changes in properties to improve strength and hardness, to reduce internal stresses related to the polymer structure.

**Annealing, Printed Functional Material** A treatment that can be used to enhance electrical performance (i.e., reduce electrical resistance) of a printed functional material.

**Arc Plasma Heating** Arc heating utilizing disposable graphite electrodes which generate an arc plasma between the material and electrode, thus transferring the energy to the material. Arc plasma heating captures the arc plasma with a nozzle or gas flow. It can offer higher orientation and higher temperature than normal arc heating.

**Area Gain** Area in the actual feature contour outside the nominal feature contour.

**Area Loss** Nonprinted area of a nominal feature.

1. www.ipc.org