
MICROELECTRONIC CHIPS

1.0 SCOPE

This standard provides for the multiple packaging of microelectronic chips.

2.0 REFERENCES

2.1 2.1 Lockheed Packaging Standard LPS 40-001

2.2 2.3 Lockheed Packaging Standard P-202, Microelectronics Labels

3.0 REQUIREMENTS

3.1 GENERAL

- 3.1.1 The chips shall be clean and free from dust or any other particulate contamination.
- 3.1.2 Chips shall be packaged and packed in approved microelectronic environmental control areas.
- 3.1.3 Packages containing chips shall be opened only in approved microelectronic environmental control areas.
- 3.1.4 Chips which are received improperly oriented (see Paragraphs 3.2.2 and 3.2.3), damaged or otherwise packaged contrary to this standard shall be subject to rejection.
- 3.1.5 Chips from different lots shall not be included within the same unit package.

3.2 UNIT PACKAGE

- 3.2.1 The quantity of chips per unit package shall not exceed the number specified in the product specification or on the purchase order.
- 3.2.2 Beam Lead Chips (Method 1, Figure 1)
 - 3.2.2.1 The chips shall be arranged in an expanded array, evenly spaced on a square .058- to .063-inch thick glass retainer (Figure 1). The glass surface shall be coated with a neutral, uniformly thin, soft film compound for retention of the chips.
 - 3.2.2.2 Each chip shall be oriented in one direction and positioned on the glass retainer with the metalized pattern always facing down. A layer of clean, clear, thin gauge plastic sheet shall cover all chips, extending beyond the edge of the glass retainer to facilitate removal. Each glass retainer shall be marked with the chip part number and lot number.
 - 3.2.2.3 The assembly (glass retainer/chips), shall be inserted into a clear, rigid plastic box with integral hinged cover and Snap-Lok closure (Figure 1). Recommended box size 2" x 2" x 1/4".
 - 3.2.2.4 The upper half of the plastic box shall contain a snug fitting foam cushion (soft density), of sufficient thickness to prevent movement of the glass retainer when the lid is closed. The size of the box shall be commensurate with the size of the glass retainer with cushioning.
 - 3.2.2.5 The assembly shall be inserted into the plastic box with the plastic film side facing up at all times.
 - 3.2.2.6 The material used within the unit package shall not degrade the chips nor be incompatible with fabrication or production processes.
 - 3.2.2.7 Close box lid carefully and secure with a strip of pressure-sensitive tape.

CAUTION: AVOID EXERTING EXCESSIVE FORCE ON THE LID TO AVOID DAMAGING THE GLASS RETAINER.

3.2.3 Beam Lead Chips (Method 2, Figure 2)

- 3.2.3.1 The chips shall be arranged and oriented on the glass retainer in accordance with Paragraphs 3.2.2.1 and 3.2.2.2.
- 3.2.3.2 A second glass retainer, per Paragraph 3.2.2.1, shall be positioned on top of the chips and shall be secured to the first glass retainer at each of the four corners with two layers of double-faced tape (minimum thickness to prevent contact of top glass with chips), each having a maximum size of 3/8 inch square or diameter.
- 3.2.3.3 The bottom glass retainer shall be marked with the chip part and lot number.
- 3.2.3.4 The assembly shall be inserted into a clear, rigid plastic box with hinged cover and Snap-Lok closure (Figure 1). The second glass retainer shall be on top in the box.
- 3.2.3.5 Four pads of soft-density foam cushion shall be arranged in the box, two in the body in two diagonally opposite corners, and two pads in the cover in the other two diagonally opposite corners. The pads shall be a maximum of 1/2-inch square or diameter and 1/16-inch thick. The pads shall be secured in the box with adhesive or double-tape.
- 3.2.3.6 The material used within the unit package shall not degrade the chips nor be incompatible with fabrication or production processes.
- 3.2.3.7 Close box lid carefully and secure with a strip of pressure-sensitive tape. Avoid excessive force on lid while closing.

3.2.4 Nonbeam Lead Chips (Figure 3)

- 3.2.4.1 The chips shall be oriented in one direction and placed in individual cavities on a chip tray (Fluoroware H20-050 or the equivalent (Figure 3)).
- 3.2.4.2 A clean, thin gauge static protective plastic sheet shall cover all chips.
- 3.2.4.3 Place cover on chip tray and secure with tray clips (Fluoroware H20-04 or the equivalent).

3.3 INTERMEDIATE PACKAGING – (Consolidation of Unit Packages)

- 3.3.1 Pack unit packages uniformly into paperboard/fiberboard containers. Gross weight/dimensions of each container shall not exceed its design specifications.
- 3.3.2 Fill all voids with suitable dunnage, blocking or bracing as required to prevent damage during handling/shipment.

3.4 PACKING

- 3.4.1 Pack appropriate number of intermediate containers uniformly into each shipping container.
- 3.4.2 Shipping containers as packed shall protect each item and package during ordinary handling and shipping and shall meet the minimum requirements of the common carriers for acceptance for safe transportation at the lowest rate to the point of delivery.
- 3.4.3 Intermediate containers which meet the requirements of Paragraph 3.4.2 may be used as shipping container.
- 3.4.4 Enclose or attach a copy of packing slip to the shipping container.

3.5 MARKING

3.5.1 Glass Slide Marking (Figure 1)

- 3.5.1.1 Label or mark glass slide to show part number and lot number.

3.5.2 Unit Package Marking – To facilitate visual inspection/receiving, marking shall be applied to the top half of the box (Figure 1). Mark top and back of Figure 2 package, as applicable.

- 3.5.2.1 Label or mark each package to show the following in order listed:
 - a. Part number per contracting document

- b. Manufacturing lot number
- c. Quantity in each box
- d. LMSC procurement document – number
- e. Supplier name
- f. “OPEN THIS SIDE UP” (top of Figure 2 – package only)
- g. Additional marks when specified (continue on back if necessary)

3.5.3 Intermediate Packaging Marking

3.5.3.1 Label or mark each package to show the following in order listed:

- a. Part number per contracting document
- b. LMSC procurement document number
- c. Quantity
- d. “OPEN ONLY IN MICROELECTRONICS CENTER”

3.5.4 Shipping Container Marking

3.5.4.1 Label or mark each container to at least show the following:

- a. Destination as applicable
- b. Part number(s) per contracting document
- c. LMSC procurement document number
- d. Supplier identity
- e. “Handle with Care” labels

4.0 QUALITY ASSURANCE

4.1 Packaging shall be accomplished in such a manner as to prevent physical damage to, or degradation of, the packaged items during delivery to the using activity. It shall be the prerogative of LMSC to return damaged items, at supplier’s expense, when such damage is attributable to improper or inadequate protection.

5.0 NOTES

5.1 This standard provides minimum protection of devices specified in the procurement document, during shipment from supplier to LMSC. Unless otherwise specified, when a conflict exists between the packaging provisions of this standard and a detail item specification/drawing referenced in a contractual document, the packaging requirements imposing a higher level of protection (long term storage, unique preservation/packaging, etc.), shall take precedence.

5.2 The following information is intended as a guide or aid to suppliers in meeting the requirements of this specification:

<u>Commodity</u>	<u>Military/Commercial Specifications</u>
Box, Corrugated	PPP-B-636
Box, Folding	PPP-B-566
Box, Plastic	Bradley Industries, Chicago, IL (suggested source)
Box, Setup	PPP-B-676
Chip, Tray	Fluoroware Inc., Chaska, MN

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<u>Commodity</u>	<u>Military/Commercial Specifications</u>
Clip, Tray	Fluoroware Inc., Chaska, MN
Cushioning, Cellulosic	PPP-C-843
Cushioning, Polyurethane	MIL-P-26514, Type I MIL-P-26514, Type I
Double-Back Tape	Avery Products "Fasson" or equal, Santa Ana, CA
Film, Static Protective	QPL MIL-B-81705
Sheet, Plastic	L-P-376, Type I, Flexible

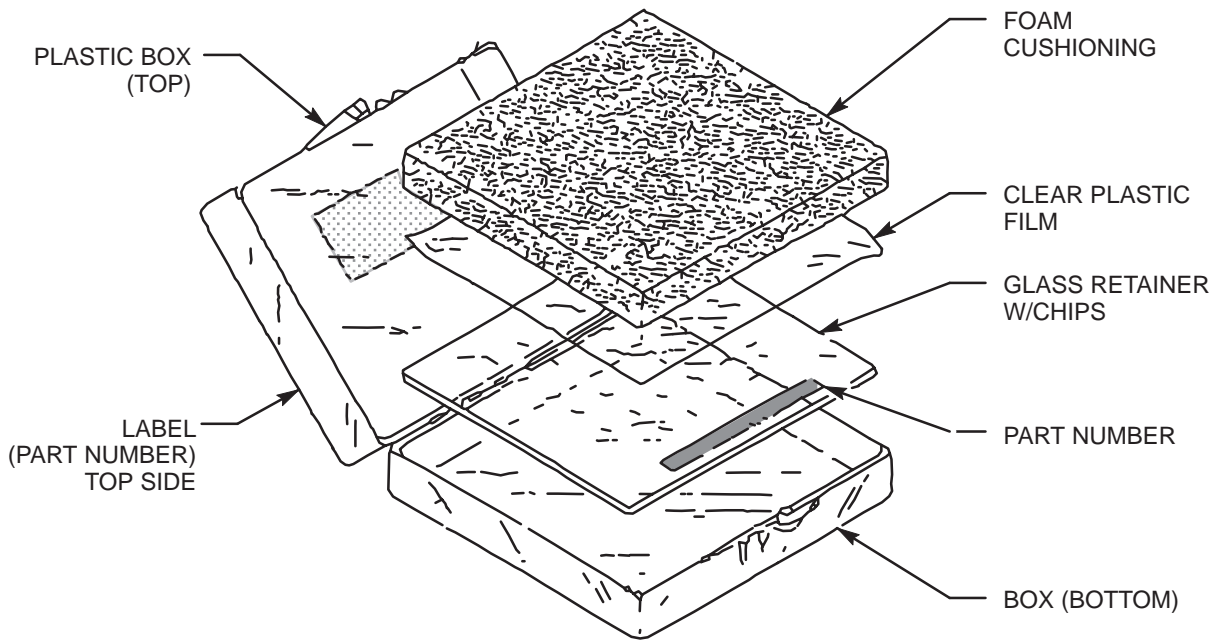


Figure 1. Unit Package for Beam-Leaded Chips

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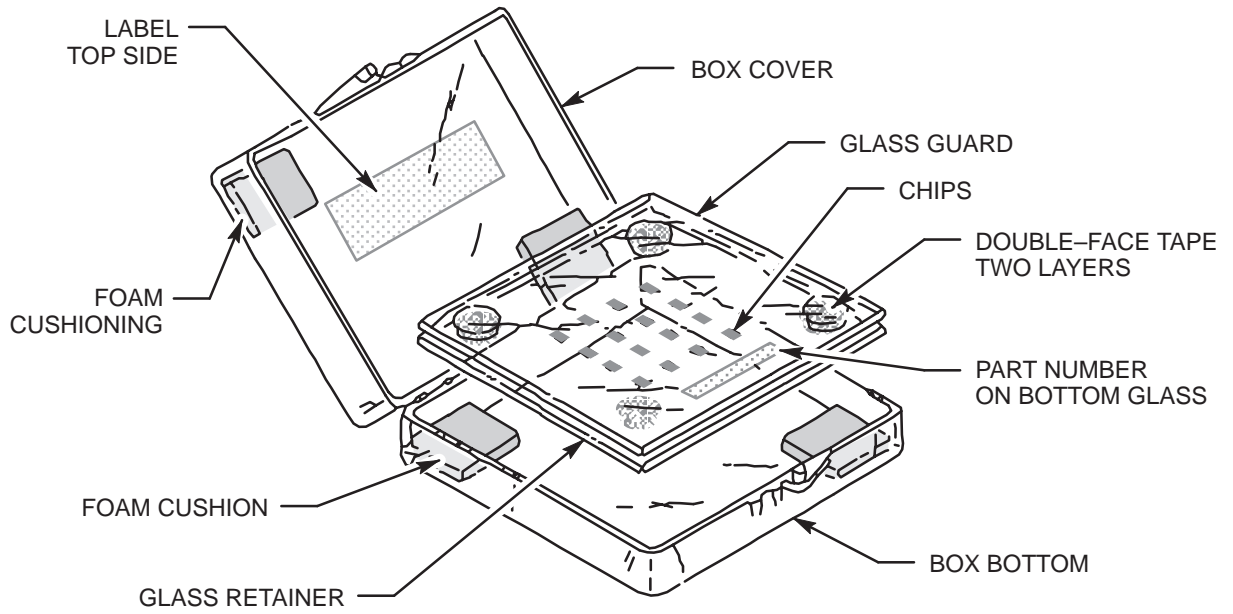


Figure 2. Optional Unit Package for Beam-Leaded Chips

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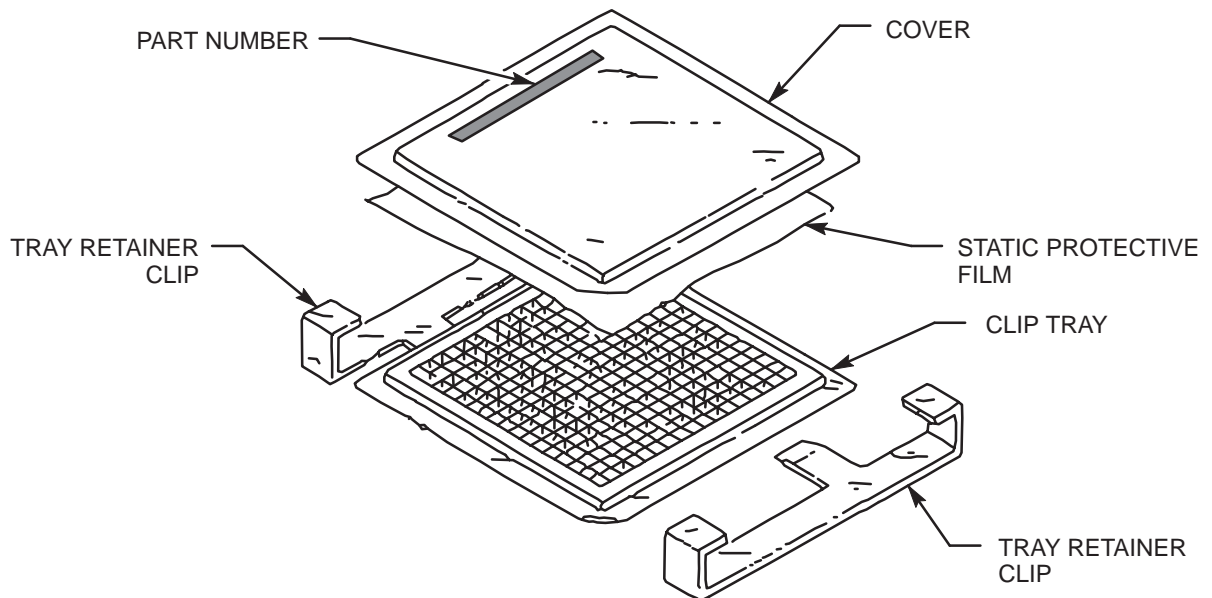


Figure 3. Unit Package for Nonbeam-Leaded Chips

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