

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Mechanical standardization of semiconductor devices –
Part 6-16: Glossary of semiconductor tests and burn-in sockets for BGA, LGA,
FBGA and FLGA**

**Normalisation mécanique des dispositifs à semiconducteurs –
Partie 6-16: Glossaire des supports de test et de déverminage pour les BGA,
LGA, FBGA et FLGA**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –

**Part 6-16: Glossary of semiconductor tests and burn-in sockets
for BGA, LGA, FBGA and FLGA**

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International Standard IEC 60191-6-16 has been prepared by subcommittee 47D: Mechanical standardization of semiconductor devices, of IEC technical committee 47: Semiconductor devices.

This bilingual version (2012-07) corresponds to the monolingual English version, published in 2007-04. The text of this standard is based on the following documents:

FDIS	Report on voting
47D/679/FDIS	47D/683/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

The French version of this standard has not been voted upon.

This publication has been drafted in accordance with the ISO/IEC Directive, Part 2.

A list of all the parts of the IEC 60191 series, under the general title *Mechanical standardization of semiconductor devices*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
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MECHANICAL STANDARDIZATION OF SEMICONDUCTOR DEVICES –

Part 6-16: Glossary of semiconductor tests and burn-in sockets for BGA, LGA, FBGA and FLGA

1 Scope

This part of IEC 60191 gives a glossary of semiconductor sockets for BGA, LGA, FBGA and FLGA. This standard intends to establish definitions and unification of terminology relating to tests and burn-in sockets for BGA, LGA, FBGA and FLGA.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60191-1:1966, *Mechanical standardization of semiconductor devices – Part 1: Preparation of outline drawings of semiconductor devices*

IEC 60191-2:1966, *Mechanical standardization of semiconductor devices – Part 2: Dimensions*

IEC 60191-3:1999, *Mechanical standardization of semiconductor devices – Part 3: General rules for the preparation of outline drawings of integrated circuits*

IEC 60191-4:1999, *Mechanical standardization of semiconductor devices – Part 4: Coding system and classification into forms of package outlines for semiconductor devices*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

NOTE 1 Long terms are indicated in two lines.

NOTE 2 A symbol indicates the dimensional symbol in drawing.

NOTE 3 A dash (-) in the columns of “Drawing part” and “Symbol” indicates no correspondence to symbols or drawing parts.

3.1 General

Table 1 – General

No.	Term	Definition	Symbol	Drawing part
101	IC socket	connector to electrically connect and mechanically hold IC package	-	-
102	production socket	socket used in the production of PCB assemblies for electrical equipment to facilitate package replacement	-	-
103	test and burn-in socket	socket mainly used for electrical characteristics test, burn-in and reliability test of package with its production process. Designed for reliable contact, durable actuation and high environmental operating temperature	-	-
104	clamshell type socket	socket having a style that surrounds the package with hinged base and lid	-	Figure 1
105	open-top type socket	socket having a style to load/unload package from the top opening of socket by pressing down the cover mechanism	-	Figure 2

3.2 Clamshell type

Table 2 – Clamshell type

No.	Term	Definition	Symbol	Drawing part
201	base	base part to hold contacts and other socket parts and to be assembled on PCB	-	Figure 1(1)
202	lid	part making a pair with base whose function is to hold the package	-	Figure 1(2)
203	latch	latch to fix the cover with base at closed position	-	Figure 1(3)
204	hinge	hinge to join base and lid	-	Figure 1(4)
205	alignment plate	supporting part to align terminals with through holes on PCB for ease of socket terminal insertion	-	Figure 1(5)
206	alignment pin	pin mounted on socket to define relative position of socket with PCB	-	Figure 1(6)
207	contact	electrically connecting part of socket consisting of contact point with package lead and terminal portion to be soldered on PCB	-	Figure 1(7)
208	contact point	section of the contact making connection with package	-	Figure 1,(8)
209	terminal	electrical connector protruding from socket base in order to solder on PCB. Part of the contact	-	Figure 1(9)
210	platform	part to hold package	-	Figure 1(10)
211	pusher	part to hold package and to maintain stable contact of package leads with socket contacts	-	Figure 1(11)
212	package guide	guide for package established in socket to align package leads with socket contact	-	Figure 1(12)
213	mounting flange	flange to mount socket on PCB	-	Figure 1(13)
214	socket width	socket width excluding mounting flange	W	Figure 1
215	maximum socket width	maximum socket width including mounting flange	W_1	Figure 1
216	socket length	socket length excluding protrusion of the latch at its closed position	L	Figure 1
217	maximum socket length	maximum socket length including protrusion of the latch at its closed position	L_1	Figure 1
218	latch moving distance	distance of the latch movement beyond socket length	L_3	Figure 1

Table 2 – Clamshell type (continued)

No.	Term	Definition	Symbol	Drawing part
219	socket height	distance from socket mounting plane to the lid top surface at its closed position	A	Figure 1
220	maximum socket height	distance from socket mounting plane to the lid top surface including protruded section with its closed position	A_4	Figure 1
221	maximum height with opened lid	maximum socket height from its mounting plane with the lid at fully open position including protrusions	A_5	Figure 1
222	lid open angle	angle of the lid at fully open position	θ	Figure 1
223	base width	width of socket base	W_2	Figure 1
224	base length	length of socket base	L_2	Figure 1
225	seating plane height	height from socket mounting surface to the platform top surface	A_2	Figure 1
226	terminal length	length from socket mounting plane to terminal tip	A_3	Figure 1

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3.3 Open-top type

Table 3 – Open-top type

No.	Term	Definition	Symbol	Drawing part
301	base	base part to hold contacts and other socket parts and to be assembled on PCB	-	Figure 2(1)
302	cover	part to actuate the pusher and contact point of the contact	-	Figure 2(2)
303	bumper	protective part surrounding the base	-	Figure 2,(3)
304	alignment plate	supporting part to align terminals with through holes on PCB for ease of socket terminal insertion	-	Figure 2(4)
305	alignment pin	pin mounted on socket to define relative position of socket with PCB	-	Figure 2(5)
306	contact	electrically connecting part of socket consisting of contact point with package lead and terminal portion to be soldered on PCB	-	Figure 2 (6)
307	contact point	section of the contact making a connection with package	-	Figure 2(7)
308	terminal	electrical connector protruding from socket base in order to solder on PCB, a part of contact	-	Figure 2(8)
309	platform	part to hold package. In case of the open top type socket, this functionality is likely built in main body of socket	-	Figure 2(9)
310	pusher	part to hold package and to maintain stable contact of package leads with socket contacts	-	Figure 2(10)
311	package guide	guide for package established in socket to align package leads with socket contact	-	Figure 2(11)
312	retainer	part to retain package	-	Figure 2(12)
313	socket width	socket width excluding bumper and others	W	Figure 2
314	maximum socket width	maximum socket width including bumper and others	W_1	Figure 2
315	socket length	socket length excluding bumper and others	L	Figure 2
316	maximum socket length	maximum socket length including bumper and others	L_1	Figure 2
317	socket height	height of socket from its mounting plane	A	Figure 2
318	end stroke height	distance from socket mounting plane to top surface of the cover in its fully depressed position	A_1	Figure 2
319	seating plane height	distance from socket mounting plane to top surface of the platform without package	A_2	Figure 2
320	terminal length	length from socket mounting plane to terminal tip	A_3	Figure 2

3.4 Printed circuit board

Table 4 – Printed circuit board

No.	Term	Definition	Symbol	Drawing part
401	mounting hole	hole drilled on PCB to mount socket mechanically	-	Figure 3(1)
402	alignment hole	hole drilled on PCB to align relative position of socket and PCB	-	Figure 3(2)
403	socket mounting pattern	description including dimension of mounting hole, alignment hole and plated-through hole with their relative positional dimension	-	Figure 3
404	socket mounting area	area on PCB where is required for socket mounting and operation	-	Figure 3(3)
405	socket mounting width	width of socket mounting area	W_p	Figure 3
406	socket mounting length	length of socket mounting area	L_p	Figure 3
407	maximum socket mounting width	width of socket mounting area including mounting flange or bumper	W_{p1}	Figure 3

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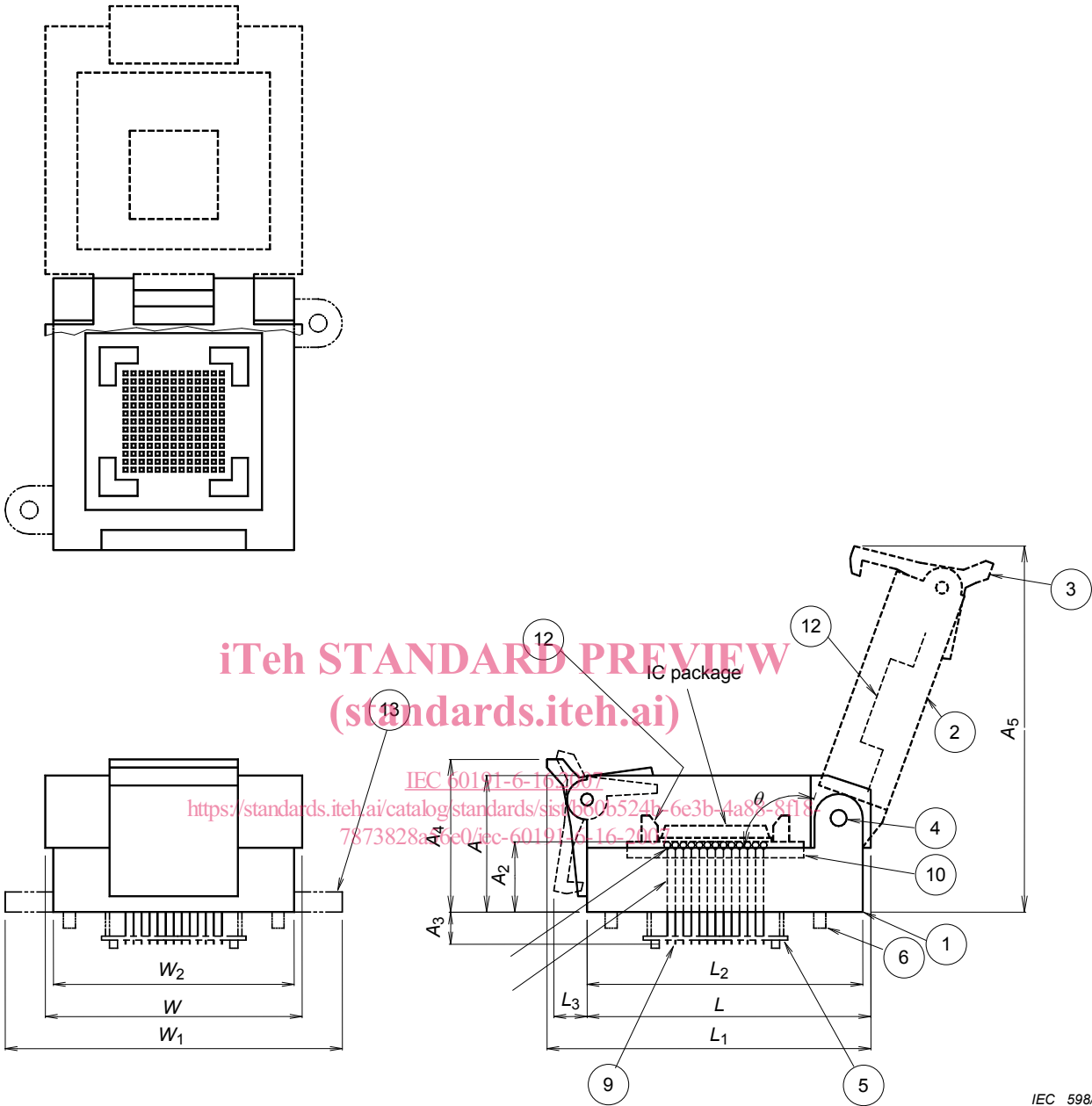


Figure 1 – Clamshell type socket