

SEMI G70-0996 (Reapproved 1104) STANDARD FOR EQUIPMENT AND LEADFRAME FIXTURES FOR MEASUREMENT OF PLASTIC PACKAGE LEADFRAMES

This standard was technically approved by the Global Assembly & Packaging Committee and is the direct responsibility of the Japanese Packaging Committee. Current edition approved by the Japanese Regional Standards Committee on July 23, 2004. Initially available at www.semi.org September 2004; to be published November 2004. Originally published in 1996.

1 Purpose

1.1 This standard describes the equipment and leadframe fixtures used for measurement of Z-axis dimensions of plastic package leadframes.

2 Scope

2.1 This standard mainly describes the equipment and leadframe fixture for measurement of leadframes that are ≤ 0.15 mm in thickness as used for TSOP and TQFP packages listed in group II in Table 1.

2.2 This standard also may be applied for leadframe of conventional packages which are ≥ 0.2 mm in thickness.

Table 1 Package Classification

Group I	Group II
	SSOP
DIP	TSOP
ZIP	TSSOP
SOJ	QFP
SOP	TQFP
QFJ (PLCC)	LQFP
	SVP

NOTE 1: Packages should be classified by EIAJ and JEDEC specifications.

NOTICE: This standard does not purport to address safety issues, if any, associated with its use. It is the responsibility of the users of this standard to establish appropriate safety and health practices and determine the applicability of regulatory or other limitations prior to use.

3 Referenced Standards

3.1 SEMI Standard

SEMI G57 — Guideline for Standardization of Leadframe Terminology

3.2 EIAJ Standard¹

ED-7411 — General Rules for the Preparation of Outline Drawings of Integrated Circuits, Packages Name and Code

3.3 JEDEC Specifications²

Pub. No. 95 — Registered and Standard Outlines for Semiconductor Devices

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions.

4 Terminology

4.1 Definitions

NOTE 2: See SEMI G57 for leadframe features terminology.

4.1.1 *burr height* — maximum height of burr above the plane which it protrudes, (see Figure 1).

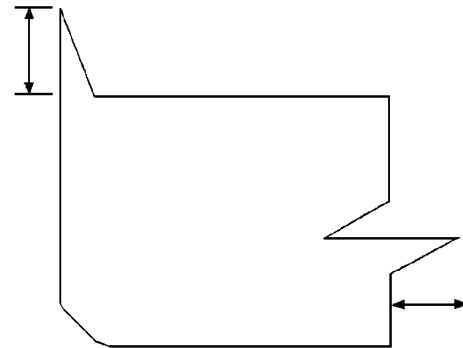


**Figure 2
Burr Height**

¹ Electronic Industries Association of Japan, available through: Japan Electronics and Information Technology Industries Association, 3rd Fl., Mitsui Sumitomo Kaijo Bldg. Annex 11, Kanda Surugadai 3-chome, Chiyoda-ku, Tokyo 101-0062, Japan, <http://www.jeita.or.jp/eiaj/english/>

² JEDEC Solid State Technology Association (aka the Joint Electron Device Engineering Council), 2500 Wilson Boulevard, Arlington, VA 22201-3834, USA. Telephone: 703.907.7560; Fax: 703.907.7583, Website: www.jedec.org

4.1.2 *coil set* — longitudinal bowing of the leadframe strip length (see Figure 2).

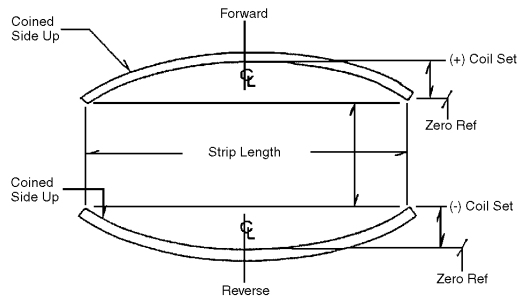


Figure 2
Coil Set

4.1.3 *coined depth* — the difference in height between the top surface of the coined area of an inner lead and the top surface of the coined area at the tip of the lead. Inner lead coining produces a flattened section of the lead that is suitable for wire bonding (see Figure 3).

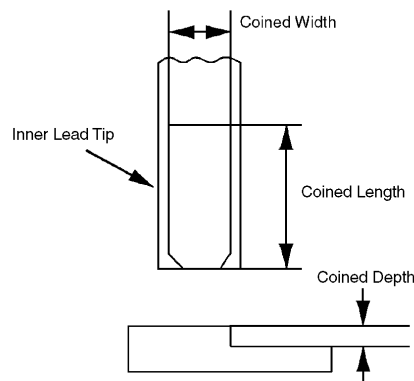


Figure 3
Coined Depth

4.1.4 *crossbow* — transverse bowing of the leadframe (see Figure 4).

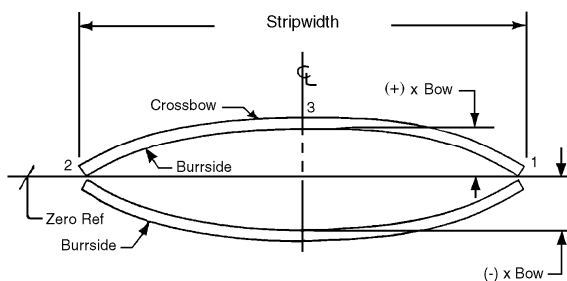


Figure 4
Crossbow

4.1.5 *die pad dimple* — a hollow formed in a die pad using a half-etching technique or stamping to improve the adhesive strength with the die or molding compound and to reduce the stress between the die pad and the die.

4.1.6 *die pad dimple depth* — the maximum depth of the dimple (see Figure 5).

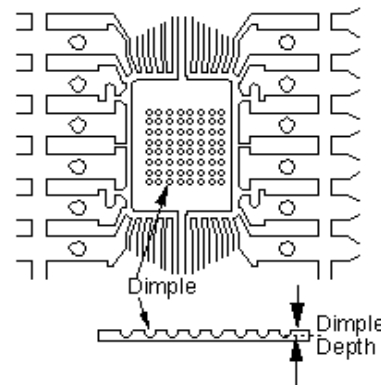


Figure 5
Die Pad Dimple Depth

4.1.7 *die pad flatness* — deviation of the center point of die pad surface from a plane established by the four corner points of die pad (see Figure 6).

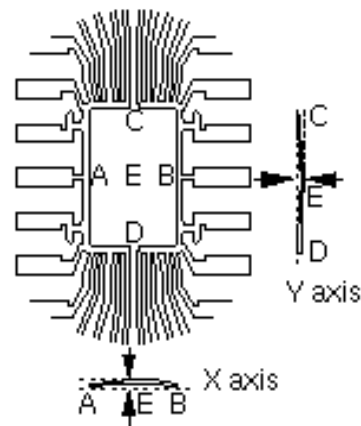


Figure 6
Die Pad Flatness

4.1.8 *die pad location* — deviation of the center point of die pad surface from a plane established by the dam bars (see Figure 7).

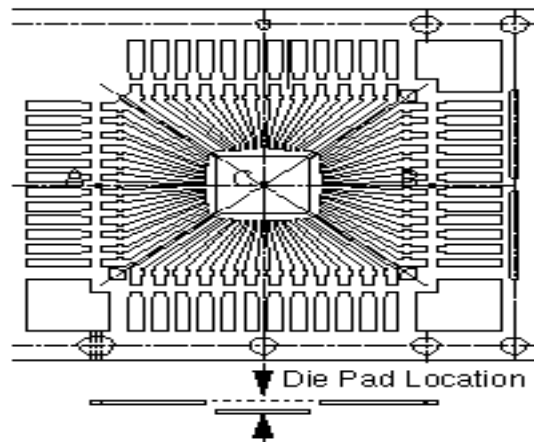


Figure 7
Die Pad Location

4.1.9 *die pad tilt* — deviation of the plane of die pad from a condition parallel to the plane formed by the dam bars (see Figure 8).

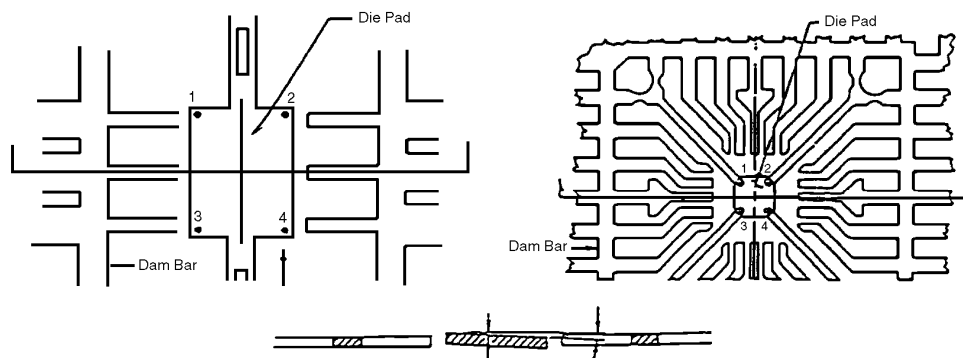


Figure 8
Die Pad Tilt

4.1.10 *downset depth* — (see Figure 9).