EIAJ ED-7311-18

JEITA

Standard of Japan Electronics and Information Technology Industries Association

EIAJ ED-7311-18

Standard of integrated circuits package (P-ILGA)

Established in March, 2002

Prepared by

Technical Standardization Committee on Semiconductor Device Package

Published by

Japan Electronics and Information Technology Industries Association

11, Kanda-Surugadai 3-chome, Chiyoda-ku, Tokyo 101-0062, Japan

Printed in Japan

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1. Scope of Application

This standard regulated outline drawings and dimensions of Plastic Interstitial Land Grid Array (herein after referred to as P-ILGA), especially plastic package, classified primary as form A and secondary as ”terminal-N” under the **EIAJ ED-7300** (Recommended practice on standard for the preparation of outline drawings of semiconductor packages).

2. Terminology

The definition of the terms used in this technical report complies with the **EIAJ ED-7300** and **EIAJ EDR-7329** [Design guideline of integrated circuits for Plastic Interstitial Land Grid Array package (P-ILGA)].

3. History

Recently, electronic appliances become smaller, conventional leaded type packages such as SOP and QFP become unsuitable, and demand for no-lead type packages makes suppliers develop and commercialize such type of packages. These design guideline were in intended to standardize the outer dimensions or “terminal-N” packages and ensure compatibility between products. For the integration of definitions about dimensions or packages, which have leads on both sides and around four sides, the packages were overviewed when the design guideline was made. **EIAJ EDR-7318** [Design guideline of integrated circuits for Plastic Very Small Outline Non-Leaded Package(P-VSON)] was established in December, 1998,which have leads on both sides, and **EIAJ EDR-7324**[Design guideline of integrated circuits for Plastic Very thin Quad Flat Non-leaded package(P-VQFN)] was established in April, 1999, which have leads around four sides.

EIAJ EDR-7329 places witch the derivation package of **EIAJ EDR-7324**. And this package has terminals, which newly, zigzag (staggered) terminal type witch P-ILGA. It began a discussion from January, 2001, and establishment schedule in March, 2002. This standard shows the standard design values on the concept of the design centers as far as possible for standardization.

4. Definition of P-ILGA

It is classified into N terminals of second category having the form of D. It’s leads are flat and positioned at the bottom around four sides or the package to make it possible to mount on the printed circuit board (Metal exposing area is not defined in this report). Incidentally, "I" is the initial of Interstitial, Interstitial terminal of the package means a package except the terminal which stood in line in series.

5. Numbering of Pins

In conformity with the definition of **EIAJ ED-7300**.

6. Nominal Dimensions

The package body size (package length: D, package width: E) is regarded as Nominal dimensions.

照合文字と図面
REFERENCE CHARACTERS AND DRAWING
外形図
Outline Drawing

図1，Figure 1 (L_1=0.10)

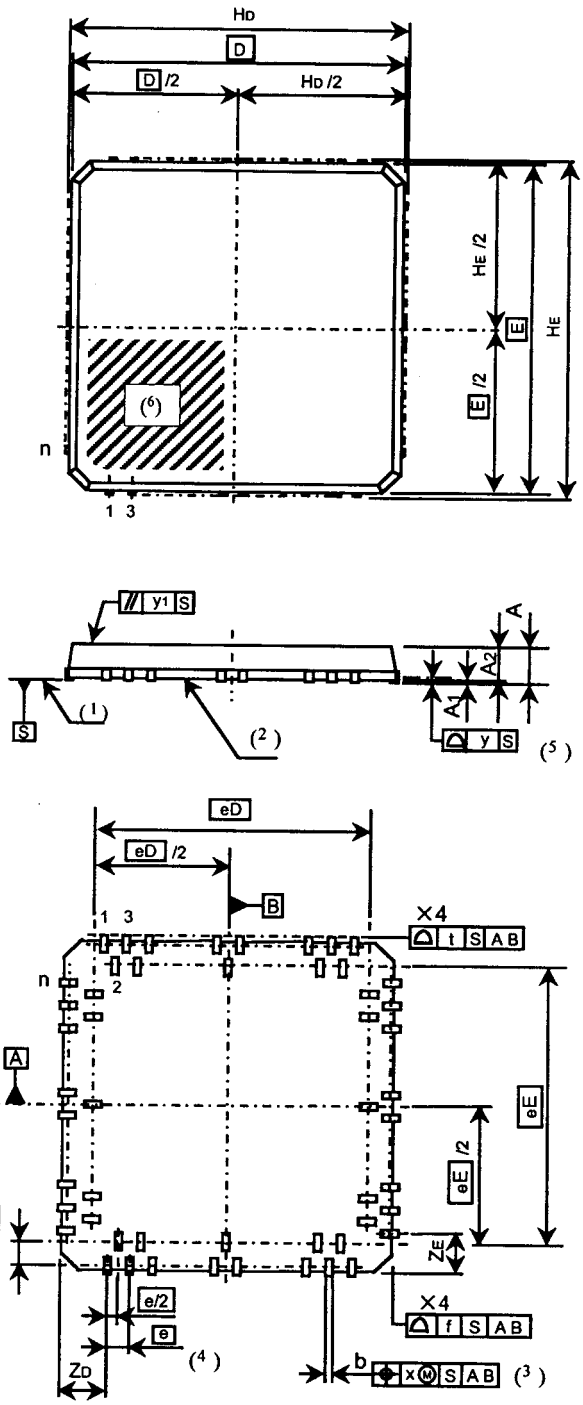

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図2, Figure 2 (L_1=0)

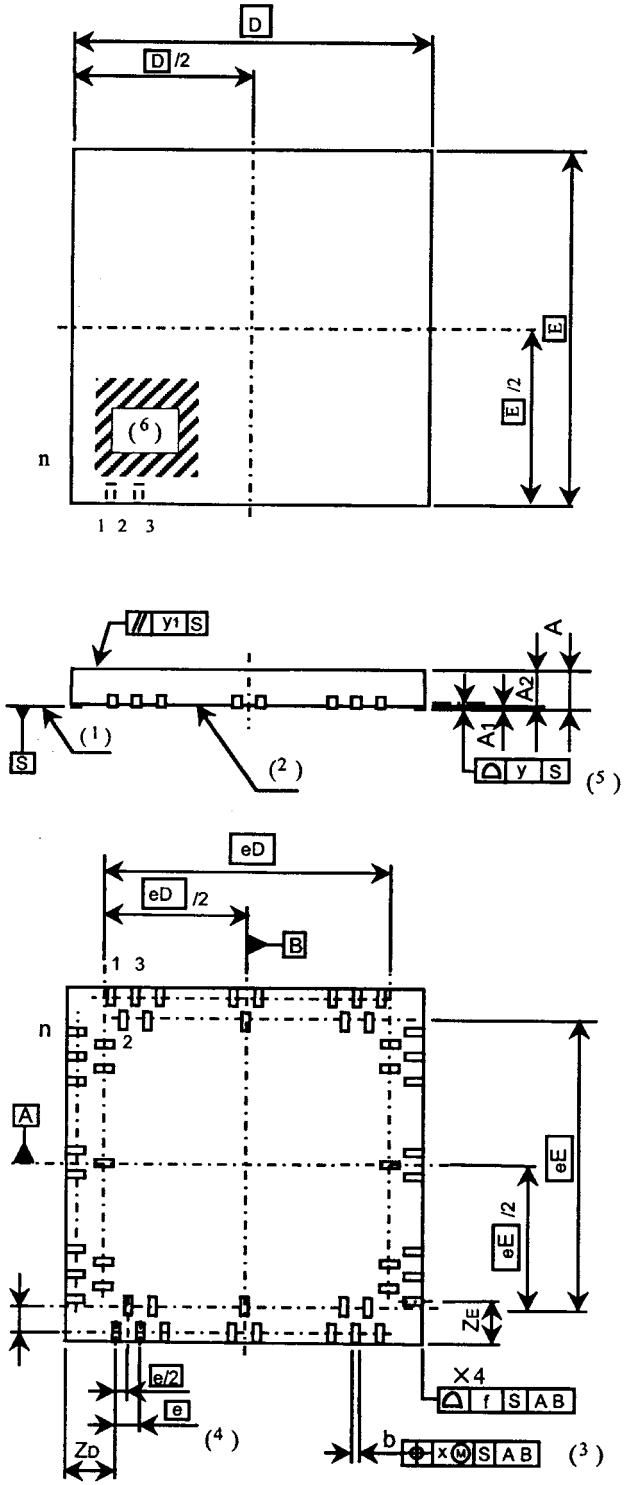

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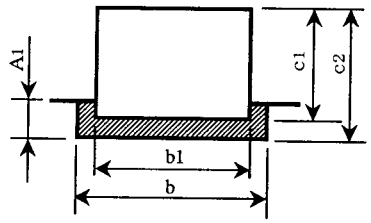
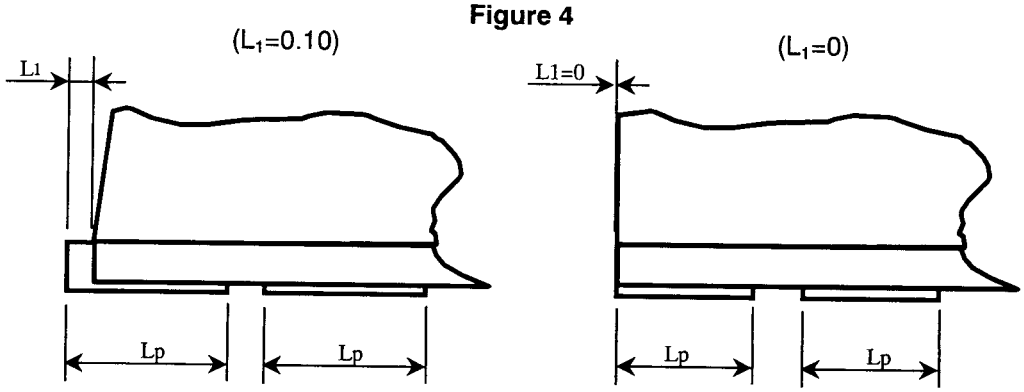
図 3
Figure 3



端子断面図, Terminal section （7）

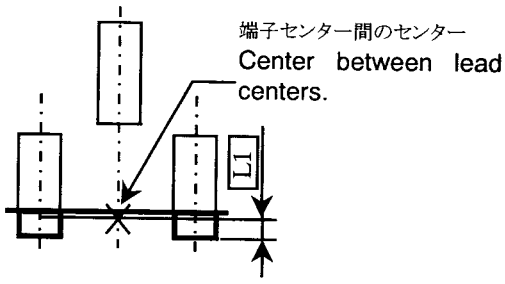
データムA_1の定義, Definition of the datum A_1

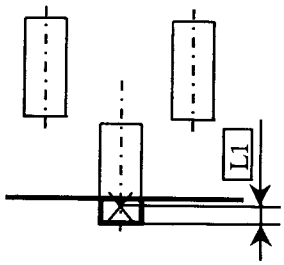
図 4
Figure 4



はんだ取付け部分,
Terminal to be soldered

はんだ取付け部分,
Terminal to be soldered





(a) リード片側偶数の場合
For even number of leads on a package side.

(b) リード片側奇数の場合
For odd number of leads on a package side.

詳細図（データムターゲット）
The detailed figure (datum target)

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注 (1) 取付け面を示す。取付け面とは，パッケージを取付ける面に対して，パッケージが接触し合う面である。

(2) ベース面を示す。ベース面とは，取付け面に平行な本体の最下点を通る面をいう。但し，スタンドオフは除く。

(3) 最大実体条件(ISO 2692/JIS B 0023参照)は，端子の位置許容値に適用する。

(4) 端子の軸の真の幾何学位置を規定する。

(5) 各端子の平坦部の取付け面に対する鉛直方向のずれを規定する。

(6) インデックスマークの許容位置を示す。インデックスマークは，IEC規格に準拠し，ボディサイズの1/16を基本とし，ボディサイズが小さい場合でもパッケージ1/4より少い面積の斜線領域内にその面積の全てが包含されなければならない。

(7) 端子断面の寸法は，端子先端から0.10mmと0.25mmの間の端子存在範囲内に適用する。

Notes

(1) The mounting surface, with which a package is in contact.

(2) The base surface, which is in parallel with the mounting surface and links the lowest point, except the stand-off.

(3) The maximum mounting conditions apply to the positional tolerance of the terminals. (Refer to **ISO 2692/JIS B 0023**.)

(4) Specifies the true geometric position of the terminal axis.

(5) Specifies the vertical shift of the flat part of each terminal form the mounting surface.

(6) Shows the allowable position of the Index mark area, which is based on the IEC standard, basically 1/16 with package bodysize, however in case of small body size, it is less than package 1/4 with package bodysize, it must be included in the shaded area entirely.

(7) The dimensions of the terminal section apply to the terminal region ranges of 0.10mm and 0.25mm from the end of a terminal.

登録一覧表，Registration table

パッケージ名称 (Package name):P-ILGA

登録番号 (Registration number): IC-7329-001

・整理番号表，serial number table

注 表中の数値は，(整理番号)の１桁目から４桁目を示す。

Note The Numbers in the table indicate,
(serial number) of 1st – 4th cord

CODE	1st	2nd		3rd		4th	
symbol	A	D		E		e	
	T	3	A	3	A	1.00	A
	V	4	B	4	B	0.80	B
	W	5	C	5	C	0.65	C
	U	6	D	6	D	0.50	D
	X	7	E	7	E	0.40	E
		8	F	8	F		
		10	G	10	G		
		12	H	12	H		
		14	J	14	J		
		16	K	16	K		
		18	L	18	L		
		20	M	20	M		

注 表中の数値は，「(端子数ｎ)－001－(整理番号)」を示す。

Note The Numbers in the table indicate,
(Terminal number n) – 001 - (serial number)

Lp	0.55			0.30	
e	1.00	0.80	0.65	0.50	0.40
3×3	------	------	------		
4×4	------	------	------		
5×5	------	------	------		
6×6	------	------	------		
7×7	44-001-WEEA	52-001-WEEB	60-001-WEEC		
8×8	52-001-VFFA	60-001-VFFB	76-001-VFFC		
10×10	60-001-VGGA	76-001-VGGB	100-001-VGGC	------	------
12×12	76-001-VHHA	100-001-VHHB	124-001-VHHC	------	------
14×14	92-001-VJJA	116-001-VJJB	148-001-VJJC	------	------
16×16				------	------
18×18				------	------
20×20				------	------

呼び寸法(Nominal dimension): D×E, 07.00×07.00

Unit mm

整理番号 Serial Number		44-001-WEEA			52-001-WEEB			60-001-WEEC		
外形タイプ External Type		P-ILGA044-07.00×07.00-1.00			P-ILGA052-07.00×07.00-0.80			P-ILGA060-07.00×07.00-0.65		
照合文字 Reference Symbol		min	nom	max	min	nom	max	min	nom	max
Group1	D	—	7.00	—	—	7.00	—	—	7.00	—
	E	—	7.00	—	—	7.00	—	—	7.00	—
	A_2	0.65	0.70	0.75	0.65	0.70	0.75	0.65	0.70	0.75
	f	—	—	0.20	—	—	0.20	—	—	0.20
	A	—	—	0.80	—	—	0.80	—	—	0.80
	A_1	0.00	—	—	0.00	—	—	0.00	—	—
	b	0.17	—	0.25	0.17	—	0.25	0.13	—	0.21
	b_1	0.17	0.20	0.23	0.17	0.20	0.23	0.13	0.16	0.19
	e	—	1.00	—	—	0.80	—	—	0.65	—
	e/2	—	0.50	—	—	0.40	—	—	0.325	—
	e_1	—	0.87	—	—	0.69	—	—	0.56	—
	eD	—	4.92	—	—	5.26	—	—	5.52	—
	eE	—	4.92	—	—	5.26	—	—	5.52	—
	Lp	0.45	0.55	0.65	0.45	0.55	0.65	0.45	0.55	0.65
	L_1	—	0.00	—	—	0.00	—	—	0.00	—
	x	—	—	0.20	—	—	0.16	—	—	0.13
	y	—	—	0.10	—	—	0.10	—	—	0.10
	t	—	—	0.20	—	—	0.20	—	—	0.20
	n	—	44	—	—	52	—	—	60	—
Group2	H_D	—	7.00	—	—	7.00	—	—	7.00	—
	H_E	—	7.00	—	—	7.00	—	—	7.00	—
	Z_D	—	1.50	—	—	1.10	—	—	1.225	—
	Z_E	—	1.50	—	—	1.10	—	—	1.225	—
	c_1	0.09	—	0.21	0.09	—	0.21	0.09	—	0.21
	c_2	0.09	—	0.25	0.09	—	0.25	0.09	—	0.25

呼び寸法(Nominal dimension): D×E, 08.00×08.00

Unit mm

整理番号 Serial Number		52-001-VFFA			60-001-VFFB			60-001-VFFC		
外形タイプ External Type		P-ILGA052-08.00×08.00-1.00			P-ILGA060-08.00×08.00-0.80			P-ILGA076-08.00×08.00-0.65		
照合文字 Reference Symbol		min	nom	max	min	nom	max	min	nom	max
Group1	D	—	8.00	—	—	8.00	—	—	8.00	—
	E	—	8.00	—	—	8.00	—	—	8.00	—
	A_2	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80
	f	—	—	0.20	—	—	0.20	—	—	0.20
	A	—	—	0.85	—	—	0.85	—	—	0.85
	A_1	0.00	—	—	0.00	—	—	0.00	—	—
	b	0.17	—	0.25	0.17	—	0.25	0.13	—	0.21
	b_1	0.17	0.20	0.23	0.17	0.20	0.23	0.13	0.16	0.19
	e	—	1.00	—	—	0.80	—	—	0.65	—
	e/2	—	0.50	—	—	0.40	—	—	0.325	—
	e_1	—	0.87	—	—	0.69	—	—	0.56	—
	eD	—	5.92	—	—	6.26	—	—	6.52	—
	eE	—	5.92	—	—	6.26	—	—	6.52	—
	Lp	0.45	0.55	0.65	0.45	0.55	0.65	0.45	0.55	0.65
	L_1	—	0.10	—	—	0.10	—	—	0.10	—
	x	—	—	0.20	—	—	0.16	—	—	0.13
	y	—	—	0.10	—	—	0.10	—	—	0.10
	t	—	—	0.20	—	—	0.20	—	—	0.20
	n	—	52	—	—	60	—	—	76	—
Group2	H_D	—	8.20	—	—	8.20	—	—	8.20	—
	H_E	—	8.20	—	—	8.20	—	—	8.20	—
	Z_D	—	1.00	—	—	1.20	—	—	1.075	—
	Z_E	—	1.00	—	—	1.20	—	—	1.075	—
	c_1	0.09	—	0.21	0.09	—	0.21	0.09	—	0.21
	c_2	0.09	—	0.25	0.09	—	0.25	0.09	—	0.25

呼び寸法(Nominal dimension): D×E, 10.00×10.00

Unit mm

整理番号 Serial Number		60-001-VGGA			76-001-VGGB			100-001-VGGC		
外形タイプ External Type		P-ILGA060-10.00×10.00-1.00			P-ILGA076-10.00×10.00-0.80			P-ILGA100-10.00×10.00-0.65		
照合文字 Reference Symbol		min	nom	max	min	nom	max	min	nom	max
Group1	D	—	10.00	—	—	10.00	—	—	10.00	—
	E	—	10.00	—	—	10.00	—	—	10.00	—
	A_2	0.70	0.75	0.80	0.70	0.75	0.80	0.70	0.75	0.80
	f	—	—	0.20	—	—	0.20	—	—	0.20
	A	—	—	0.85	—	—	0.85	—	—	0.85
	A_1	0.00	—	—	0.00	—	—	0.00	—	—
	b	0.17	—	0.25	0.17	—	0.25	0.13	—	0.21
	b_1	0.17	0.20	0.23	0.17	0.20	0.23	0.13	0.16	0.19
	e	—	1.00	—	—	0.80	—	—	0.65	—
	e/2	—	0.50	—	—	0.40	—	—	0.325	—
	e_1	—	0.87	—	—	0.69	—	—	0.56	—
	eD	—	7.92	—	—	8.26	—	—	8.52	—
	eE	—	7.92	—	—	8.26	—	—	8.52	—
	Lp	0.45	0.55	0.65	0.45	0.55	0.65	0.45	0.55	0.65
	L_1	—	0.10	—	—	0.10	—	—	0.10	—
	x	—	—	0.20	—	—	0.16	—	—	0.13
	y	—	—	0.10	—	—	0.10	—	—	0.10
	t	—	—	0.20	—	—	0.20	—	—	0.20
	n	—	60	—	—	76	—	—	100	—
Group2	H_D	—	10.20	—	—	10.20	—	—	10.20	—
	H_E	—	10.20	—	—	10.20	—	—	10.20	—
	Z_D	—	1.50	—	—	1.40	—	—	1.10	—
	Z_E	—	1.50	—	—	1.40	—	—	1.10	—
	c_1	0.09	—	0.21	0.09	—	0.21	0.09	—	0.21
	c_2	0.09	—	0.25	0.09	—	0.25	0.09	—	0.25

呼び寸法(Nominal dimension): D×E, 12.00×12.00

Unit mm

整理番号 Serial Number		76-001-VHHA			100-001-VHHB			124-001-VHHC		
外形タイプ External Type		P-ILGA076-12.00×12.00-1.00			P-ILGA100-12.00×12.00-0.80			P-ILGA124-12.00×12.00-0.65		
照合文字 Reference Symbol		min	nom	max	min	nom	max	min	nom	max
Group1	D	—	12.00	—	—	12.00	—	—	12.00	—
	E	—	12.00	—	—	12.00	—	—	12.00	—
	A_2	0.75	0.85	0.95	0.75	0.85	0.95	0.75	0.85	0.95
	f	—	—	0.20	—	—	0.20	—	—	0.20
	A	—	—	1.00	—	—	1.00	—	—	1.00
	A_1	0.00	—	—	0.00	—	—	0.00	—	—
	b	0.17	—	0.25	0.17	—	0.25	0.13	—	0.21
	b_1	0.17	0.20	0.23	0.17	0.20	0.23	0.13	0.16	0.19
	e	—	1.00	—	—	0.80	—	—	0.65	—
	e/2	—	0.50	—	—	0.40	—	—	0.325	—
	e_1	—	0.87	—	—	0.69	—	—	0.56	—
	eD	—	9.92	—	—	10.26	—	—	10.52	—
	eE	—	9.92	—	—	10.26	—	—	10.52	—
	Lp	0.45	0.55	0.65	0.45	0.55	0.65	0.45	0.55	0.65
	L_1	—	0.10	—	—	0.10	—	—	0.10	—
	x	—	—	0.20	—	—	0.16	—	—	0.13
	y	—	—	0.10	—	—	0.10	—	—	0.10
	t	—	—	0.20	—	—	0.20	—	—	0.20
	n	—	76	—	—	100	—	—	124	—
Group2	H_D	—	12.20	—	—	12.20	—	—	12.20	—
	H_E	—	12.20	—	—	12.20	—	—	12.20	—
	Z_D	—	1.50	—	—	1.20	—	—	1.125	—
	Z_E	—	1.50	—	—	1.20	—	—	1.125	—
	c_1	0.09	—	0.21	0.09	—	0.21	0.09	—	0.21
	c_2	0.09	—	0.25	0.09	—	0.25	0.09	—	0.25

呼び寸法(Nominal dimension): D×E, 14.00×14.00

Unit mm

整理番号 Serial Number		92-001-VJJA			116-001-VJJB			148-001-VJJC		
外形タイプ External Type		P-ILGA092-14.00×14.00-1.00			P-ILGA116-14.00×14.00-0.80			P-ILGA148-14.00×14.00-0.65		
照合文字 Reference Symbol		min	nom	max	min	nom	max	min	nom	max
Group1	D	—	14.00	—	—	14.00	—	—	14.00	—
	E	—	14.00	—	—	14.00	—	—	14.00	—
	A_2	0.75	0.85	0.95	0.75	0.85	0.95	0.75	0.85	0.95
	f	—	—	0.20	—	—	0.20	—	—	0.20
	A	—	—	1.00	—	—	1.00	—	—	1.00
	A_1	0.00	—	—	0.00	—	—	0.00	—	—
	b	0.17	—	0.27	0.17	—	0.27	0.13	—	0.23
	b_1	0.17	0.20	0.23	0.17	0.20	0.23	0.13	0.16	0.19
	e	—	1.00	—	—	0.80	—	—	0.65	—
	e/2	—	0.50	—	—	0.40	—	—	0.325	—
	e_1	—	0.87	—	—	0.69	—	—	0.56	—
	eD	—	11.92	—	—	12.26	—	—	12.52	—
	eE	—	11.92	—	—	12.26	—	—	12.52	—
	Lp	0.45	0.55	0.65	0.45	0.55	0.65	0.45	0.55	0.65
	L_1	—	0.10	—	—	0.10	—	—	0.10	—
	x	—	—	0.20	—	—	0.16	—	—	0.13
	y	—	—	0.10	—	—	0.10	—	—	0.10
	t	—	—	0.20	—	—	0.20	—	—	0.20
	n	—	92	—	—	116	—	—	148	—
Group2	H_D	—	14.20	—	—	14.20	—	—	14.20	—
	H_E	—	14.20	—	—	14.20	—	—	14.20	—
	Z_D	—	1.50	—	—	1.40	—	—	1.15	—
	Z_E	—	1.50	—	—	1.40	—	—	1.15	—
	c_1	0.09	—	0.21	0.09	—	0.21	0.09	—	0.21
	c_2	0.09	—	0.25	0.09	—	0.25	0.09	—	0.25

	JEITA STANDARD PACKAGE OUTLINE DRAWINGS	DATE 2002-03-01	SHEET 10/10
PACKAGE NAME P-ILGA		JEITA REGISTRATION NO. IC-7329-001	

COMMITTEE MEMBERS

The IC Package Subcommittee of the Technical Standardization Committee on Semiconductor Device Packages has mainly deliberated this standard.

The subcommittee members are shown below.

<Technical Standardization Committee on Semiconductor Device Package>

Chairman	ELPIDA MEMORY,INC.	Ichiro Anjo

< IC plastic Package Subcommittee>

Chief	SANYO ELECTRIC CORP.	Hideyuki Iwamura
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