

JEDEC PUBLICATION

Part Model Assembly Process Classification Guidelines for Electronic-Device Packages – XML Requirements

JEP30-A100B

(Revision of JEP30-A100A, March 2023)

August 2024

JEDEC SOLID STATE TECHNOLOGY ASSOCIATION



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PART MODEL ASSEMBLY PROCESS CLASSIFICATION GUIDELINE FOR ELECTRONIC- DEVICE PACKAGES - XML REQUIREMENTS

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PART MODEL ASSEMBLY PROCESS CLASSIFICATION GUIDELINE FOR ELECTRONIC- DEVICE PACKAGES - XML REQUIREMENTS

From JEDEC Board Ballot JCB-24-29, JCB-17-48 formulated under the cognizance of the JC-11 Committee on Mechanical Standardization.)

1 Scope

This standard establishes the requirements for exchanging part data between part manufacturers and their customers for electrical and electronic products. This standard applies to all forms of electronic parts. It forms part of the Part Model XML Schema, which covers the parental structure for the electrical, physical, thermal, assembly process classification data along with materials and substances that may be present in the supplied product or sub-products. This Guideline specifically focuses on the “Assembly Process Classification” sub-section of the Part Model.

All releases of the [AssemblyProcessClassificationSection](#) sub-schema must be under the umbrella of the Part Model Schema to ensure that the Part model schema is referencing the correct version of the [AssemblyProcessClassificationSection](#) sub-schema. In addition, this will enable the [AssemblyProcessClassificationSection](#) sub-schema to connect to the Manufacturer Part Number and the Manufacturer of the Part.

1.1 Purpose

This standard is intended to benefit part manufacturers and their customers by providing consistency and efficiency to the transfer of part data from part manufacturer to customers. This standard specifically covers data applicable to the assembly process classification and requirements of the part during the assembly process.

2 Applicable Documents

The following documents form a part of this standard to the extent specified herein. The revision of the document in effect at the time of solicitation shall take precedence.

2.1 JEDEC

JESD30J, *Descriptive Designation System for Electronic-device Packages*

JEP30, *Part Model Guidelines for Electronic-Device Packages – XML Requirements*

JEP30-10, *Part Model Schema*

JEP30-A101, *Part Model Assembly Process Classification Schema*

JEP30-D10, *Part Model Schema Types Dictionary* (Required to support the Part Model Schema and each of its sectional sub-schemas.)

JESD22-A111, *Evaluation Procedure for Determining Capability to Bottom Side Board Attach by Full Body Solder Immersion of Small Surface Mount Solid State Devices*

2.2 IPC

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

IPC-CH-65, *Guidelines for Cleaning Printed Circuit Boards and Assemblies*

2.3 ECA/IPC/JEDEC

J-STD-075, *Classification of Passive and Solid State Devices for Assembly Processes*

2.4 IPC/JEDEC

J-STD-020, *Moisture/Reflow Sensitivity Classification for Nonhermetic Surface mount Devices*

2.5 ECIA

EIA 364-56, *Resistance to Soldering Heat Test Procedure for Electrical Connectors and Sockets*

EIA 364-61, *Resistance to Soldering Heat From Rework Test Procedure for Electrical Connectors and Sockets*

3 Requirements

The following terms and definitions are applicable to this XML Schema.

3.1 Terms and Definitions

All definitions and terms associated with the Process Sensitivity Levels aspect of the part or process are in accordance with J-STD-075A and / or IPC-T-50 Terms and Definitions or later versions.

All definitions and terms associated with the Moisture Sensitivity Levels aspect of the part are in accordance with J-STD-020 and / or IPC-T-50 Terms and Definitions or later versions.

The Assembly Process Classification details of the part are defined in the [AssemblyProcessClassificationSection](#) of the Part Model XML Schema.

All common Terms and Definitions that are used by more than one sectional sub-schema, such as any of the Electrical, Package, Environmental, Assembly Process Classification, are defined in the "Part Model Schema Types Library"

All other definitions and terms necessary to define the schema, are defined by this document.

3.1 Terms and Definitions (cont'd)

Part Model: A Part Model is a data representation described in an XML file that conforms to the rules and structure of the Part Model XML Schema.

NOTE 1 Companies who use the Part Model XML Files and claim compliance to JEDEC, must ensure that their Part Model XML file conforms to the specific released version of the Part Model XML Schema released by JEDEC.

NOTE 2 Section 4 defines the outline of the structure of the Assembly Process Classification XML Schema. Specific components of the XML Schema and their hierarchy are specifically controlled by the JC-14 Committee who retains the expertise for these structures.

NOTE 3 The [AssemblyProcessClassificationSection](#) of the schema forms part of the Part Model XML Schema and is not intended to act as a standalone schema. In addition, there is a “Part Model Schema Types Library” XML Schema, which is a common set of xml structures shared across the Part Model XML Schema and all its sub-section schemas.

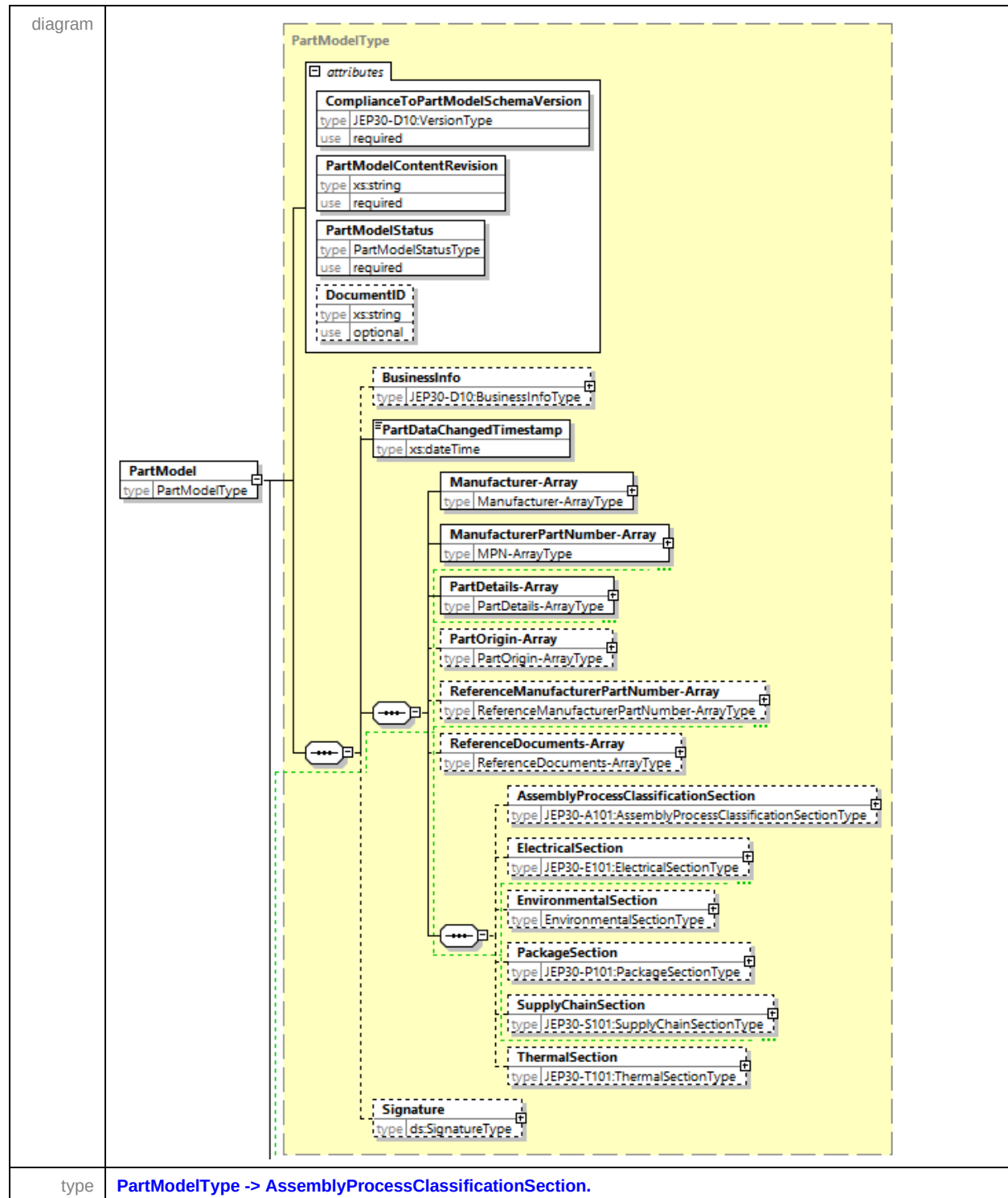
3.2 XML Schema Key Terms and Definitions

Reference the JEP30, 3.2, XML Schema Key Terms and Definitions.

4 Part Model Schema Definition

The following section describes the XML Schema structure.

4.1 Part Model Parent - Assembly Process Classification Section



4.1 Part Model Parent - Assembly Process Classification Section (cont'd)

The [PartModelType](#) belongs to the “Part Model XML Schema”. The “[AssemblyProcessClassificationSection](#)” belongs to the “Part Model Assembly Process Classification XML Schema”. The primary purpose of the Part Model Schema is to provide the structure for identifying unique parts (Manufacturer and MPN), and the structure to include the sub-schemas which define the part details, as outline in the JEP30 - Part Model Guidelines for Electronic-Device Packages – XML Requirements.

This document covers the [AssemblyProcessClassificationSection](#), which is referenced from its parent’s structure, the [PartModel](#). The contents under the [AssemblyProcessClassificationSection](#) is tied to the Manufacturer’s name and Manufacturer’s part number

The [ComplianceToPartModelSchemaVersion](#) indicates the version of the Schema to which the XML file is to be validated against. All new releases to this document or XML Schema is governed by the rules outlined in JEP30, and must be released in sync with the Part Model.

“Each time that a Sub-schema gets updated, then the part model version also gets updated in order to release that Sub-schema under the umbrella of the Part model. This is because the Part Model must now reference the new version of Sub-schema, since all subschemas have their own version number. The parent schema includes them by referring to a precise version, so a version bump in the subschema requires a version bump in the parent only at the time of release of the Parent.”

The [PartModelContentRevision](#) indicates the revision of the data for the Part that is submitted in the XML file. This enables the Component Manufacturer to provide a new XML file for a Part each time they wish to upgrade a new set of data for a part, in any of the sub-sections such as this [AssemblyProcessClassificationSection](#).

4.2 Manufacturer Part Number-Array

path	PartModel/ManufacturerPartNumber-Array.
diagram	The diagram illustrates the XML Schema Definition (XSD) for the ManufacturerPartNumber-Array. It is an MPN-ArrayType containing a sequence of ManufacturerPartNumbers (1..∞). Each ManufacturerPartNumbers is of type ManufacturerPartNumbersType, which contains the following elements: ID (xs:string) PartNumberSeries (PartNumberType, 0..∞) OptionalPartNumber (OptionalPartNumberType, 0..∞) FuturePart (FuturePartType, 0..∞) StandardsIdentifier (StandardsIdentifierType, 0..∞) ManufacturerID (xs:string) ManufacturerSignatureDigest (JEP30-D10:SignatureDigestLinkType) ManufacturerPartNumbersIdentitySignature (ds:SignatureType) A constraints box is also present at the bottom of the diagram.
type	MPN-ArrayType , ManufacturerPartNumbersType , PartNumberType , OrderablePartNumberType , FuturePartType , JEP30-D10:SignatureDigestLinkType , ds:SignatureType .

The [ManufacturerPartNumber-Array/ManufacturerPartNumber](#) provides the definition of the part number or a specific Standard, so that it can be connected to the technical specification details in the [AssemblyProcessClassificationSection](#) via the [PartDetails-Array](#) section.

4.3 Linking the Manufacturing Part Number to a specific Assembly Process Classification Data set

The linking of the Parts to its technical data is done via the [PartDetails-Array](#) section as outline in the JEP30 - Part Model Guidelines for Electronic-Device Packages – XML Requirements. This consists of two sections called [PartsSelection-Array](#) and [Association-Array](#) which defines the relationship between identifying the specific set of parts and how they are associated with the assembly process classification content. Reference the JEP30 parent document for more details on this association.

path	PartModel/PartDetails-Array/PartDetails/Association-Array/Association/AssemblyProcessClassification-Array
diagram at the Association level	
type	AssemblyProcessClassificationAssociation-ArrayType , AssemblyProcessClassificationAssociationType , ProcessSensitivityLevelAssociation-ArrayType , MoistureSensitivityLevelAssociation-ArrayType , JEP30-D10:SignatureDigestLinkType .
path	PartModel/AssemblyProcessClassificationSection
diagram at the Assembly Process Classification Section level	
type	AssemblyProcessClassificationSectionType , AssemblyProcessClassification-ArrayType , AssemblyProcessClassificationType , ProcessSensitivityLevel-ArrayType , MoistureSensitivityLevel-ArrayType , StorageTemperature-ArrayType , ds:SignatureType .

When all the parts that are identified in the parts identity section would point to a single instance of [ProcessSensitivityLevels](#), [MoistureSensitivityLevelsClassification](#) and [StorageTemperature](#), then a single mapping via the [PartsSelectionID](#) is used to make the association.

Typically, when providing assembly process classification data for a set of parts as defined by the [ManufacturerPartNumbers](#), then the entirety of the process sensitivity level profiles, moisture sensitivity levels classifications and storage temperature information is provided in one instance, then this collection can be digitally signed.