## ECA/IPC/JEDEC J-STD-075

# Classification of Non-IC Electronic Components for Assembly Processes

A joint standard developed by the Electronic Components Association S-1 Passive Component Committees Steering Group, IPC Plastic Chip Carrier Cracking Task Group (B-10a) and the JEDEC JC-14.1 Committee on Reliability Test Methods for Packaged Devices

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

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# Classification of Non-IC Electronic Components for Assembly Processes

## 1 GENERAL

**1.1 Scope** This standard outlines worst case industry solder (SnPb and Pb-free) assembly process limits for non-semiconductor electronic components (hereafter referred to as ''components'') along with commodity specific exceptions to the worst case solder assembly process limits. The solder assembly process limits listed in this document represent common industry limits of a given component or component family and are not recommended process parameters for an assembler. An individual Supplier's component capability may be better or worse than the common industry limits documented in this specification. An assembler needs to take into account many factors when establishing a safe assembly process for a given electronic assembly. This standard outlines a process to classify and label a non-semiconductor component's Process Sensitivity Level (PSL) and Moisture Sensitivity Level (MSL) consistent with the semiconductor industry's classification levels (J-STD-020 *Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Devices* and J-STD-033 *Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices).* This specification does not establish re-work conditions.

**1.2 Purpose** The purpose of this specification is to establish an agreed set of worst case solder process limits (SnPb and Pb-free) which can safely be used for assembling non-semiconductor electronic components on common substrates, e.g., FR4, ceramic, polyimide, etc., along with documenting unique commodity specific exceptions. The documented process conditions are used to evaluate a non-semiconductor component's PSL and MSL. It is important for Component Manufacturers (hereafter referred to as ''Suppliers''), Users and Assemblers to be highly familiar with this standard's information and processes to insure optimal product quality and reliability.

### 1.3 Definitions

***Family*** A grouping of components by similar/common characteristics (e.g., package; design; materials; function, technology and or manufacturing process).

***MSL*** Moisture Sensitivity Level – A rating indicating a component's susceptibility to damage due to absorbed moisture when subjected to reflow soldering (see J-STD-020).

***PSL*** Process Sensitivity Level – A rating used to identify a component that is solder process sensitive because the component can not be used in one or more of the base solder process conditions.

***PIH*** Paste-in-Hole – Also commonly called Intrusive Soldering. This is a process in which the solder paste for the through-hole components is applied using a stencil or syringe to accommodate through-hole components that are inserted and reflow-soldered together with the surface-mount components.

***PTH*** In the component Supplier industry, PTH is commonly used to refer to Pin-Through-Hole Components. To avoid confusion with the PCB meaning of Plated-Through Hole, this document uses the phrase ''through-hole components.''

***Supplier*** The component manufacturer or seller that controls the component specifications and is accountable for the component's performance.

***User*** The individual, organization, company or agency responsible for the procurement of electrical/electronic hardware, and having the authority to define the class of equipment and any variation or restrictions (i.e., the originator/custodian of the contract detailing these requirements).

### 1.4 General Requirements

**1.4.1 Agreements** When referenced by a Supplier, User or Assembler, this standard becomes part of their requirements/specifications. When a clause in this document is referenced, its subordinate clauses also apply.

**1.4.1.1 Order of Precedence** The contract always takes precedence over this standard, referenced standards and drawings.