Standard of Electronic Industries Association of Japan

**EIAJ ED-7311-6**

Standard of integrated circuits package
(60/90pins Fine-pitch Ball Grid Array (FBGA))

Established in April, 1998

Prepared by
Technical Standardization Committee on Semiconductor Device Package

Published by
Electronic Industries Association of Japan
5-13, Nishi-shinbashı 1-chome, Minato-ku, Tokyo 105-0003, Japan
Printed in Japan
パッケージ名称：P-TFBGA(0.80mm pitch)
Package Name

登録番号：IC-0000-002
Registration No.

<table>
<thead>
<tr>
<th>端子直線間隔（c</th>
<th>Terminal pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.80</td>
<td></td>
</tr>
<tr>
<td>60-002-AA</td>
<td></td>
</tr>
<tr>
<td>90-002-AB</td>
<td></td>
</tr>
</tbody>
</table>

注 表中の数値は、「(端子数n)-(連番)-(整理番号)」を示す。
Note: Numerals in the Table indicate "(Terminal number n)-(Consecutive number)-(Serial number)".
<table>
<thead>
<tr>
<th>照合文字</th>
<th>Reference Symbol</th>
<th>AA</th>
<th>min</th>
<th>nom</th>
<th>max</th>
<th>AB</th>
<th>min</th>
<th>nom</th>
<th>max</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>D</td>
<td></td>
<td>4.30〜14.00</td>
<td>6.50〜14.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td>E</td>
<td></td>
<td>12.10〜22.00</td>
<td>12.10〜22.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>v</td>
<td></td>
<td></td>
<td>0.15</td>
<td></td>
<td>0.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>w</td>
<td></td>
<td></td>
<td>0.20</td>
<td></td>
<td>0.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td></td>
<td></td>
<td>1.20</td>
<td></td>
<td>1.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>A1</td>
<td></td>
<td>0.35</td>
<td>0.40</td>
<td>0.45</td>
<td>0.35</td>
<td>0.40</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>e</td>
<td></td>
<td>0.80</td>
<td></td>
<td>0.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td></td>
<td></td>
<td>0.45</td>
<td>0.50</td>
<td>0.55</td>
<td>0.45</td>
<td>0.50</td>
<td>0.55</td>
<td></td>
</tr>
<tr>
<td>x</td>
<td></td>
<td></td>
<td>0.08</td>
<td></td>
<td>0.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>y</td>
<td></td>
<td></td>
<td>0.10</td>
<td></td>
<td>0.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>y1</td>
<td></td>
<td></td>
<td>0.20</td>
<td></td>
<td>0.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td></td>
<td></td>
<td>60</td>
<td></td>
<td>90</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M D</td>
<td>M D</td>
<td></td>
<td>6</td>
<td></td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M E</td>
<td>M E</td>
<td></td>
<td>15</td>
<td></td>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S D</td>
<td>S D</td>
<td></td>
<td>1.2</td>
<td></td>
<td>1.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z D</td>
<td>Z D</td>
<td></td>
<td>0.45〜5.00</td>
<td>0.45〜3.80</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Z E</td>
<td>Z E</td>
<td></td>
<td>0.45〜5.40</td>
<td>0.45〜5.40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**EIAJ STANDARD**

**PACKAGE OUTLINE DRAWINGS**

**DATE**

97-06-25

**SHEET**

2/4

**PACKAGE NAME**

FBGA

**EIAJ REGISTRATION NO.**

IC-0000-002
ABタイプ
(Type of AB)
EIAJ ED - 7311-6 Comments

COMMENTS

1. PROCESS OF DELIBERATION
FBGA includes not only Flanged type but also Real Chip Size type where the device decides the package dimension, therefore, the device size is required to be clarified. To decide the package size, it must be considered that the manufacturers have the various device types and the devices vary depending on the generation. We actually surveyed to decide the size, however, it was concluded that it was technically too difficult to decide a package size. As a result, it was decided to enable the device sizes to be converted and unify the minimum terminal arrangements.
Thus, the FBGA length and width (dimension D and E) are not unified. Instead, the maximum outer dimension estimated by each manufacturer including the minimum area where the terminal can fit was established as the dimension provision based on the agreement between the manufacturers. For terminal pitch and other dimensions, it was decided to comply with the square FBGA design guide based on the agreement between the manufacturers.

2. REVIEW COMMITTEE MEMBERS
The standard was mainly reviewed by the Subcommittee on Area Array Package, and Project Group of Technical Standardization Committee on Semiconductor Device Package of which members are as follows.

<Technical Standardization Committee on Semiconductor Device Package>
Chairman: Mitsubishi Electric Corp. Toshiaki Shinohara

<Sub-committee on Area Array Package>
Leader: Texas Instruments Japan Ltd. Kenji Masumoto
Sub-Leader: Toshiba Corp. Nobu Izawa
NEC Corp. Miwa Monma
Member: Anam Japan Hirota Ueda
Enplas Corp. Hiroki Yamagishi
OKI Electric Industry Co., Ltd. Sigeru Yamada
Kyocera Corp. Sachio Ninomiya
Komatsu Ltd. Eiji Mizutani
Citizen Watch Co., Ltd. Katsuji Komatsu
Sharp Corp. Katsuyuki Tarui
Sumitomo 3M Ltd. Hideto Odagiri
Sony Corp. Mutsumi Nagano
Toshiba Corp. Hideo Taguchi
IBM Japan, Ltd. Toshihiko Nishio
Nippon Motorola Ltd. Yushi Matsuda
Hitachi, Ltd. Masanori Shibamoto
Hitachi Cable, Ltd. Toyohiko Kumakura
Fujitsu Ltd. Mitsutaka Sato
Matsushita Electronic Corp. Tomohiro Tamaki
Mitsubishi Electric Corp. Katsuhiko Tomita
Yamaichi Electronics Co., Ltd. Syunji Abe
Rohm Co., Ltd. Tadahiro Morifuji
Yasunaga Corp. Masahiko Fukuoka
Toshiba Corp. Shuzo Akejima
Special Member: Dainippon Ink and Chemicals, Inc. Satoru Furunishi
NEC Corp. Yoshiyuki Hirano
EIAJ ED - 7311-6 Comments

<Project Group>
Leader Hitachi, Ltd.
Sub-Leader NEC Corp.
             Toshiba Corp.
             Texas Instruments Japan Ltd.
             Fujitsu Ltd.
             Mitsubishi Electric Corp.
             Matsushita Electronic Corp.
             Sony Corp.
             SEIKO EPSON Corp.
             Sharp Corp.
             OKI Electric Industry Co., Ltd.
             SAMSUNG (South Korea)
             AMD (USA)
             Kyocera Corp.