

Customer Service Note

Packaging Materials

Introduction

To package its component semiconductor memory for delivery, Micron uses two basic methods: tray and tape-and-reel. Micron's wafer-level products are packaged using three methods: coin stack, vendor boxes, and film frame. Where possible, Micron incorporates recyclable materials both in the internal packing materials and in the external coverings. Table 1 provides complete descriptions of the materials, their properties, and the industry standards met for component packaging methods. Table 2 provides these descriptions for the wafer-level packaging methods.

Table 1: Component Packaging Materials

Element	Description ¹
General	
Boxes	Material: Corrugated fiberboard Style: RETT w/DF (roll-end tuck-top with dust flaps) Color: Natural kraft Recyclable: Yes
Labels	Base material: Matte-coated facestock or synthetic paper Adhesive material: Acrylic- or water-based adhesive Recyclable: No
Bags	Moisture-barrier bags ² Material: Static dissipative polymer/aluminum foil/static dissipative polyethylene Standards: Meets the electrical and physical requirements of IPC/JEDEC J-STD-033A, MIL-PRF-81705 Type 1, EIA 583, EIA 541, and EOS/ESD standards MVTR (g/100 square in/24 hrs): <0.0003 (FTMS 101 MTH2065) Surface resistivity: <10 ¹² ohms/square (ASTM D-257) or <10 ¹¹ ohms (ANSI/ESD STM11.11) Recyclable: No Static-shielding bags ³ Material: Static dissipative polyester/metallized shield/static dissipative polyethylene Standards: Meets the requirements of MIL-PRF-81705 Type III and EIA 541 Surface resistivity: <10 ¹² ohms/square (ASTM D-257) Recyclable: No
Desiccants ²	Content material: Montmorillonite (bentonite) clay Packet material: Tyvek, spunbonded olefin Recyclable: Individual materials are recyclable, not recyclable as a system

Table 1: Component Packaging Materials (continued)

Element	Description ¹
Humidity indicator cards (HICs) ²	Material: Blotting paper impregnated with cobaltous chloride Recyclable: Yes
Tray⁴	
Tray banding	Material: Static dissipative polypropylene Surface resistivity: $<10^9$ to $<10^{11}$ ohms/square Recyclable: Yes
Trays	For specific information regarding the various trays Micron uses, please contact Micron's Quality Assurance department
Internal padding	Expanded polyethylene foam end-cap Material: Low-density polyethylene Surface resistivity: 10^9 to 10^{11} ohms/square Recyclable: Yes OR Padpak Material: Kraft paper Recyclable: Yes
Tape-and-reel⁵	
Take-up reels	Color: White or blue Material: High-impact polystyrene, typically coated with antistatic material Surface resistivity: $<10^{11}$ ohms/square (both sides) per ASTM D-257 Recyclable: Yes
Carrier tape	Material: Polystyrene with carbon Surface resistivity: $<10^{12} \geq 10^5$ ohms/square (both sides) per ASTM D-257, static dissipative per EIA 541 Recyclable: Yes
Cover tape	Material: Antistatic polyester film/antistatic adhesive coating Surface resistivity: $<10^{12} \geq 10^5$ ohms/square (both sides) per ASTM D-257, static dissipative per EIA 541 Recyclable: No

- Notes:
1. Contact the factory for questions regarding omitted information.
 2. Provided with MST Level 2 through 5A products shipped in trays and tape-and-reels only.
 3. Provided with MST Level 1 product only.
 4. Applicable to product shipped in trays only.
 5. Applicable to product shipped in tape-and-reel only.

Table 2: Wafer-Level Product Packaging Materials

Element	Description ¹
General	
Boxes	Material: Corrugated fiberboard Style: RETT w/DF (roll-end tuck-top with dust flaps) or RETT (roll-end tuck-top) Color: Natural kraft Recyclable: Yes
Labels	Base material: Matte-coated facestock or synthetic paper Adhesive material: Acrylic- or water-based adhesive Recyclable: No
Coin stack²	
Coin stack	Material: Conductive polypropylene Surface resistivity: $<10^8 \geq 10^3$ ohms/square Recyclable: Yes
Carbon interleaf	Material: Carbon-loaded polyolefins Surface resistivity: $<10^{11} \geq 10^5$ ohms/square per EIA 511.11-1993 Recyclable: Yes
Cushion	Material: Closed-cell polyethylene foam Standards: Surface resistivity: $<10^{11} \geq 10^5$ ohms/square per EIA 511.11-1993 Recyclable: Yes
Vendor box³	
Vendor box	Material: Body case: polycarbonate Lid: polycarbonate Carrier and upper holder: polybutylene terephthalate Gasket: polybutylene terephthalate Standards: Surface resistivity: Recyclable: Reuse possible
Film frame⁴	
Film frame shipping container	Material: Polypropylene Standards: Surface resistivity: Recyclable: No
Film frame	Material: Standards: Surface resistivity: Recyclable:

- Notes:
1. Contact the factory for questions regarding omitted information.
 2. Applicable to product shipped in coin stacks only.
 3. Applicable to product shipped in vendor boxes only.
 4. Applicable to product shipped in film frame containers only.



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