

<b>APPLIED TECHNICAL SERVICES CORPORATION</b>		<b>Document No:</b> 221-009
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<b>Subject:</b> Supplier Packaging & Delivery Requirements		<b>ISO9001 Ref:</b> 7.4
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## 1.0 PURPOSE

The purpose of this document is to provide component packaging requirements to assure consistency in component packaging and delivery. By shipping components to ATS, our component suppliers agree to meet the requirements of this document.

## 2.0 SCOPE

This document specifies the packaging and delivery requirements for various electronics components that are purchased and delivered to ATS by our suppliers.

## 3.0 DEFINITIONS

ESD	Electro-Static Discharge
MSD	Moisture Sensitive Devices
MSL	Moisture Sensitivity Level
RoHS	Restriction of Hazardous Substances
Coplanar	Lying on the same plane

## 4.0 REFERENCES & APPLICABLE DOCUMENTS

The latest revision of the following documents form a part of this document:

EIA-481-B	8mm through 200mm Embossed Carrier Taping and 8mm & 12mm Punched Carrier Taping of Surface Mount Components for Automatic Handling
J-STD-033A or latest Rev.	Handling, packing, shipping and use of moisture/reflow sensitive surface mount devices
J-STD-020	Moisture/Reflow sensitivity classification of non-hermetic solid state surface mount devices
EIA/JESD22-B102-C	Solderability Test Method
IPC/EIA J-STD-003A	Solderability Testing
211-008	Electro-Static Discharge (ESD)

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## 5.0 GENERAL PREVISIONS

In case of a conflict between various specifications the following order of precedence must be followed:

1. ATS' Purchase Order
2. ATS' Engineering specifications/written communications
3. Customer documents/specifications
4. Master Drawing
5. Manufacturer's Specification
6. This procedure
7. Other applicable documents

## 6.0 MATERIAL REQUIREMENTS

### 6.1 ESD Sensitivity

Components that are classified as ESD sensitive must be handled and shipped accordingly.

### 6.2 Moisture Sensitivity

Moisture sensitive parts shall be packaged and handled in accordance with J-STD-033A or latest revision.

### 6.3 Solderability

By shipping components to ATS the supplier is affirms that components are solderable and meet the solderability requirements of applicable ANSI-J or IPC standards. Solderability testing may be conducted by ATS on components with date codes of older than two (2) years or if their solderability is questionable. If the components fail the solderability test, the assigned Engineer, Program Manager and Quality Manager will determine the disposition of the material, which may include re-tinning or Return to Vendor for full refund.

### 6.4 Coplanarity

The leads of surface mount components must be coplanar and meet the specifications of the component drawing.

If the component drawing is not available or does not specify the component coplanarity requirements, the following specification can be used:

Component pitch	Maximum Coplanarity limit
.5 mm or less	.08 mm
More than .5 mm	.10 mm

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## 6.5 General Packaging Requirements

- Appropriate packaging should be used to prevent damage to the component.
- ESD Sensitive components shall be packaged to protect the component from ESD damage.
- Components with multiple date codes shall be packaged separately.
- Moisture sensitive parts should be packaged properly and delivered in vacuum sealed bags with a humidity indicator card inside the bag. The package should be marked with moisture sensitivity level (MSL) of the component. Parts with different moisture sensitivity levels should not be in the same package.

### 6.5.1 Tape & Reel Packaging

SMT parts should be ordered and delivered in tape and reel wherever possible. All tape and reel parts should be provided in continuous tapes with at least six (6) inches of leader tape for each part wherever possible. Components must be taped and reeled per EIA-481-B.

### 6.5.2 Tray / Tube Packaging

Tray packaging is preferred for components with an MSL rating of 4 or higher. All products in the tray/tube must be oriented in the same direction. Appropriate trays, including lids, must be used to prevent lead or component damage.

### 6.5.3 Bulk Packaging

When components are delivered in bulk, they should be packaged such that they are not damaged during shipping and handling.

### 6.5.4 Cut Tape Requirements

SMT parts should be ordered at a minimum of 18" in length.

## 6.6 General Marking Requirements

The packaging must be marked with the manufacturer or distributor's name, component part number, quantity, and MSL rating if applicable. It is recommended that the package be marked with date of manufacturing.