



Packaging Cost and Price Model – Assembly Options

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Introduction

The Assembly and Test Cost and Price Model is a bottoms-up simulator of Assembly and Test operations. This document will outline the major assembly options covered by the model.

Date range

Supported years are 2010 to 2035

Assembly location/provider

The following assembly locations/providers are pre-defined in the model. Users can also override/modify the configuration for any of the options.

1. Amkor
2. ASE Group
3. Chipbond
4. ChipMOS
5. Intel - China
6. Intel - Malaysia
7. Internal - Austria
8. Internal - Canada
9. Internal - China
10. Internal - Finland
11. Internal - France
12. Internal - Germany
13. Internal - India
14. Internal - Ireland
15. Internal - Israel
16. Internal - Italy
17. Internal - Japan
18. Internal - Malaysia
19. Internal - Mexico
20. Internal - Philippines
21. Internal - United States
22. Powertech Technology (PTI)
23. Silicon Precision Industries (SPIL)
24. STATS ChipPac
25. TSMC
26. United Test and Assembly Center Ltd. (UTAC)

Internal operations do not include a gross margin. OSAT providers have pre-defined margins that depend on the year and the volume and can be overridden by the user.

Input wafers

The model supports up to 6 user-defined input wafers and up to 5 pre-defined wafers. For each wafer any number of die may be used as inputs into the packaging process.

The pre-defined wafers are:

- Bridge die wafer – used for the Intel EMIB process
- InFO – used for the TSMC InFO process
- Integrated Passive Device (IPD) – some OSATs now fabricate their own IPD wafers for use in the assembly process
- Silicon Interposers – 2 to 4 layers with and without TSV and 5 layers with capacitors and with and without TSV
- Organic Interposers – 2 to 4 layers

Packaged parts – you can define up to two packaged parts that get input into the assembly process.

Wafer level assembly options

The following wafer level assembly options are supported:

- Backgrind
- Redistribution layers – up to 4 supported
- Integrated passive wafer – yes/no
- Front side wafer bumping - plated copper or solder or solder preforms as options
- Frontside solder balls – enter number if solder preforms selected in the previous setting
- Backside solder balls – enter number if use
- Copper pillar formation – yes/no
- Wafer coating – yes/no
- Wafer level buildup layers – 0 to 8
- Wafer mold – yes/no
- Planarize – yes/no
- Carrier removal – yes/no
- Wafer sawing – first pass – yes/no
- Wafer sawing – second pass – yes/no
- Wafer sawing – saw type – 1 spindle, 2 spindle, 3 spindle, laser
- Reconstructed wafers – often used for image sensors, a wafer on a frame is created from only good die – yes/no
- Backside laser marking – yes/no
- Tape and reel – yes/no
- Visual inspect – yes/no

Leadframe based packages

The following leadframes are currently supported:

No frame

1. DFN - 6 lead - 3 x 3 x 0.9 mm
2. DFN - 8 lead - 2 x 3 x 0.9 mm
3. DFN - 10 lead - 4 x 4 x 0.9 mm
4. DFN - 12 lead - 1.6 x 4 x 0.9 mm
5. DIP - 8 lead - 300 x 365 x 130 mils
6. DIP - 14 lead - 300 x 750 x 130 mils
7. DIP - 16 lead - 300 x 750 x 130 mils
8. DIP - 18 lead - 300 x 900 x 130 mils
9. DIP - 20 lead - 300 x 1030 x 130 mils
10. DIP - 24 lead - 300 x 1250 x 130 mils
11. DIP - 24 lead - 600 x 1250 x 150 mils
12. DIP - 28 lead - 300 x 1450 x 130 mils
13. DIP - 28 lead - 600 x 1450 x 150 mils
14. DIP - 40 lead - 600 x 2060 x 150 mils
15. DO-214AA (SMB) - 2 lead - 4.32 x 3.62 x 2.13 mm
16. DO-213AB (SMC) - 2 lead - 6.86 x 5.91 x 2.13 mm
17. DO-214AC (SMA) - 2 lead - 4.3 x 2.61 x 2.13 mm
18. DO-214BA (GF1) - 2 lead - 4.5 x 2.65 x 2.77 mm
19. FN - 8 lead - 1.44 x 2.84 x 0.65 mm
20. H-PSOF - 8 lead - 9.8 x 11.68 x 2.3 mm
21. H2PAK - 7 lead - 10.2 x 10.2 x 4.55 mm
22. HiP247 - 3 lead - 15.6 x 20 x 5 mm
23. KT (SIP) - 4 lead - 3.43 x 5.21 x 1 mm
24. LQFP - 32 lead - 7 x 7 x 1.4 mm
25. LQFP - 44 lead - 10 x 10 x 1.4 mm
26. LQFP - 44 lead - 14 x 14 x 1.4 mm
27. LQFP - 48 lead - 7 x 7 x 1.4 mm
28. LQFP - 52 lead - 10 x 10 x 1.4 mm
29. LQFP - 64 lead - 7 x 7 x 1.4 mm
30. LQFP - 64 lead - 10 x 10 x 1.4 mm
31. LQFP - 64 lead - 14 x 14 x 1.4 mm
32. LQFP - 80 lead - 10 x 10 x 1.4 mm
33. LQFP - 80 lead - 12 x 12 x 1.4 mm
34. LQFP - 80 lead - 14 x 14 x 1.4 mm
35. LQFP - 100 lead - 14 x 14 x 1.4 mm
36. LQFP - 100 lead - 14 x 20 x 1.4 mm
37. LQFP - 120 lead - 14 x 14 x 1.4 mm
38. LQFP - 128 lead - 14 x 14 x 1.4 mm
39. LQFP - 128 lead - 14 x 20 x 1.4 mm
40. LQFP - 128 lead - 20 x 20 x 1.4 mm
41. LQFP - 144 lead - 20 x 20 x 1.4 mm
42. LQFP - 160 lead - 24 x 24 x 1.4 mm
43. LQFP - 176 lead - 20 x 20 x 1.4 mm
44. LQFP - 176 lead - 24 x 24 x 1.4 mm
45. LQFP - 216 lead - 24 x 24 x 1.4 mm
46. LQFP - 208 lead - 28 x 28 x 1.4 mm
47. LQFP - 256 lead - 28 x 28 x 1.4 mm
48. MLF/MLP/QFN - 4 lead - 2 x 2 x 0.35 mm

49. MLF/MLP/QFN - 4 lead - 2 x 2 x 0.55 mm
50. MLF/MLP/QFN - 4 lead - 2 x 2 x 0.85 mm
51. MLF/MLP/QFN - 4 lead - 2 x 2 x 1 mm
52. MLF/MLP/QFN - 4 lead - 2.5 x 2 x 0.35 mm
53. MLF/MLP/QFN - 4 lead - 2.5 x 2 x 0.55 mm
54. MLF/MLP/QFN - 4 lead - 2.5 x 2 x 0.85 mm
55. MLF/MLP/QFN - 4 lead - 2.5 x 2 x 1 mm
56. MLF/MLP/QFN - 4 lead - 2.5 x 2.5 x 0.35 mm
57. MLF/MLP/QFN - 4 lead - 2.5 x 2.5 x 0.55 mm
58. MLF/MLP/QFN - 4 lead - 2.5 x 2.5 x 0.85 mm
59. MLF/MLP/QFN - 4 lead - 2.5 x 2.5 x 1 mm
60. MLF/MLP/QFN - 4 lead - 3 x 3 x 0.35 mm
61. MLF/MLP/QFN - 4 lead - 3 x 3 x 0.55 mm
62. MLF/MLP/QFN - 4 lead - 3 x 3 x 0.85 mm
63. MLF/MLP/QFN - 4 lead - 3 x 3 x 1 mm
64. MLF/MLP/QFN - 4 lead - 5 x 2.5 x 0.35 mm
65. MLF/MLP/QFN - 4 lead - 5 x 2.5 x 0.55 mm
66. MLF/MLP/QFN - 4 lead - 5 x 2.5 x 0.85 mm
67. MLF/MLP/QFN - 4 lead - 5 x 2.5 x 1 mm
68. MLF/MLP/QFN - 6 lead - 2 x 2 x 0.35 mm
69. MLF/MLP/QFN - 6 lead - 2 x 2 x 0.55 mm
70. MLF/MLP/QFN - 6 lead - 2 x 2 x 0.85 mm
71. MLF/MLP/QFN - 6 lead - 2 x 2 x 1 mm
72. MLF/MLP/QFN - 6 lead - 2.5 x 2.5 x 0.35 mm
73. MLF/MLP/QFN - 6 lead - 2.5 x 2.5 x 0.55 mm
74. MLF/MLP/QFN - 6 lead - 2.5 x 2.5 x 0.85 mm
75. MLF/MLP/QFN - 6 lead - 2.5 x 2.5 x 1 mm
76. MLF/MLP/QFN - 8 lead - 2.5 x 2.5 x 0.35 mm
77. MLF/MLP/QFN - 8 lead - 2.5 x 2.5 x 0.55 mm
78. MLF/MLP/QFN - 8 lead - 2.5 x 2.5 x 0.85 mm
79. MLF/MLP/QFN - 8 lead - 2.5 x 2.5 x 1 mm
80. MLF/MLP/QFN - 8 lead - 3 x 3 x 0.35 mm
81. MLF/MLP/QFN - 8 lead - 3 x 3 x 0.55 mm
82. MLF/MLP/QFN - 8 lead - 3 x 3 x 0.85 mm
83. MLF/MLP/QFN - 8 lead - 3 x 3 x 1 mm
84. MLF/MLP/QFN - 10 lead - 3 x 3 x 0.35 mm
85. MLF/MLP/QFN - 10 lead - 3 x 3 x 0.55 mm
86. MLF/MLP/QFN - 10 lead - 3 x 3 x 0.85 mm
87. MLF/MLP/QFN - 10 lead - 3 x 3 x 1 mm
88. MLF/MLP/QFN - 12 lead - 3 x 3 x 0.35 mm
89. MLF/MLP/QFN - 12 lead - 3 x 3 x 0.55 mm
90. MLF/MLP/QFN - 12 lead - 3 x 3 x 0.85 mm
91. MLF/MLP/QFN - 12 lead - 3 x 3 x 1 mm
92. MLF/MLP/QFN - 12 lead - 4 x 4 x 0.35 mm
93. MLF/MLP/QFN - 12 lead - 4 x 4 x 0.55 mm
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100. MLF/MLP/QFN - 16 lead - 4 x 4 x 0.35 mm
101. MLF/MLP/QFN - 16 lead - 4 x 4 x 0.55 mm
102. MLF/MLP/QFN - 16 lead - 4 x 4 x 0.85 mm
103. MLF/MLP/QFN - 16 lead - 4 x 4 x 1 mm
104. MLF/MLP/QFN - 16 lead - 5 x 5 x 0.35 mm
105. MLF/MLP/QFN - 16 lead - 5 x 5 x 0.55 mm
106. MLF/MLP/QFN - 16 lead - 5 x 5 x 0.85 mm
107. MLF/MLP/QFN - 16 lead - 5 x 5 x 1 mm
108. MLF/MLP/QFN - 18 lead - 6 x 6 x 0.35 mm
109. MLF/MLP/QFN - 18 lead - 6 x 6 x 0.55 mm
110. MLF/MLP/QFN - 18 lead - 6 x 6 x 0.85 mm
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129. MLF/MLP/QFN - 24 lead - 3 x 3 x 0.55 mm
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132. MLF/MLP/QFN - 24 lead - 4 x 4 x 0.35 mm
133. MLF/MLP/QFN - 24 lead - 4 x 4 x 0.55 mm
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142. MLF/MLP/QFN - 24 lead - 6 x 5 x 0.85 mm
143. MLF/MLP/QFN - 24 lead - 6 x 5 x 1 mm
144. MLF/MLP/QFN - 24 lead - 6 x 6 x 0.35 mm

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156. MLF/MLP/QFN - 28 lead - 6 x 6 x 0.35 mm
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188. MLF/MLP/QFN - 36 lead - 6 x 6 x 0.35 mm
189. MLF/MLP/QFN - 36 lead - 6 x 6 x 0.55 mm
190. MLF/MLP/QFN - 36 lead - 6 x 6 x 0.85 mm
191. MLF/MLP/QFN - 36 lead - 6 x 6 x 1 mm
192. MLF/MLP/QFN - 36 lead - 7 x 7 x 0.35 mm

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194. MLF/MLP/QFN - 36 lead - 7 x 7 x 0.85 mm
195. MLF/MLP/QFN - 36 lead - 7 x 7 x 1 mm
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197. MLF/MLP/QFN - 36 lead - 8 x 8 x 0.55 mm
198. MLF/MLP/QFN - 36 lead - 8 x 8 x 0.85 mm
199. MLF/MLP/QFN - 36 lead - 8 x 8 x 1 mm
200. MLF/MLP/QFN - 36 lead - 9 x 9 x 0.35 mm
201. MLF/MLP/QFN - 36 lead - 9 x 9 x 0.55 mm
202. MLF/MLP/QFN - 36 lead - 9 x 9 x 0.85 mm
203. MLF/MLP/QFN - 36 lead - 9 x 9 x 1 mm
204. MLF/MLP/QFN - 40 lead - 4 x 4 x 0.35 mm
205. MLF/MLP/QFN - 40 lead - 4 x 4 x 0.55 mm
206. MLF/MLP/QFN - 40 lead - 4 x 4 x 0.85 mm
207. MLF/MLP/QFN - 40 lead - 4 x 4 x 1 mm
208. MLF/MLP/QFN - 40 lead - 5 x 5 x 0.35 mm
209. MLF/MLP/QFN - 40 lead - 5 x 5 x 0.55 mm
210. MLF/MLP/QFN - 40 lead - 5 x 5 x 0.85 mm
211. MLF/MLP/QFN - 40 lead - 5 x 5 x 1 mm
212. MLF/MLP/QFN - 40 lead - 6 x 6 x 0.35 mm
213. MLF/MLP/QFN - 40 lead - 6 x 6 x 0.55 mm
214. MLF/MLP/QFN - 40 lead - 6 x 6 x 0.85 mm
215. MLF/MLP/QFN - 40 lead - 6 x 6 x 1 mm
216. MLF/MLP/QFN - 40 lead - 8 x 8 x 0.35 mm
217. MLF/MLP/QFN - 40 lead - 8 x 8 x 0.55 mm
218. MLF/MLP/QFN - 40 lead - 8 x 8 x 0.85 mm
219. MLF/MLP/QFN - 40 lead - 8 x 8 x 1 mm
220. MLF/MLP/QFN - 42 lead - 6 x 5 x 0.35 mm
221. MLF/MLP/QFN - 42 lead - 6 x 5 x 0.55 mm
222. MLF/MLP/QFN - 42 lead - 6 x 5 x 0.85 mm
223. MLF/MLP/QFN - 42 lead - 6 x 5 x 1 mm
224. MLF/MLP/QFN - 44 lead - 10 x 10 x 0.35 mm
225. MLF/MLP/QFN - 44 lead - 10 x 10 x 0.55 mm
226. MLF/MLP/QFN - 44 lead - 10 x 10 x 0.85 mm
227. MLF/MLP/QFN - 44 lead - 10 x 10 x 1 mm
228. MLF/MLP/QFN - 44 lead - 5 x 5 x 0.35 mm
229. MLF/MLP/QFN - 44 lead - 5 x 5 x 0.55 mm
230. MLF/MLP/QFN - 44 lead - 5 x 5 x 0.85 mm
231. MLF/MLP/QFN - 44 lead - 5 x 5 x 1 mm
232. MLF/MLP/QFN - 44 lead - 7 x 7 x 0.35 mm
233. MLF/MLP/QFN - 44 lead - 7 x 7 x 0.55 mm
234. MLF/MLP/QFN - 44 lead - 7 x 7 x 0.85 mm
235. MLF/MLP/QFN - 44 lead - 7 x 7 x 1 mm
236. MLF/MLP/QFN - 44 lead - 9 x 9 x 0.35 mm
237. MLF/MLP/QFN - 44 lead - 9 x 9 x 0.55 mm
238. MLF/MLP/QFN - 44 lead - 9 x 9 x 0.85 mm
239. MLF/MLP/QFN - 44 lead - 9 x 9 x 1 mm
240. MLF/MLP/QFN - 48 lead - 12 x 12 x 0.35 mm

- 241. MLF/MLP/QFN - 48 lead - 12 x 12 x 0.55 mm
- 242. MLF/MLP/QFN - 48 lead - 12 x 12 x 0.85 mm
- 243. MLF/MLP/QFN - 48 lead - 12 x 12 x 1 mm
- 244. MLF/MLP/QFN - 48 lead - 6 x 6 x 0.35 mm
- 245. MLF/MLP/QFN - 48 lead - 6 x 6 x 0.55 mm
- 246. MLF/MLP/QFN - 48 lead - 6 x 6 x 0.85 mm
- 247. MLF/MLP/QFN - 48 lead - 6 x 6 x 1 mm
- 248. MLF/MLP/QFN - 48 lead - 7 x 7 x 0.35 mm
- 249. MLF/MLP/QFN - 48 lead - 7 x 7 x 0.55 mm
- 250. MLF/MLP/QFN - 48 lead - 7 x 7 x 0.85 mm
- 251. MLF/MLP/QFN - 48 lead - 7 x 7 x 1 mm
- 252. MLF/MLP/QFN - 48 lead - 9 x 9 x 0.35 mm
- 253. MLF/MLP/QFN - 48 lead - 9 x 9 x 0.55 mm
- 254. MLF/MLP/QFN - 48 lead - 9 x 9 x 0.85 mm
- 255. MLF/MLP/QFN - 48 lead - 9 x 9 x 1 mm
- 256. MLF/MLP/QFN - 52 lead - 10 x 10 x 0.35 mm
- 257. MLF/MLP/QFN - 52 lead - 10 x 10 x 0.55 mm
- 258. MLF/MLP/QFN - 52 lead - 10 x 10 x 0.85 mm
- 259. MLF/MLP/QFN - 52 lead - 10 x 10 x 1 mm
- 260. MLF/MLP/QFN - 52 lead - 5 x 5 x 0.35 mm
- 261. MLF/MLP/QFN - 52 lead - 5 x 5 x 0.55 mm
- 262. MLF/MLP/QFN - 52 lead - 5 x 5 x 0.85 mm
- 263. MLF/MLP/QFN - 52 lead - 5 x 5 x 1 mm
- 264. MLF/MLP/QFN - 52 lead - 8 x 8 x 0.35 mm
- 265. MLF/MLP/QFN - 52 lead - 8 x 8 x 0.55 mm
- 266. MLF/MLP/QFN - 52 lead - 8 x 8 x 0.85 mm
- 267. MLF/MLP/QFN - 52 lead - 8 x 8 x 1 mm
- 268. MLF/MLP/QFN - 56 lead - 10 x 10 x 0.35 mm
- 269. MLF/MLP/QFN - 56 lead - 10 x 10 x 0.55 mm
- 270. MLF/MLP/QFN - 56 lead - 10 x 10 x 0.85 mm
- 271. MLF/MLP/QFN - 56 lead - 10 x 10 x 1 mm
- 272. MLF/MLP/QFN - 56 lead - 6 x 6 x 0.35 mm
- 273. MLF/MLP/QFN - 56 lead - 6 x 6 x 0.55 mm
- 274. MLF/MLP/QFN - 56 lead - 6 x 6 x 0.85 mm
- 275. MLF/MLP/QFN - 56 lead - 6 x 6 x 1 mm
- 276. MLF/MLP/QFN - 56 lead - 7 x 7 x 0.35 mm
- 277. MLF/MLP/QFN - 56 lead - 7 x 7 x 0.55 mm
- 278. MLF/MLP/QFN - 56 lead - 7 x 7 x 0.85 mm
- 279. MLF/MLP/QFN - 56 lead - 7 x 7 x 1 mm
- 280. MLF/MLP/QFN - 56 lead - 8 x 8 x 0.35 mm
- 281. MLF/MLP/QFN - 56 lead - 8 x 8 x 0.55 mm
- 282. MLF/MLP/QFN - 56 lead - 8 x 8 x 0.85 mm
- 283. MLF/MLP/QFN - 56 lead - 8 x 8 x 1 mm
- 284. MLF/MLP/QFN - 60 lead - 12 x 12 x 0.35 mm
- 285. MLF/MLP/QFN - 60 lead - 12 x 12 x 0.55 mm
- 286. MLF/MLP/QFN - 60 lead - 12 x 12 x 0.85 mm
- 287. MLF/MLP/QFN - 60 lead - 12 x 12 x 1 mm
- 288. MLF/MLP/QFN - 60 lead - 9 x 9 x 0.35 mm

289. MLF/MLP/QFN - 60 lead - 9 x 9 x 0.55 mm
290. MLF/MLP/QFN - 60 lead - 9 x 9 x 0.85 mm
291. MLF/MLP/QFN - 60 lead - 9 x 9 x 1 mm
292. MLF/MLP/QFN - 64 lead - 6 x 6 x 0.35 mm
293. MLF/MLP/QFN - 64 lead - 6 x 6 x 0.55 mm
294. MLF/MLP/QFN - 64 lead - 6 x 6 x 0.85 mm
295. MLF/MLP/QFN - 64 lead - 6 x 6 x 1 mm
296. MLF/MLP/QFN - 64 lead - 9 x 9 x 0.35 mm
297. MLF/MLP/QFN - 64 lead - 9 x 9 x 0.55 mm
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308. MLF/MLP/QFN - 68 lead - 8 x 8 x 0.35 mm
309. MLF/MLP/QFN - 68 lead - 8 x 8 x 0.55 mm
310. MLF/MLP/QFN - 68 lead - 8 x 8 x 0.85 mm
311. MLF/MLP/QFN - 68 lead - 8 x 8 x 1 mm
312. MLF/MLP/QFN - 72 lead - 10 x 10 x 0.35 mm
313. MLF/MLP/QFN - 72 lead - 10 x 10 x 0.55 mm
314. MLF/MLP/QFN - 72 lead - 10 x 10 x 0.85 mm
315. MLF/MLP/QFN - 72 lead - 10 x 10 x 1 mm
316. MLF/MLP/QFN - 76 lead - 8 x 8 x 0.35 mm
317. MLF/MLP/QFN - 76 lead - 8 x 8 x 0.55 mm
318. MLF/MLP/QFN - 76 lead - 8 x 8 x 0.85 mm
319. MLF/MLP/QFN - 76 lead - 8 x 8 x 1 mm
320. MLF/MLP/QFN - 76 lead - 9 x 9 x 0.35 mm
321. MLF/MLP/QFN - 76 lead - 9 x 9 x 0.55 mm
322. MLF/MLP/QFN - 76 lead - 9 x 9 x 0.85 mm
323. MLF/MLP/QFN - 76 lead - 9 x 9 x 1 mm
324. MLF/MLP/QFN - 80 lead - 7 x 7 x 0.35 mm
325. MLF/MLP/QFN - 80 lead - 7 x 7 x 0.55 mm
326. MLF/MLP/QFN - 80 lead - 7 x 7 x 0.85 mm
327. MLF/MLP/QFN - 80 lead - 7 x 7 x 1 mm
328. MLF/MLP/QFN - 84 lead - 12 x 12 x 0.35 mm
329. MLF/MLP/QFN - 84 lead - 12 x 12 x 0.55 mm
330. MLF/MLP/QFN - 84 lead - 12 x 12 x 0.85 mm
331. MLF/MLP/QFN - 84 lead - 12 x 12 x 1 mm
332. MLF/MLP/QFN - 88 lead - 10 x 10 x 0.35 mm
333. MLF/MLP/QFN - 88 lead - 10 x 10 x 0.55 mm
334. MLF/MLP/QFN - 88 lead - 10 x 10 x 0.85 mm
335. MLF/MLP/QFN - 88 lead - 10 x 10 x 1 mm
336. MLF/MLP/QFN - 88 lead - 12 x 12 x 0.35 mm

- 337. MLF/MLP/QFN - 88 lead - 12 x 12 x 0.55 mm
- 338. MLF/MLP/QFN - 88 lead - 12 x 12 x 0.85 mm
- 339. MLF/MLP/QFN - 88 lead - 12 x 12 x 1 mm
- 340. MLF/MLP/QFN - 88 lead - 8 x 8 x 0.35 mm
- 341. MLF/MLP/QFN - 88 lead - 8 x 8 x 0.55 mm
- 342. MLF/MLP/QFN - 88 lead - 8 x 8 x 0.85 mm
- 343. MLF/MLP/QFN - 88 lead - 8 x 8 x 1 mm
- 344. MLF/MLP/QFN - 88 lead - 9 x 9 x 0.35 mm
- 345. MLF/MLP/QFN - 88 lead - 9 x 9 x 0.55 mm
- 346. MLF/MLP/QFN - 88 lead - 9 x 9 x 0.85 mm
- 347. MLF/MLP/QFN - 88 lead - 9 x 9 x 1 mm
- 348. MLF/MLP/QFN - 100 lead - 10 x 10 x 0.35 mm
- 349. MLF/MLP/QFN - 100 lead - 10 x 10 x 0.55 mm
- 350. MLF/MLP/QFN - 100 lead - 10 x 10 x 0.85 mm
- 351. MLF/MLP/QFN - 100 lead - 10 x 10 x 1 mm
- 352. MLF/MLP/QFN - 100 lead - 12 x 12 x 0.35 mm
- 353. MLF/MLP/QFN - 100 lead - 12 x 12 x 0.55 mm
- 354. MLF/MLP/QFN - 100 lead - 12 x 12 x 0.85 mm
- 355. MLF/MLP/QFN - 100 lead - 12 x 12 x 1 mm
- 356. MLF/MLP/QFN - 104 lead - 9 x 9 x 0.35 mm
- 357. MLF/MLP/QFN - 104 lead - 9 x 9 x 0.55 mm
- 358. MLF/MLP/QFN - 104 lead - 9 x 9 x 0.85 mm
- 359. MLF/MLP/QFN - 104 lead - 9 x 9 x 1 mm
- 360. MLF/MLP/QFN - 108 lead - 12 x 12 x 0.35 mm
- 361. MLF/MLP/QFN - 108 lead - 12 x 12 x 0.55 mm
- 362. MLF/MLP/QFN - 108 lead - 12 x 12 x 0.85 mm
- 363. MLF/MLP/QFN - 108 lead - 12 x 12 x 1 mm
- 364. MLF/MLP/QFN - 116 lead - 10 x 10 x 0.35 mm
- 365. MLF/MLP/QFN - 116 lead - 10 x 10 x 0.55 mm
- 366. MLF/MLP/QFN - 116 lead - 10 x 10 x 0.85 mm
- 367. MLF/MLP/QFN - 116 lead - 10 x 10 x 1 mm
- 368. MLF/MLP/QFN - 124 lead - 12 x 12 x 0.35 mm
- 369. MLF/MLP/QFN - 124 lead - 12 x 12 x 0.55 mm
- 370. MLF/MLP/QFN - 124 lead - 12 x 12 x 0.85 mm
- 371. MLF/MLP/QFN - 124 lead - 12 x 12 x 1 mm
- 372. MLF/MLP/QFN - 144 lead - 12 x 12 x 0.35 mm
- 373. MLF/MLP/QFN - 144 lead - 12 x 12 x 0.55 mm
- 374. MLF/MLP/QFN - 144 lead - 12 x 12 x 0.85 mm
- 375. MLF/MLP/QFN - 144 lead - 12 x 12 x 1 mm
- 376. MLF/MLP/QFN - 172 lead - 11.2 x 10 x 0.74 mm
- 377. MQFP - 44 lead - 10 x 10 x 2 mm
- 378. MQFP - 52 lead - 10 x 10 x 2 mm
- 379. MQFP - 52 lead - 14 x 14 x 2 mm
- 380. MQFP - 52 lead - 14 x 14 x 2.67 mm
- 381. MQFP - 64 lead - 10 x 10 x 2 mm
- 382. MQFP - 64 lead - 14 x 14 x 2 mm
- 383. MQFP - 64 lead - 14 x 14 x 2.67 mm
- 384. MQFP - 64 lead - 14 x 20 x 2.71 mm

- 385. MQFP - 80 lead - 14 x 14 x 2 mm
- 386. MQFP - 80 lead - 14 x 14 x 2.67 mm
- 387. MQFP - 80 lead - 14 x 20 x 2.71 mm
- 388. MQFP - 100 lead - 14 x 14 x 2 mm
- 389. MQFP - 100 lead - 14 x 14 x 2.67 mm
- 390. MQFP - 100 lead - 14 x 20 x 2.71 mm
- 391. MQFP - 120 lead - 28 x 28 x 3.37 mm
- 392. MQFP - 128 lead - 14 x 20 x 2.71 mm
- 393. MQFP - 128 lead - 28 x 28 x 3.37 mm
- 394. MQFP - 144 lead - 28 x 28 x 3.37 mm
- 395. MQFP - 160 lead - 28 x 28 x 3.37 mm
- 396. MQFP - 208 lead - 28 x 28 x 3.37 mm
- 397. MQFP - 240 lead - 32 x 32 x 3.4 mm
- 398. MQFP - 256 lead - 28 x 28 x 3.37 mm
- 399. PLCC - 20 lead - 352 x 352 x 152 mils
- 400. PLCC - 28 lead - 452 x 452 x 152 mils
- 401. PLCC - 32 lead - 452 x 552 x 109 mils
- 402. PLCC - 44 lead - 652 x 652 x 152 mils
- 403. PLCC - 52 lead - 752 x 752 x 152 mils
- 404. PLCC - 68 lead - 952 x 952 x 150 mils
- 405. PLCC - 84 lead - 1152 x 1152 x 150 mils
- 406. Power 56 - 8 lead - 5 x 6 x 1 mm
- 407. Power (Super) SO8 - 8 lead - 4.9 x 5.9 x 1 mm
- 408. PowerPak - 3 lead - 8 x 8 x 1.9 mm
- 409. SOD-123 - 2 lead - 2.7 x 1.55 x 1.35 mm
- 410. SOD-323 - 2 lead - 1.7 x 1.25 x 0.975 mm
- 411. SOD-523 - 2 lead - 1.2 x 0.8 x 0.6 mm
- 412. SOD-723 - 2 lead - 1 x 0.6 x 0.52 mm
- 413. SOD-882 - 2 lead - 0.985 x 0.585 x 0.46 mm
- 414. SOIC - 8 lead - 150 x 194 x 58 mils
- 415. SOIC - 8 lead - 208 x 208 x 71 mils
- 416. SOIC - 14 lead - 150 x 342 x 58 mils
- 417. SOIC - 16 lead - 150 x 391 x 58 mils
- 418. SOIC - 16 lead - 300 x 407 x 92 mils
- 419. SOIC - 18 lead - 300 x 456 x 92 mils
- 420. SOIC - 20 lead - 300 x 505 x 92 mils
- 421. SOIC - 24 lead - 300 x 607 x 92 mils
- 422. SOIC - 28 lead - 300 x 706 x 92 mils
- 423. SOIC - 32 lead - 445 x 802 x 118 mils
- 424. SOIC - 36 lead - 430 x 902 x 118 mils
- 425. SOIC - 44 lead - 430 x 1130 x 118 mils
- 426. SOIC - 54 lead - 430 x 1387 x 118 mils
- 427. SON - 22 lead - 6 x 5 x 1.5 mm
- 428. SON - 12 lead - 6 x 5 x 1.5 mm
- 429. SON - 20 lead - 2 x 4 x 0.5 mm
- 430. SON - 4 lead - 1.5 x 1.5 x 0.65 mm
- 431. SON - 6 lead - 1.5 x 1 x 0.55 mm
- 432. SON - 8 lead - 2.1 x 1.6 x 0.58 mm

433. SON - 6 lead - 2 x 2 x 0.6 mm
434. SON - 5 lead - 1.6 x 1.6 x 0.55 mm
435. SON - 12 lead - 2 x 3 x 0.55 mm
436. SON - 6 lead - 1.45 x 1 x 0.5 mm
437. SON - 6 lead - 2 x 1.5 x 0.6 mm
438. SON - 10 lead - 3 x 3 x 0.55 mm
439. SON - 10 lead - 2.5 x 1 x 0.5 mm
440. SON - 6 lead - 2 x 2 x 0.6 mm
441. SON - 14 lead - 3.5 x 1.35 x 0.5 mm
442. SON - 6 lead - 1.6 x 1.6 x 0.55 mm
443. SON - 16 lead - 4 x 1.6 x 0.58 mm
444. SON - 14 lead - 6 x 5 x 1 mm
445. SON - 9 lead - 3 x 3 x 0.9 mm
446. SON - 14 lead - 3 x 4 x 0.9 mm
447. SON - 14 lead - 3 x 4 x 0.9 mm
448. SON - 10 lead - 4 x 3 x 0.88 mm
449. SON - 6 lead - 2 x 2 x 0.8 mm
450. SON - 8 lead - 3 x 3 x 0.88 mm
451. SON - 12 lead - 3 x 4 x 0.9 mm
452. SON - 6 lead - 3 x 3 x 0.95 mm
453. SON - 8 lead - 4 x 4 x 0.9 mm
454. SON - 10 lead - 3 x 3 x 0.9 mm
455. SON - 12 lead - 4 x 2.5 x 0.85 mm
456. SON - 14 lead - 6 x 5 x 1 mm
457. SON - 10 lead - 3 x 3 x 0.9 mm
458. SON - 16 lead - 5 x 4 x 0.9 mm
459. SON - 5 lead - 11 x 10 x 0.9 mm
460. SON - 14 lead - 3 x 4.5 x 0.9 mm
461. SON - 10 lead - 3 x 2.5 x 0.85 mm
462. SON - 10 lead - 6 x 6 x 1 mm
463. SON - 6 lead - 2 x 2 x 0.9 mm
464. SON - 10 lead - 4 x 4 x 0.9 mm
465. SON - 8 lead - 5 x 6 x 1 mm
466. SOT-23 - 3 lead - 2.95 x 1.38 x 0.95 mm
467. SOT-23 - 5 lead - 2.95 x 1.38 x 0.95 mm
468. SOT-23 - 6 lead - 2.95 x 1.38 x 0.95 mm
469. SOT-223 - 4 lead - 6.3 x 3.5 x 1.6 mm
470. SOT-323 - 3 lead - 2 x 1.25 x 0.9 mm
471. SOT-363 - 6 lead - 2.1 x 1.25 x 0.95 mm
472. SOT-883 - 3 lead - 1 x 0.6 x 0.48 mm
473. SOT-89 - 4 lead - 4.5 x 2.45 x 1.5 mm
474. SOT-901-1 - 8 lead - 3 x 3 x 0.85 mm
475. SOT-955-1 - 12 lead - 1.35 x 2.5 x 0.85 mm
476. SOT-1086-2 - 14 lead - 4.5 x 3 x 0.85 mm
477. SOT-1179-1 - 12 lead - 4 x 6 x 0.85 mm
478. SOT-1235 (LFPK88) - 4 lead - 8 x 6.3 x 1.7 mm
479. SOT-1258 - 6 lead - 31.24 x 10.13 x 2.14 mm
480. SS036 - 36 lead - 10.3 x 7.5 x 2.25 mm

481. sTOLL - 3 lead - 7 x 8 x 2.3 mm
482. ThinPack - 5 lead - 8 x 8 x 1 mm
483. TO-220 - 3 lead - 10 x 15 x 4.6 mm
484. TO-220 - 5 lead - 10 x 15 x 4.6 mm
485. TO-247 - 3 lead - 15.94 x 20.95 x 5.02 mm
486. TO-251 - 3 lead - 6.6 x 6.1 x 2.3 mm
487. TO-251 - 5 lead - 6.6 x 6.1 x 2.3 mm
488. TO-252 (DPak) - 3 lead - 6.5 x 6.22 x 2.3 mm
489. TO-252 (DPak) - 5 lead - 6.5 x 6.22 x 2.3 mm
490. TO-262 - 3 lead - 10.29 x 6.65 x 4.83 mm
491. TO-263 (D2PAK) - 3 lead - 10.16 x 9.85 x 4.57 mm
492. TO-263 (D2PAK) - 5 lead - 10.16 x 9.85 x 4.57 mm
493. TO-263 (D2PAK) - 7 lead - 10.16 x 9.85 x 4.57 mm
494. TO-263 (D2PAK) - 9 lead - 10.16 x 9.85 x 4.57 mm
495. TO-263 THIN - 3 lead - 10.16 x 9.85 x 2 mm
496. TO-263 THIN - 5 lead - 10.16 x 9.85 x 2 mm
497. TO-263 THIN - 7 lead - 10.16 x 9.85 x 2 mm
498. TO-263 THIN - 9 lead - 10.16 x 9.85 x 2 mm
499. TO92 - 3 lead - 4.57 x 3.81 x 2.28 mm
500. TOLL - 8 lead - 9.9 x 10.4 x 2.3 mm
501. TQFP - 24 lead - 4 x 4 x 1 mm
502. TQFP - 32 lead - 5 x 5 x 1 mm
503. TQFP - 32 lead - 7 x 7 x 1 mm
504. TQFP - 36 lead - 6 x 6 x 1 mm
505. TQFP - 40 lead - 5 x 5 x 1 mm
506. TQFP - 44 lead - 10 x 10 x 1 mm
507. TQFP - 44 lead - 14 x 14 x 1 mm
508. TQFP - 48 lead - 7 x 7 x 1 mm
509. TQFP - 52 lead - 10 x 10 x 1 mm
510. TQFP - 52 lead - 14 x 14 x 1 mm
511. TQFP - 64 lead - 7 x 7 x 1 mm
512. TQFP - 64 lead - 10 x 10 x 1 mm
513. TQFP - 64 lead - 14 x 14 x 1 mm
514. TQFP - 64 lead - 14 x 20 x 1 mm
515. TQFP - 80 lead - 12 x 12 x 1 mm
516. TQFP - 80 lead - 14 x 14 x 1 mm
517. TQFP - 100 lead - 14 x 14 x 1 mm
518. TQFP - 120 lead - 14 x 14 x 1 mm
519. TQFP - 128 lead - 14 x 14 x 1 mm
520. TQFP - 128 lead - 14 x 20 x 1 mm
521. TQFP - 128 lead - 28 x 28 x 1 mm
522. TQFP - 144 lead - 16 x 16 x 1 mm
523. TQFP - 144 lead - 20 x 20 x 1 mm
524. TQFP - 160 lead - 28 x 28 x 1 mm
525. TQFP - 176 lead - 20 x 20 x 1 mm
526. TQFP - 184 lead - 28 x 28 x 1 mm
527. TQFP - 208 lead - 28 x 28 x 1 mm
528. TQFP - 240 lead - 32 x 32 x 1 mm

- 529. TQFP - 256 lead - 28 x 28 x 1 mm
- 530. TQFP - 304 lead - 40 x 40 x 1 mm
- 531. TSOP - 8 lead - 4.9 x 3.9 x 1 mm
- 532. TSOP - 28 lead - 8 x 11.8 x 1 mm
- 533. TSOP - 32 lead - 8 x 11.8 x 1 mm
- 534. TSOP - 32 lead - 8 x 18.4 x 1 mm
- 535. TSOP - 40 lead - 10 x 18.4 x 1 mm
- 536. TSOP - 40 lead - 10.16 x 18.41 x 1 mm
- 537. TSOP - 44 lead - 10.16 x 18.41 x 1 mm
- 538. TSOP - 44 lead - 10.16 x 20.95 x 1 mm
- 539. TSOP - 48 lead - 12 x 18.4 x 1 mm
- 540. TSOP - 50 lead - 10.16 x 20.95 x 1 mm
- 541. TSOP - 54 lead - 10.16 x 22.22 x 1 mm
- 542. TSOP - 56 lead - 14 x 18.4 x 1 mm
- 543. TSSOP - 8 lead - 4.4 x 3 x 0.9 mm
- 544. TSSOP - 14 lead - 4.4 x 5 x 0.9 mm
- 545. TSSOP - 16 lead - 4.4 x 5 x 0.9 mm
- 546. TSSOP - 20 lead - 4.4 x 6.5 x 0.9 mm
- 547. TSSOP - 24 lead - 4.4 x 7.8 x 0.9 mm
- 548. TSSOP - 28 lead - 4.4 x 9.7 x 0.9 mm
- 549. TSSOP - 38 lead - 4.4 x 9.7 x 0.9 mm

Organic substrate-based packages

Organic substrate-based packages are user defined based on body size, core and build up layers, number of I/O and EMIB processing options. Silicon and organic interposers with and without TSVs are also supported. Connections may be BGA, LGA or PGA.

Ceramic substrate-based packages

Organic substrate-based packages are user defined based on body size, layers, and number of I/O options. Silicon and organic interposers with and without TSVs are also supported. Connections may be BGA, LGA or PGA.

Common packaging options

The following options may be applied to either leadframe or organic based packages:

- Die attach – Epoxy, Eutectic, Flip Chip or Solder
- Added bypass or power supply capacitors
- Aluminum heat spreader/shield
- Plasma clean
- Wirebond with aluminum, copper or gold wire of varying diameters
- Inspection
- Mold
- Thermal lid
- Singulate
- Laser mark
- Tape & Reel
- Open/short test