

JEDEC JC-11 Committee on Mechanical Standardization

STANDARD PROCEDURES AND PRACTICES

Number: SPP-11

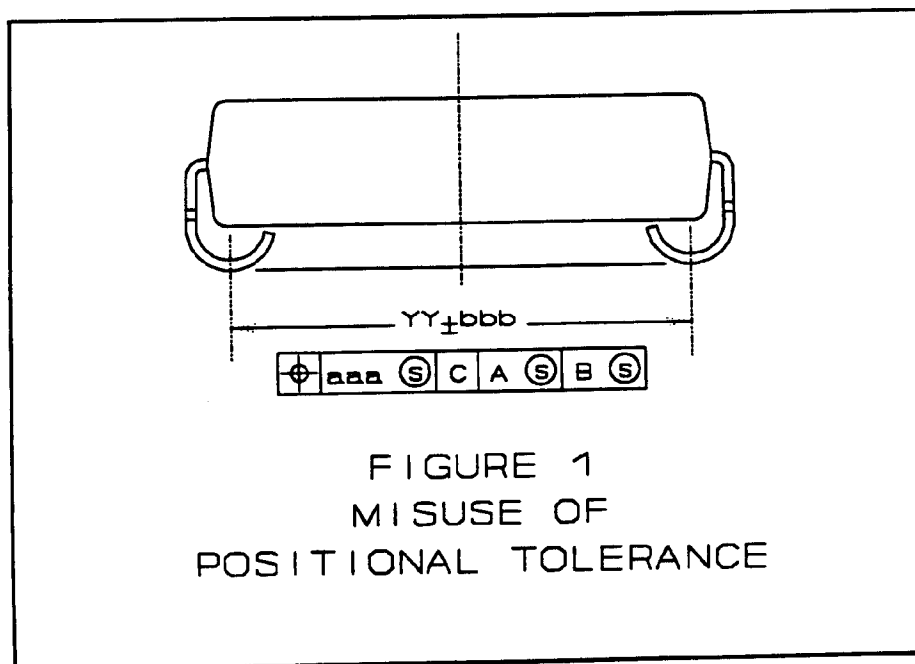
Subject: J Lead; Dimensioning of Lead Contact Points

Effective Date: Jan 1, 1992

BACKGROUND

Figure 1 shows a method of dimensioning the contact points of the J leads that has been in common use. Toleranced dimension "YY" with its associated positional tolerance locates the contact points on the J lead that are to contact the PW board. This is incorrect practice since a positional tolerance is used only with a feature of size. Dimension "YY" does not define a feature of size but is a dimension of location. The test for a feature of size is that a change in the dimension of that feature must result in a change in volume and/or mass of the feature.

Paragraph 5.2 of ANSI Y14.5M-1982 clearly states that a positional tolerance is used with a feature of size. This is further emphasized by the requirement that the position tolerance must have a modifier, ie. M, L or S. These modifiers directly reference size.



PRACTICE

The profile symbol shall be used in the feature control frame to control the location of the contact points of the J leads. The permissible variation in position of the contact points, from true position, shall be listed in the tolerance block of the feature control frame, see figures 2 and 3. True position shall be referenced to a datum or datums and shall be located by a basic dimension or dimensions. A gage drawing shall be included as part of the mechanical outline .

A bilateral tolerance zone, centered on true position, shall be used. Note that the tolerance zone is continuous since it does not control the position of the line element in a direction along its length, e.g the width of the lead. The continuous condition precludes the possibility of having opposing leads on tolerance while adjacent leads can have an excessive stagger.

APPLICATION INFORMATION

Figure 2 shows the application for a SOJ package. Figure 2a shows how the symbols are used; Figure 2b the interpretation. Figure 2b is also the gage. The center line of the gage is aligned with the centerline of datum B, the contact point or lines of the J leads must fall inside the shaded zones to be acceptable. The tolerance zones are "bbb" wide and are center on true position.

Figure 3 shows the application for a square package. Figure 3a shows how the symbols are used. This is a Quad Chip Carrier with J leads that have a bilateral tolerance zone "aaa" wide. The tolerance zone has an "all around" callout. The projection of the tolerance zone on the seating plane is shown in Figure 3b. This is also the gage. After the datums of the gage and package are aligned, the contact points or lines of the J leads must fall inside the shaded area to be acceptable.

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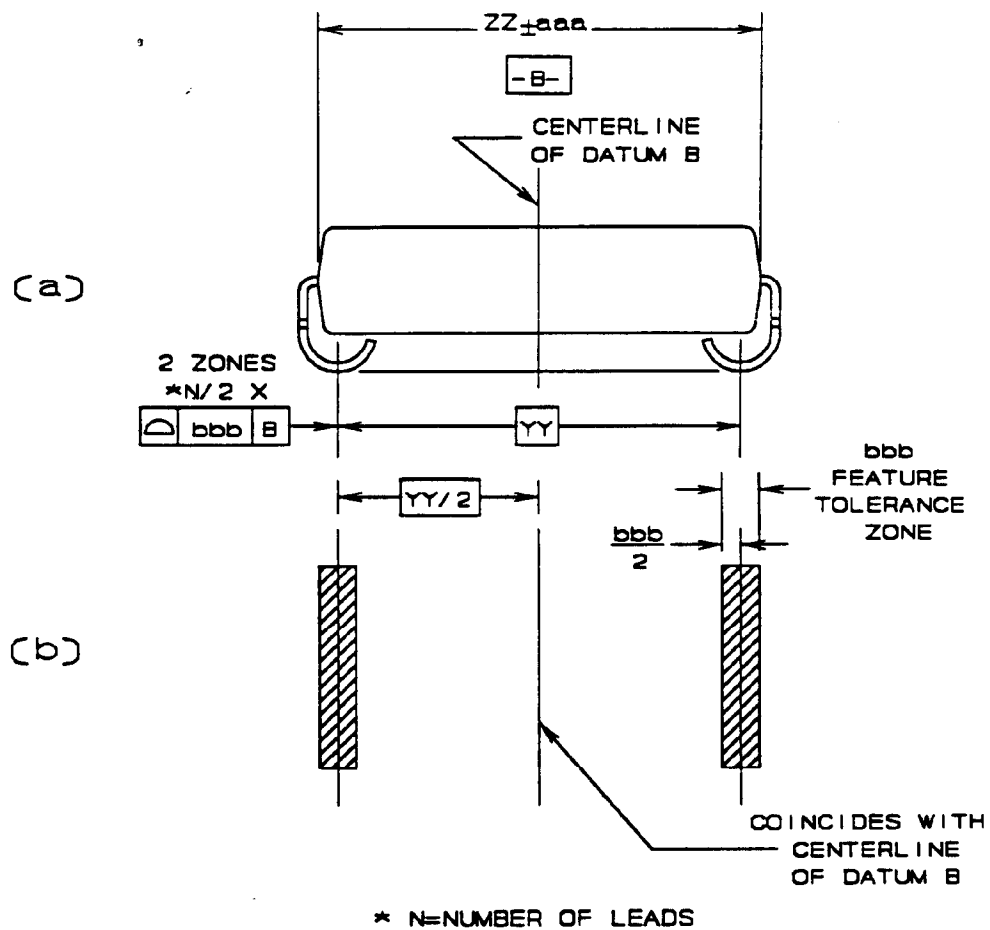


FIGURE 2
PROFILE TOLERANCE
SOJ TYPE

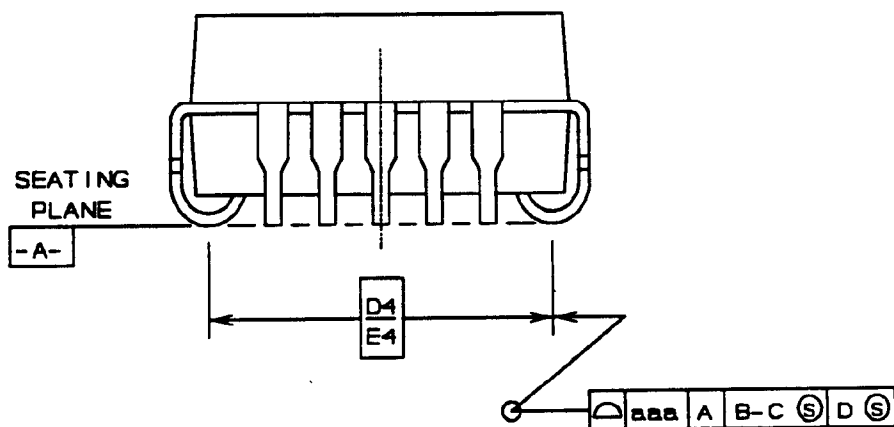
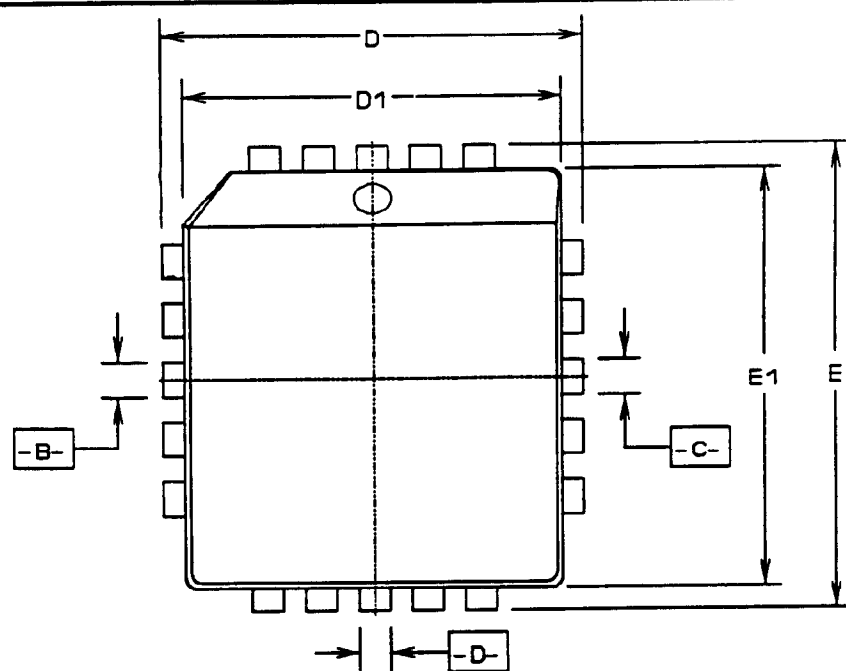


FIGURE 3a.
QUAD CHIP CARRIER

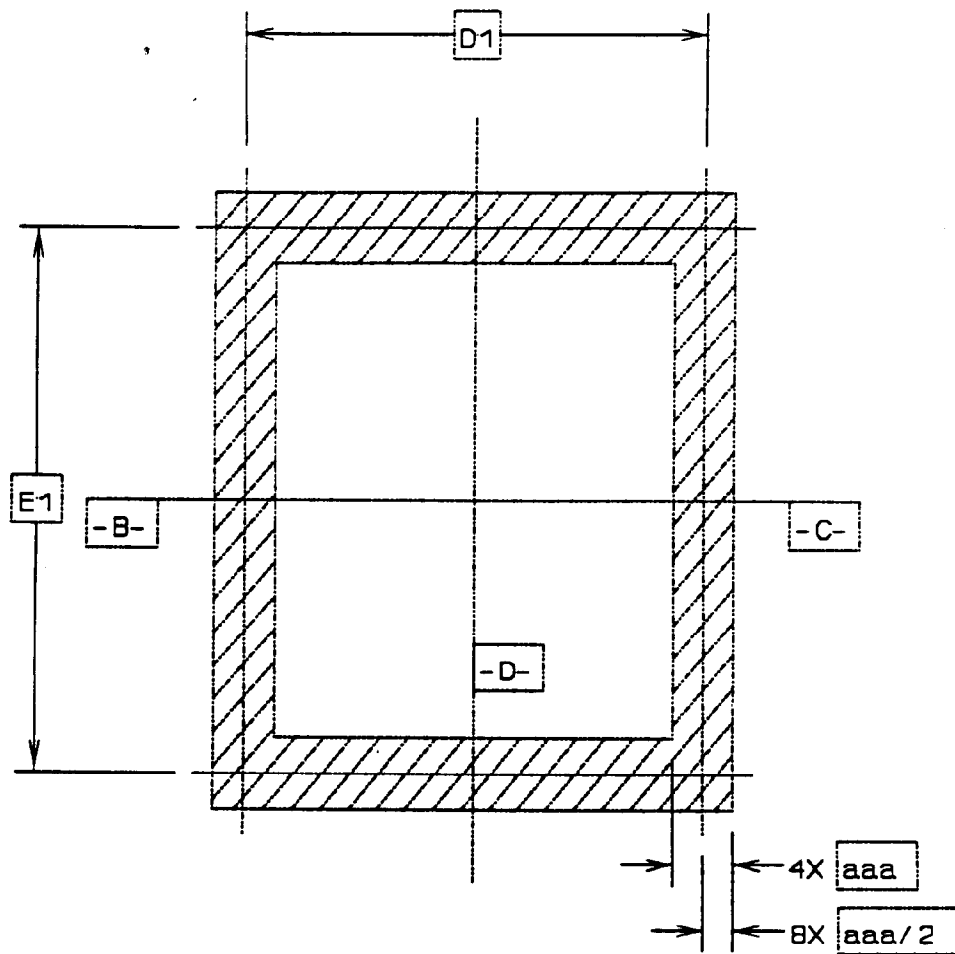


FIGURE 3b.
CONTACT POINT GAGE