

Packaging Information for Vendors		ENGINEER R. A. Mele	03-Oct-08	APPROVED DHW
NOMENCLATURE MULTIPLE NON-TAPE AND REEL COMPONENTS	PART NO. MULTIPLE	PIV NO. 2001	DATE 10-May-2011	REVISION 3

INSTRUCTIONS: **Hard Copies Uncontrolled. Verify Revision Prior to Use.** SHEET NO. **1 OF 7**

NOTES:

THE PART SHALL BE PACKAGED IN ACCORDANCE WITH PIV6012 AND THIS SPECIFICATION.

This specification is provided to inform vendors of Raytheon Company's minimum packaging requirements. This document is superseded by any special requirements listed on drawings or specifications. Any questions concerning packaging of materials should be directed to the buyer referenced on the Purchase Order.

WARNING

ASSURE ALL CADMIUM, SILVER, AND COPPER PLATED ITEMS ARE WRAPPED WITH NEUTRAL PAPER, MIL-PRF-17667, AND PLACED IN WATER-VAPOR-PROOF HEAT SEALED BAG PER MIL-DTL-117 FOR SHIPMENT. COMMERCIAL MAY USE INTERCEPT WRAP PER 49956-G672573 AND TAPED CLOSED.

I. Cleaning

Item(s) shall be cleaned in such a manner as to insure that item(s) is free of contamination prior to packaging for shipment.

II. Unit Packaging

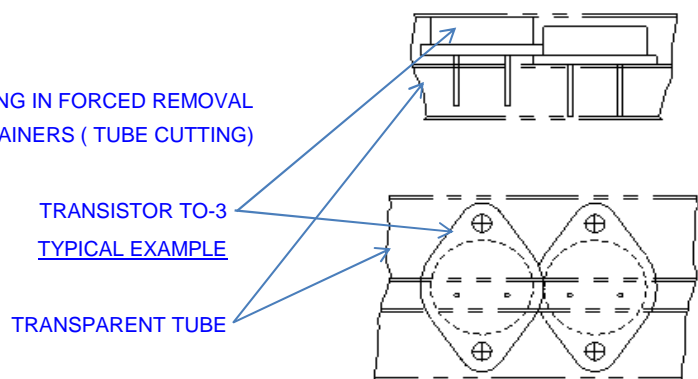
STAPLES ARE NOT TO BE USED FOR CLOSURE OF UNIT PACKS. ABSOLUTELY NO FOAM PEANUTS OR STYROFOAM EITHER ANTISTAT OR OTHERWISE TO BE USED FOR CUSHIONING. IN GENERAL, NO PACKAGING MATERIAL IS TO BE USED THAT WILL LEAVE ANY RESIDUE FROM THE PACKAGING MATERIAL ON THE PARTS AS A RESULT OF PACKAGING OR UNPACKAGING THE PRODUCT. THERE SHALL BE NO EVIDENCE OF FOREIGN OBJECT DEBRIS (FOD) IN RECEIVED CONTAINERS.

A). Semiconductor Devices, Lead and Terminal Protection

Leads and terminals shall be protected by means of container design, diecut inserts or a suitable non-corrosive supporting material or device. Solid wire leads shall extend outward and be maintained in a straight configuration within a flexibility of four (4) degrees of a perpendicular angle to the surface at the point of entry into the device. The devices used to maintain item position and lead configuration shall permit item removal without bending of leads. Additional shorting clips or devices as may be considered necessary to protect the device from body/transient charges that may be encountered outside the package shall be applied.

CAUTION

OVERLAPPING OF COMPONENT BODIES RESULTING IN FORCED REMOVAL OF ITEMS OR REQUIRES DESTRUCTION OF CONTAINERS (TUBE CUTTING) IS NOT ALLOWED.



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B). Wire Lead Items (Resistors, Transistors, Capacitors, etc.)

Wire lead items shall be individually separated. The unit package will be of such a nature as to allow segmentation into smaller quantities without reducing or disturbing the protection of the remaining items. The bodies shall be free of cracks, holes, chips or any other malformation. The leads shall not be crushed, kinked, nicked or broken. The vendors commercial package may be utilized when it meets these requirements and the unit package quantity shall be in accordance with vendor's commercial practice. Blister pack is allowed providing the leads remain straight and movement within the pack is kept to a minimum.

C). Flat Packs

C.1) Place each item in an individual rigid carrier which offers lead protection and facilitates the handling during shipment, storage and test (I.e. flat pack carriers manufactured by R. H. Murphy, Amherst NH, or two (2) piece equivalents). Reference Figure 1, sh 5. Assure items are indexed in carrier for proper polarity orientation. Each carrier shall be of a design to permit safe and easy removal, inspection and replacement of the items without damage to the item or the carrier. One piece carriers shall have the clips on the sides without leads (width dimension). where practical the case outline shall be centered in the carrier and have a maximum float of $\pm .015$.

C2.) A single carrier tray containing components with preformed leads (Gull Wing leads) Flat pack or Surface Mount devices shall utilize an empty tray of the same part number as the populated tray as a cover and shall be secured together using static dissipative banding material. (See Figure 3, sh 6).

C3.) Banded pair carrier trays (Figure 3) containing the same component part numbers with Preformed Leads (Gull Wing), Flat Packs or other leaded Surface Mount devices shall be stacked together with an empty tray of the same part number as the populated trays placed on top of each tray using static dissipative banding material. A minimum of 2 bands shall secure and immobilize the carrier tray pairs. An additional band shall be attached to the center of the stack up if there is evidence of movement between the layers of the carrier trays. (See Figure 4, sh 6)

C3.1 ALTERNATE - This note is applicable to note C2. and C3.

Flat conductive rigid material that does not impair the integrity of the component leads may be used as a cover in lieu of empty trays when supply is limited. (i.e. Conductive fluted plastic, or conductive plastic sheet). The material shall encompass the entire periphery of the container and shall be banded as shown in Figure 4, sh 6. The flat conductive rigid material may not be used if the component height extends above the carrier height.

C3.1.1. The cover shall be marked, labeled or stenciled :

"REMOVE COVER AND BANDS WHEN PEMS RE-BAKING IS REQUIRED"

Caution: Tray part cavities must be at a 90 degree \pm 5 degrees to one another. Any offset in cavity construction will cause pick and place equipment to fail. (example: cavities at 45 degree angles.)

Caution

All one and two piece carriers are not interchangeable. Assure proper carrier is used relative to microcircuit configuration/geometry.

D). DIP / SIP

Place a quantity of items in an end to end magazine (tube) pack which offers lead protection and facilitates the handling during shipment, storage and test. Reference Figure 2, sheet 5 of 6. assure that the items are indexed in carrier for proper polarity orientation (*). Individual carriers are not permitted. Each carrier shall be of a design to permit safe and easy removal, inspection and replacement of the items without damage to the items or carrier.

* Dip tube carriers are to be constructed of clear static dissipative material or black conductive material with a clear window/strip to allow check for proper polarity orientation. Black conductive tubes without a window is unacceptable.

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E). Crystal Filters, Band Pass filters, oscillators, etc.

Special care shall be exercised in packaging extremely delicate items such as crystal filters, band pass filters and oscillators to assure that parts will not be damaged during transportation or in-house handling. Individual packaging is preferred but as a minimum, the parts must be able to be individually separated without disturbing the rest of the package.

F). Radial Lead Components

Leads must be protected from damage. Electrical component leads may be insert into non-corrosive black conductive foam. The foam density shall be such that the leads and the component shall not show evidence of deformation or damage.

G). Each microcircuit carrier in paragraphs C and D shall be of suitable strength to withstand vibration and shock without introducing unwanted resonances.

H). Items are not to be taped or reeled in any configuration.

I). Items susceptible to damage from static discharge shall be packaged in static-free material (see para V marking).

J). Staples are not allowed to be used for closure of unit package.

III. Intermediate Packaging**

A). Semiconductor Devices

Unless otherwise specified, the unit packaged semiconductor devices of a 20 cubic inch displacement or less shipment, storage and test (I.e. flat pack carriers manufactured by R. H. Murphy, Amherst NH, or two (2) containers shall (if possible) contain multiples of five (5) unit packages, not to exceed fifty (50) packages of ten (10) pounds. No intermediate packaging is required when the total quantity shipped to Raytheon Company is less than fifty (50) units.

B). Wire lead items

Unless otherwise specified, unit packaged wire lead items shall be placed in intermediate containers conforming to commercial grade corrugated standards. Intermediate containers shall (if possible) contain multiples of five (5) unit packages, not to exceed one hundred (100) packages or ten (10) pounds. No intermediate packaging is required when the total quantity shipped to Raytheon Company is less than one hundred (100) units.

IV* Exterior Shipping Containers**

Items or packages shall be packaged to assure carrier acceptance, safe delivery and adequate storage at Raytheon Company locations. Containers shall be in accordance with all rules or regulations applicable to the particular mode of transportation.

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V. Marking

- A). Marking shall be in accordance with carrier rules or regulations.
- B). Labels (static electricity) as shown below or equivalent types shall be affixed to the unit package and exterior container when applicable.



- C). Exterior containers shall be marked in accordance with Raytheon Bar Code Shipping Label specification.

VI. Lot Control

When lot control or serialization requirements are specified on the drawing, related documentation or procuring document, the unit, intermediate and exterior shipping container shall be marked with the applicable control number in accordance with FED-STD-123. All items delivered shall be packaged in a manner which identifies and segregates individual lots. A021 must be segregated (intermediate package) from B021. Each container within a shipment shall be marked with a single alpha-numeric lot code and quantity per alpha-numeric lot code. Mixing alpha codes in the same unit or intermediate is not allowed.

VII. Date Code

When data code requirements are specified on the drawing, related documentation or procuring document, the manufacturer shall apply a four digit numeric identifier on the unit and intermediate container signifying the calendar year and week on which the shipment of items were accepted at vendor's final inspection. The date of seal may be used if it is applicable.

First shipment = date code 8950- would indicate acceptance during the 50th week of year 1989.

Second shipment = date code 9003 - would indicate acceptance during 3rd week of year 1990.

Each container within a shipment shall be marked with a single numeric date code and quantity per numeric date code. Mixing date codes in the same unit and intermediate is not allowed.

VII. Serialization

When serialization requirements are specified on the drawing or procuring document, the item assigned a serial number shall have the number applied to the unit container in accordance with FED-STD-123. I.E. , when serialized items bearing consecutive serial numbers (unit packs) are overpacked , only the first and last number of the series shall shown. If serial numbers are not in sequence, each number shall be listed.

ATTENTION: Receiving, Incoming Inspection, Burn-in and Stores

- A). All missile ALPHA/LOT control items shall be kept intact for in-plant processing and lot segregation storage.
- B). Static sensitive devices shall never be removed from their protective package except at an approved work station and with the precautions of VQCE 2103, "Handling Electro-Static Sensitive Devices".
- C). All containers, fixtures, test equipment and associated apparatus that may contact static-sensitive devices during test operations shall be grounded. either directly or by contact with a grounded surface.

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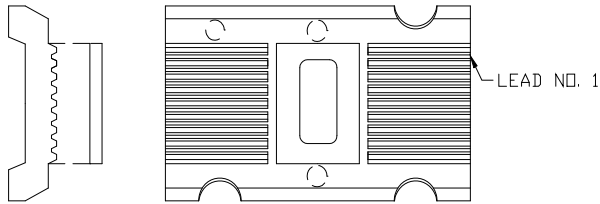


FIGURE 1

TYPICAL FLAT PACK 2 PIECE CARRIER

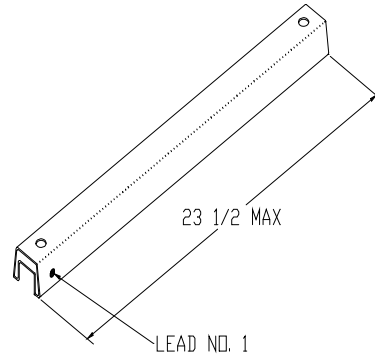


FIGURE 2

TYPICAL DIP TUBE

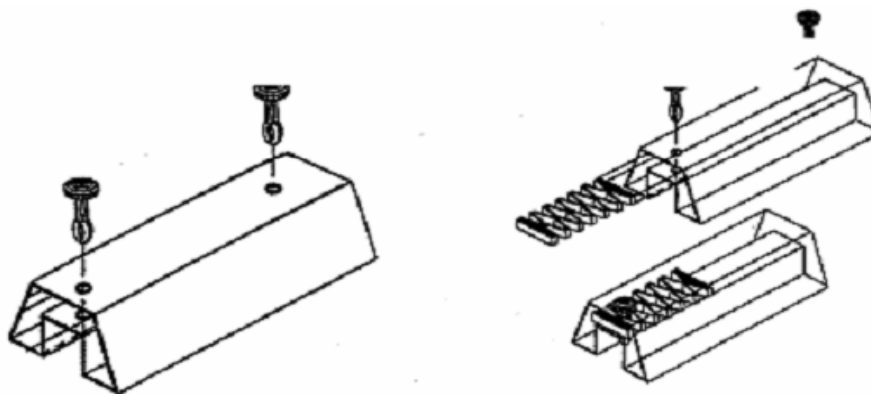


FIGURE 2A

NOTES:

- A. FOR FULLY LOADED TUBES USE CONDUCTIVE PLASTIC OR WEDGES FOR CLOSURE (2 REQD PER TUBE). TAPES ARE NOT ALLOWED FOR CLOSURE. FOR LESS THAN FULLY LOADED TUBES SECURE COMPONENTS USING FOAM SPRING "ITW THIELEX #N-85A1460 .300 MIL" OR "N85A1461 .600 MIL" AS REQUIRED (FIGURE 2A). THIS SHOULD ELIMINATE SIDE TO SIDE MOVEMENT IN TUBE.
- B. CARRIERS TO BE CONSTRUCTED OF CLEAR STATIC DISSIPATIVE MATERIAL OR CONDUCTIVE (BLACK) MATERIAL WITH A CLEAR WINDOW OF STATIC PROTECTIVE MATERIAL TO ALLOW FOR CHECK OF PROPER POLARITY ORIENTATION.
- C. PLACE QUANTITY OF TUBES INTO APPROPRIATE SIZED SHIELDING BAG (MIL-PRF-81705, TYPE I) AND SEAL BAG.

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03-Oct-08

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NOMENCLATURE

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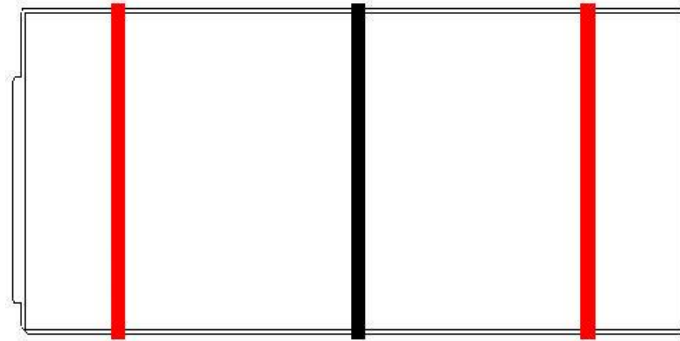
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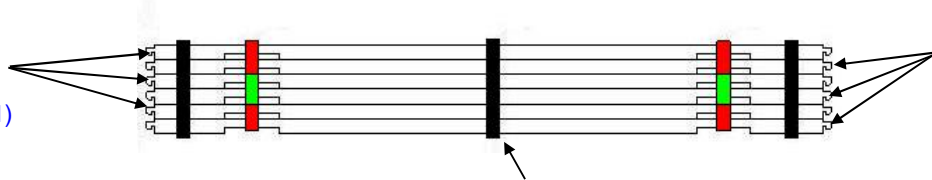
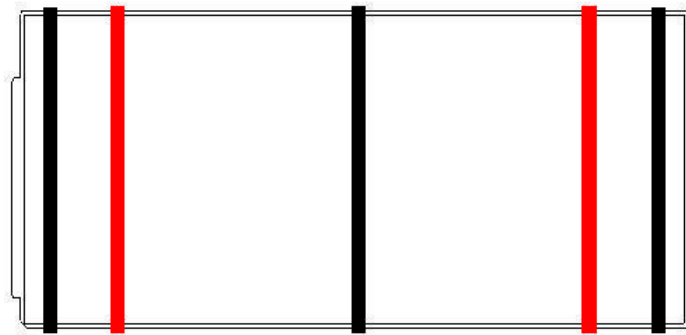
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EMPTY TRAY COVER(NOTE C3.1)

TRAYS WITH PARTS

BANDED PAIR
NOTE C.2
FIGURE 3



EMPTY TRAY COVERS (NOTE C3.1)

TRAYS WITH PARTS

ADDITIONAL BAND AS REQUIRED
NOTE C.3

FIGURE 4

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Definitions of unit pack, intermediate pack and exterior pack per MIL-STD-794.

* **Shipment, storage and test (I.e. flat pack carriers manufactured by R. H. Murphy, Amherst NH, or two (2))**
The first container applied to a single item or a quantity thereof, or to a group of items of a single part number, which constitutes a complete or identifiable package. The unit pack should be overpacked for shipment unless the unit container is specifically designed to provide shipping protection.

**** Intermediate pack:**

A wrap, box or bundle which contains two or more unit packs of identical items.

***** Exterior pack:**

A container, bundle or assembly which is sufficient by reason of material, design and construction to protect material during shipment and storage. This can be the unit pack or a container with any combination of intermediate packs.

Note: Raytheon Company insists on strict compliance to the unit pack.

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