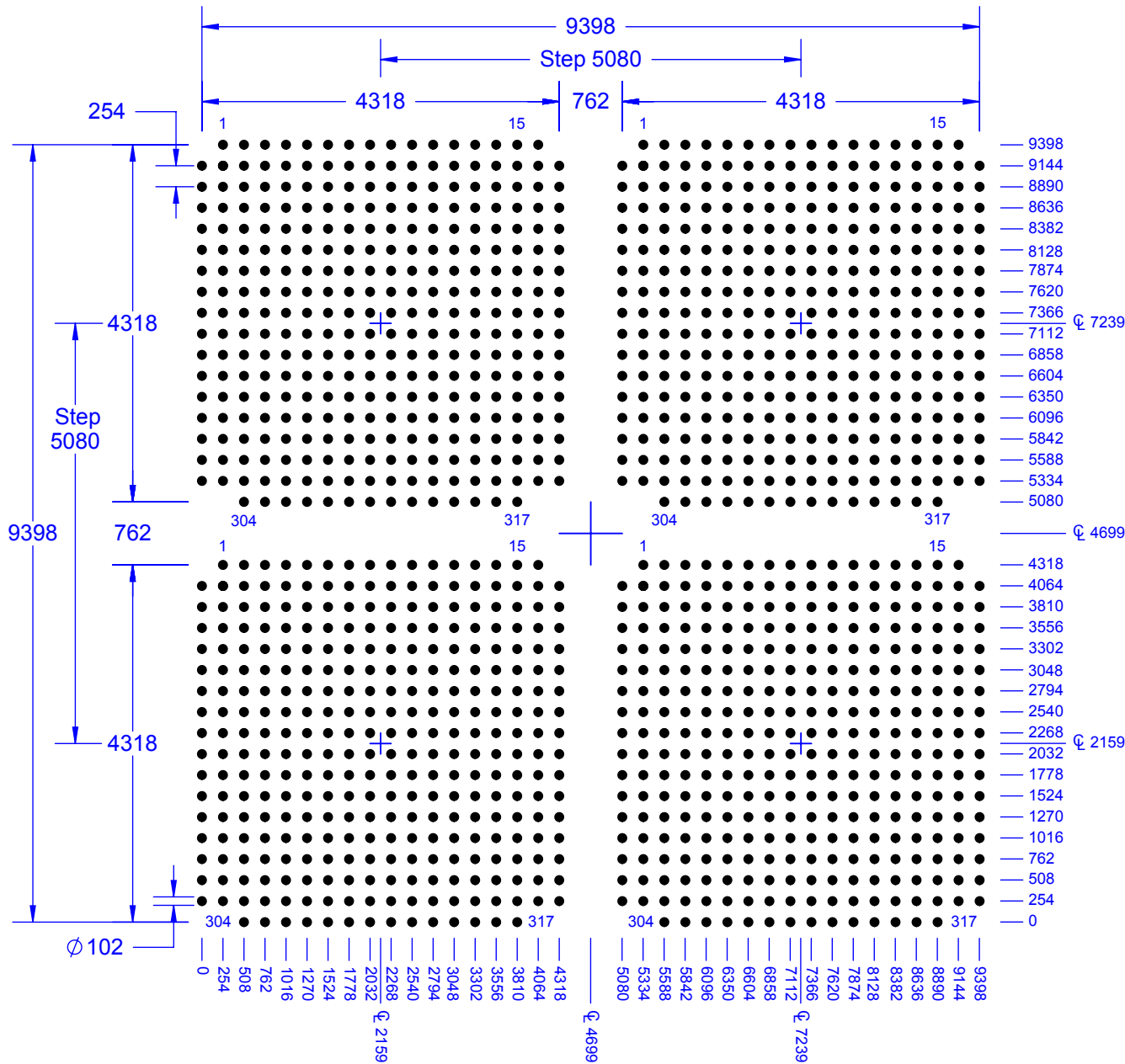
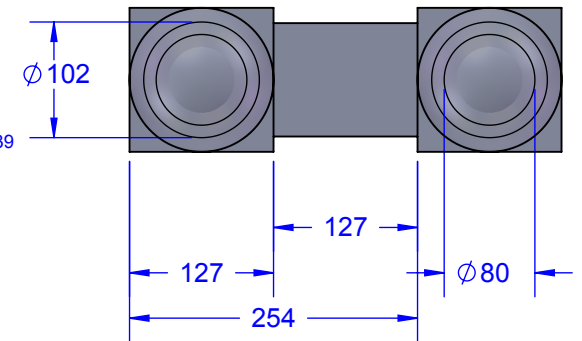


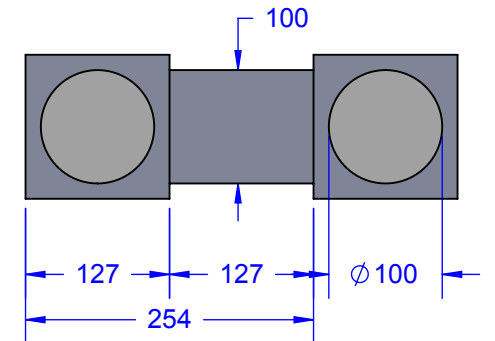
# 4-UP DIE - FC1268



## SOLDER BUMP PAD DETAIL 4 AND 7



## WIRE BONDING PAD DETAIL 2



### PART NUMBER TABLE

PART NUMBER	BUMP ALLOY	Pb-Free	BUMP	DETAIL
FC1268G10C254-DC	SAC - SnAgCu	YES	YES	7
FC1268G10E254-DC	SnPb Eutectic	NO	YES	4
FCN1268G10A254-DC	AI - BUMPLESS	YES	NO	2

**TopLine®**

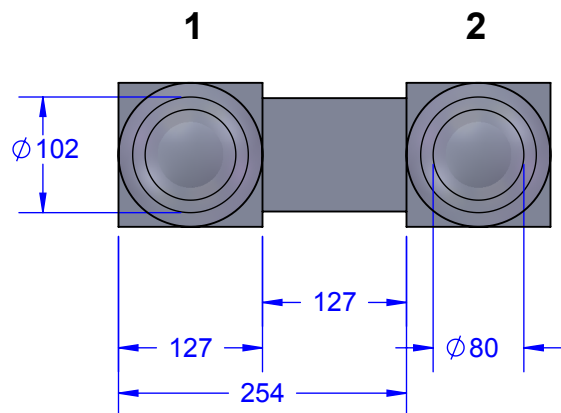
TITLE FC1268 - 254UM PITCH  
FLIP CHIP 10 x 10mm

SCALE 13:1	SIZE A	DRAWING NO. 331890	REV A
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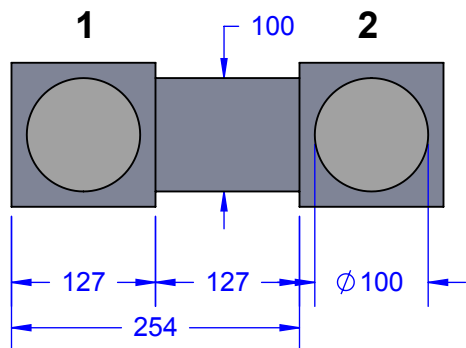
DO NOT SCALE DRAWING

SHEET 1 OF 12

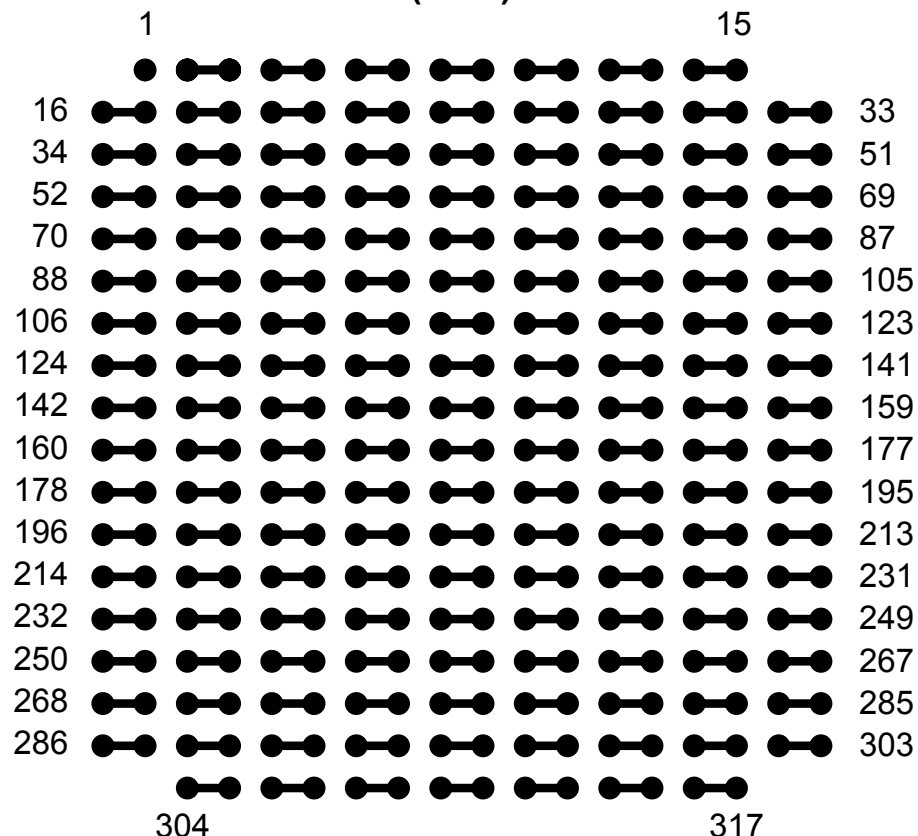
### SOLDER BUMP PAD DETAIL 4 AND 7



### WIRE BONDING PAD DETAIL 2



### DAISY CHAIN PATTERN BUMP (PAD) VIEW




#### NOTES:

- 1) DIMENSIONS IN MICRONS (UM) OR AS SPECIFIED.
- 2) THICKNESS: 600µm (OTHER AVAILABLE).
- 3) PASSIVATION: NITRIDE (STANDARD).
- 4) PACKAGING:
  - a) STANDARD PACK WAFFLE PACK (TRAY).
  - b) TAPE AND REEL (SPECIAL ORDER).
  - c) SAWN or UNSAWN WAFER (5-INCH).
- 5) BACKSIDE METAL:
  - a) NONE (STANDARD).
  - b) METAL (SPECIAL ORDER).

#### PART NUMBER TABLE

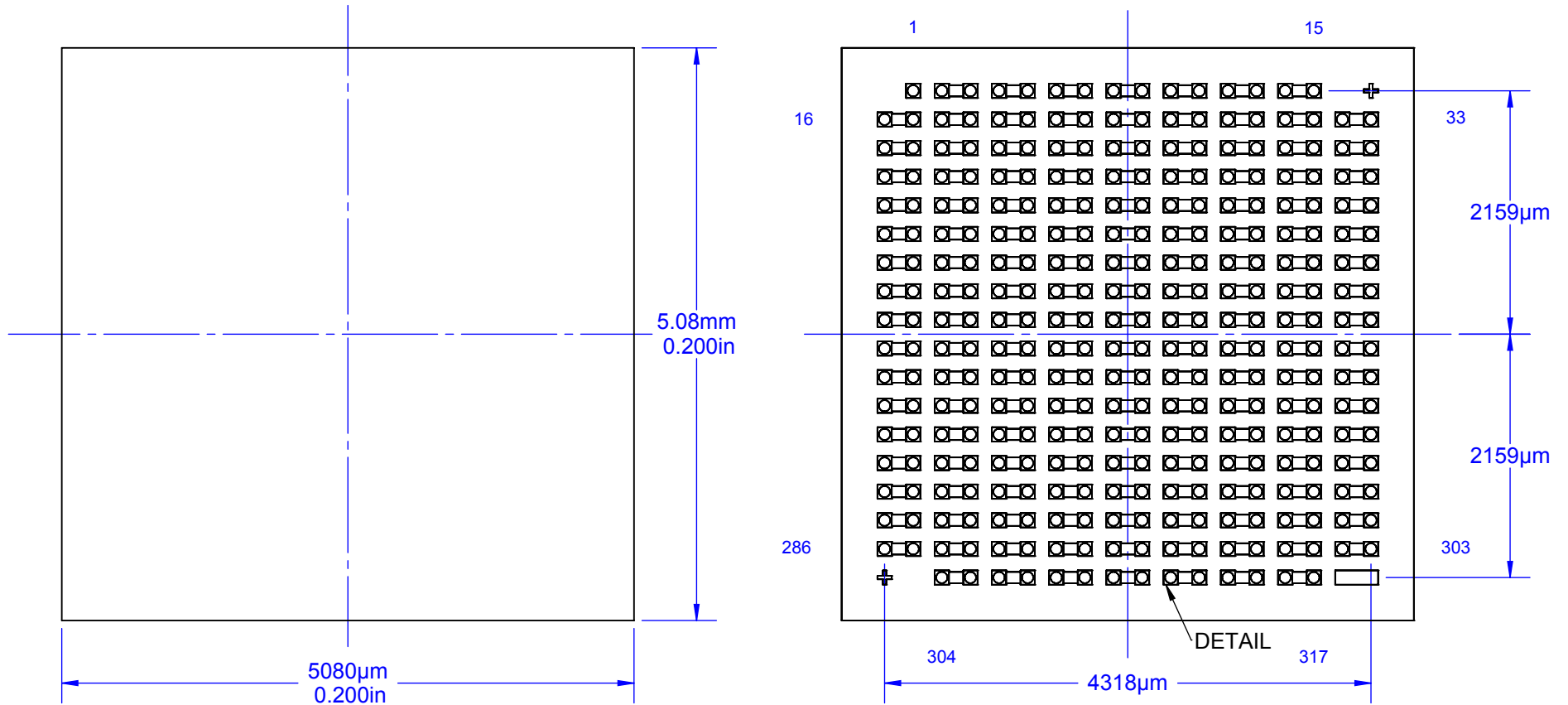
PART NUMBER	BUMP ALLOY	Pb-Free	BUMP	DETAIL
FC317G5C254-DC	SAC - SnAgCu	YES	YES	7
FC317G5E254-DC	SnPb Eutectic	NO	YES	4
FCN317G5A254-DC	AI - BUMPLESS	YES	NO	2

APPROVALS	DATE				
DRAWN T.Au	04/22/14				
ENG M. Hart	04/22/14	TITLE FC317 - 254UM PITCH FLIP CHIP 5.08 x 5.08mm			
MFG		SCALE 150:1	SIZE A	DRAWING NO. 331890	REV A
QA		DO NOT SCALE DRAWING			SHEET 1 OF 12
CUST					
REVISED					

# OUTLINE DIMENSIONS

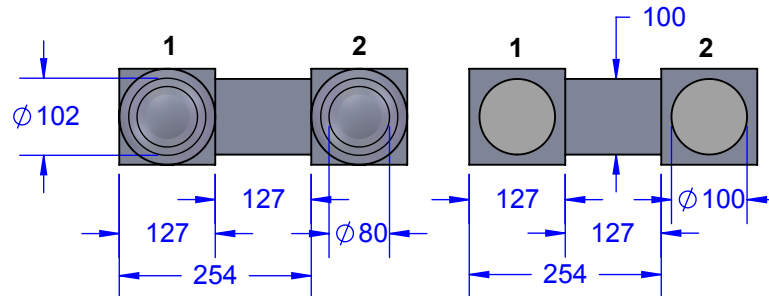
DIE SIDE

BUMP SIDE



SOLDER BUMP PAD  
DETAIL 4 AND 7

WIRE BONDING PAD  
DETAIL 2



PART NUMBER TABLE				
PART NUMBER	BUMP ALLOY	Pb-Free	BUMP	DETAIL
FC317G5C254-DC	SAC - SnAgCu	YES	YES	7
FC317G5E254-DC	SnPb Eutectic	NO	YES	4
FCN317G5A254-DC	Al - BUMPLESS	YES	NO	2

**TopLine®**

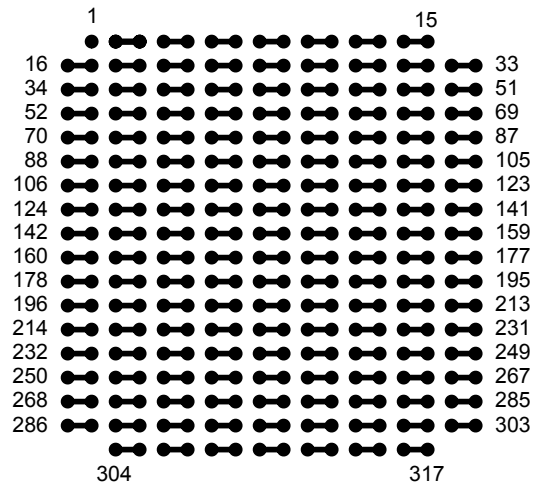
TITLE FC317 - 254UM PITCH  
FLIP CHIP 5.08 x 5.08mm

SCALE 150:1	SIZE A	DRAWING NO. 331890	REV A
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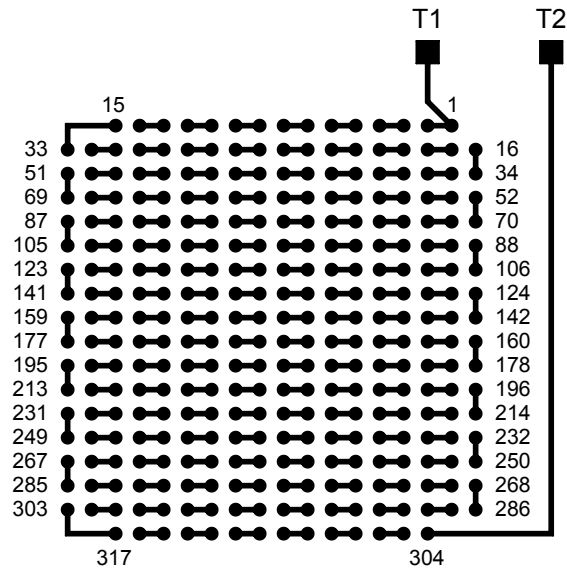
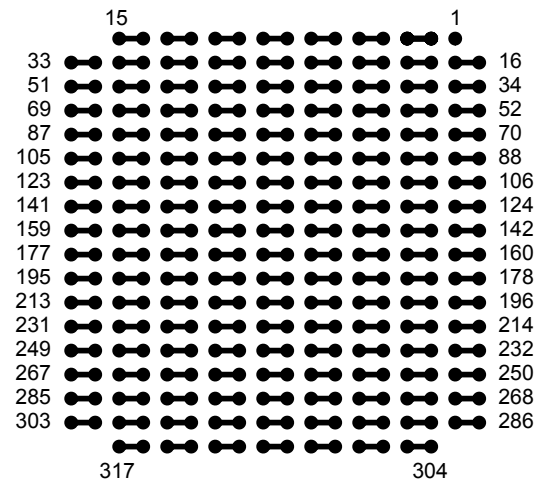
DO NOT SCALE DRAWING

SHEET 2 OF 12

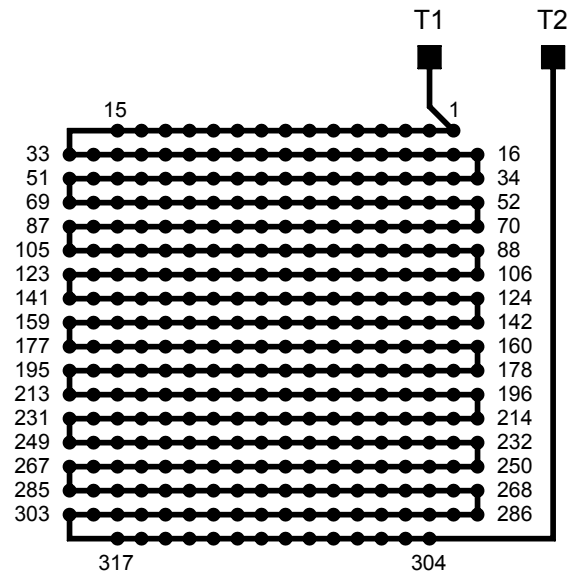
### BUMP VIEW



### X-RAY VIEW



### PCB VIEW



### AFTER MOUNTING TO TEST BOARD



TITLE FC317 - 254UM PITCH  
FLIP CHIP 5.08 x 5.08mm

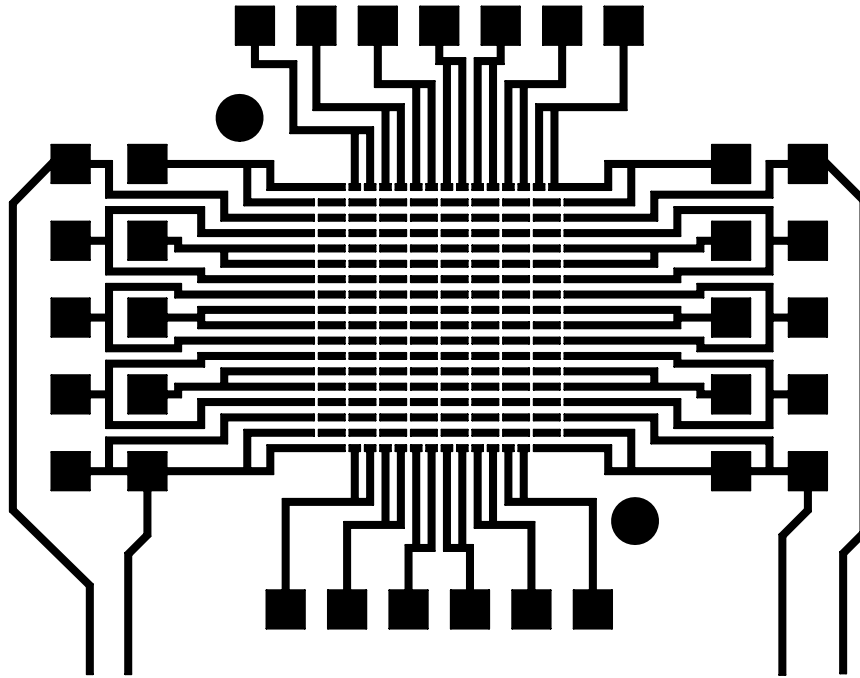
SCALE 12.5:1	SIZE A	DRAWING NO. 331890	REV A
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DO NOT SCALE DRAWING

SHEET 3 OF 12

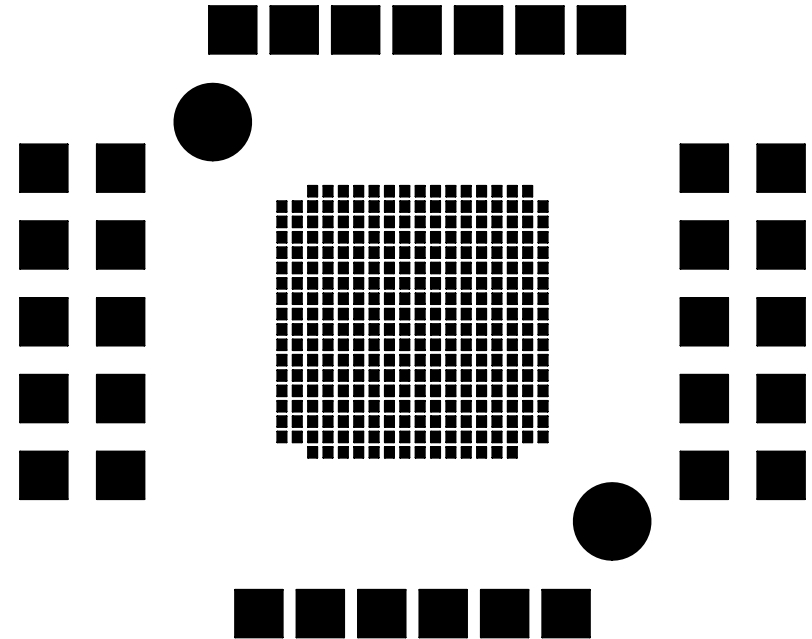
## RECOMMENDED PC BOARD

### Cu COPPER PADS



TYPICAL DIMENSIONS Cu PADS:  
 149 PLACES: 102 x 432 $\mu$ m (4 x 17mil)  
 26 PLACES: 102 x 178 $\mu$ m (4 x 7mil)  
 TEST POINTS: 635 x 635 (25 x 25mil)  
 FIDUCIALS:  $\phi$  762 $\mu$ m ( $\phi$  30mil)

### SOLDER MASK



TYPICAL DIMENSIONS MASK OPENING:  
 317 PLACES: 152 x 178 $\mu$ m (6 x 7mil)  
 TEST POINTS: 787 x 787 (31 x 31mil)  
 FIDUCIALS:  $\phi$  1270 $\mu$ m ( $\phi$  50mil)

### NOTES:

- 1) PCB BOARD DIMENSIONS ARE PRESENTED ONLY AS A GUIDE.  
 DESIGNERS SHOULD USE THEIR OWN EXPERIENCE WHEN DESIGNING PCB.
- 2) NON-SOLDERMASK DEFINED PADS (NSMD).
- 3) TWO LOCAL FIDUCIALS PER DESIGNER'S PREFERENCE.

**TopLine**<sup>®</sup>

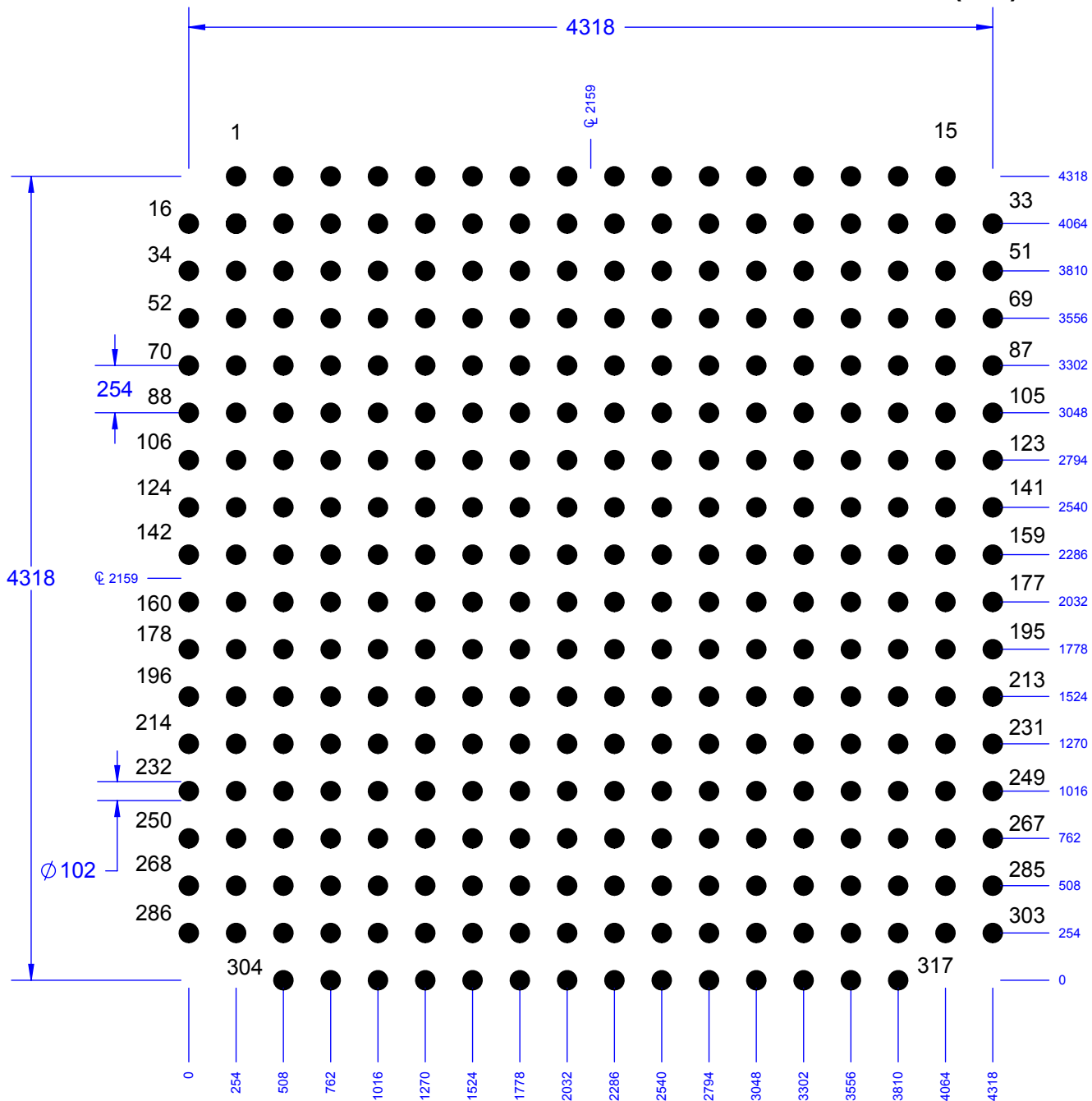
TITLE FC317 - 254UM PITCH  
 FLIP CHIP 5.08 x 5.08mm

SCALE	SIZE	DRAWING NO.	REV
8:1	A	331890	A

DO NOT SCALE DRAWING

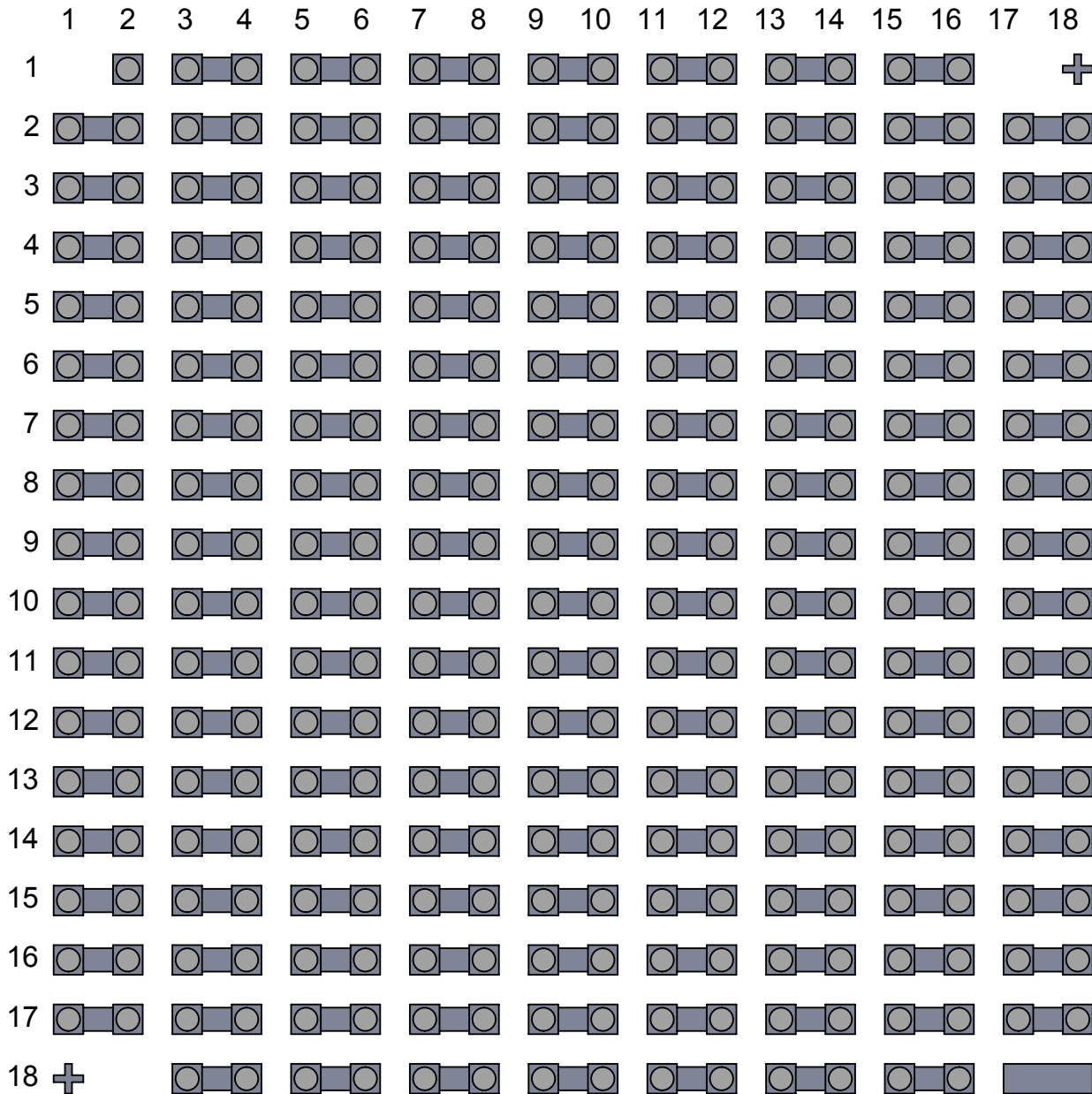
SHEET 4 OF 12

# PAD LOCATION SHOWN BUMP VIEW DIMENSION IN MICRON (UM)



<b>TopLine®</b>			
TITLE FC317 - 254UM PITCH FLIP CHIP 5.08 x 5.08mm			
SCALE 30:1	SIZE A	DRAWING NO. 331890	REV A
DO NOT SCALE DRAWING			SHEET 5 OF 12

# BONDING MAP SEE NET LIST (PAGE 6 AND 7)



<b>TopLine®</b>			
TITLE FC317 - 254UM PITCH FLIP CHIP 5.08 x 5.08mm			
SCALE 35:1	SIZE A	DRAWING NO. 331890	REV A
DO NOT SCALE DRAWING			SHEET 6 OF 12

## FC317 NET LIST

PIN#	X	Y
1	-1905	2159
2	-1651	2159
3	-1397	2159
4	-1143	2159
5	-889	2159
6	-635	2159
7	-381	2159
8	-127	2159
9	127	2159
10	381	2159
11	635	2159
12	889	2159
13	1143	2159
14	1397	2159
15	1651	2159
16	-2159	1905
17	-1905	1905
18	-1651	1905
19	-1397	1905
20	-1143	1905
21	-889	1905
22	-635	1905
23	-381	1905
24	-127	1905
25	127	1905
26	381	1905
27	635	1905
28	889	1905
29	1143	1905
30	1397	1905
31	1651	1905
32	1905	1905
33	2159	1905
34	-2159	1651
35	-1905	1651
36	-1651	1651
37	-1397	1651
38	-1143	1651
39	-889	1651
40	-635	1651
41	-381	1651
42	-127	1651
43	127	1651
44	381	1651
45	635	1651

PIN#	X	Y
46	889	1651
47	1143	1651
48	1397	1651
49	1651	1651
50	1905	1651
51	2159	1651
52	-2159	1397
53	-1905	1397
54	-1651	1397
55	-1397	1397
56	-1143	1397
57	-889	1397
58	-635	1397
59	-381	1397
60	-127	1397
61	127	1397
62	381	1397
63	635	1397
64	889	1397
65	1143	1397
66	1397	1397
67	1651	1397
68	1905	1397
69	2159	1397
70	-2159	1143
71	-1905	1143
72	-1651	1143
73	-1397	1143
74	-1143	1143
75	-889	1143
76	-635	1143
77	-381	1143
78	-127	1143
79	127	1143
80	381	1143
81	635	1143
82	889	1143
83	1143	1143
84	1397	1143
85	1651	1143
86	1905	1143
87	2159	1143
88	-2159	889
89	-1905	889
90	-1651	889

PIN#	X	Y
91	-1397	889
92	-1143	889
93	-889	889
94	-635	889
95	-381	889
96	-127	889
97	127	889
98	381	889
99	635	889
100	889	889
101	1143	889
102	1397	889
103	1651	889
104	1905	889
105	2159	889
106	-2159	635
107	-1905	635
108	-1651	635
109	-1397	635
110	-1143	635
111	-889	635
112	-635	635
113	-381	635
114	-127	635
115	127	635
116	381	635
117	635	635
118	889	635
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128	-1143	381
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130	-635	381
131	-381	381
132	-127	381
133	127	381
134	381	381
135	635	381
136	889	381
137	1143	381
138	1397	381
139	381	1651

PIN#	X	Y
140	1905	381
141	-2159	381
142	-2159	127
143	-1905	127
144	-1651	127
145	-1397	127
146	-1143	127
147	-889	127
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149	-381	127
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179	-1905	-381
180	-1651	-381
181	-1397	-381
182	-1143	-381
183	-889	-381
184	-635	-381
185	-381	-381
186	-127	-381
187	127	-381
188	381	-381

CONTINUE ON PAGE 8

NOTES:  
 1) DIMENSIONS IN MICRON (UM).  
 2) X = 0, Y = 0 IS CENTER OF DIE.

<b>TopLine®</b>			
TITLE FC317 - 254UM PITCH FLIP CHIP 5.08 x 5.08mm			
SCALE NONE	SIZE A	DRAWING NO. 331890	REV A
DO NOT SCALE DRAWING			SHEET 7 OF 12



## FC317 NET LIST

PIN#	X	Y
189	635	-381
190	889	-381
191	1143	-381
192	1397	-381
193	1651	-381
194	1905	-381
195	2159	-381
196	-2159	-635
197	-1905	-635
198	-1651	-635
199	-1397	-635
200	-1143	-635
201	-889	-635
202	-635	-635
203	-381	-635
204	-127	-635
205	127	-635
206	381	-635
207	635	-635
208	889	-635
209	1143	-635
210	1397	-635
211	1651	-635
212	1905	-635
213	2159	-635
214	-2159	-889
215	-1905	-889
216	-1651	-889
217	-1397	-889
218	-1143	-889
219	-889	-889
220	-635	-889
221	-381	-889
222	-127	-889
223	127	-889
224	381	-889
225	635	-889
226	889	-889
227	1143	-889
228	1397	-889
229	1651	-889
230	1905	-889
231	2159	-889
232	-2159	-1143
233	-1905	-1143
234	-1651	-1143
235	-1397	-1143
236	-1143	-1143
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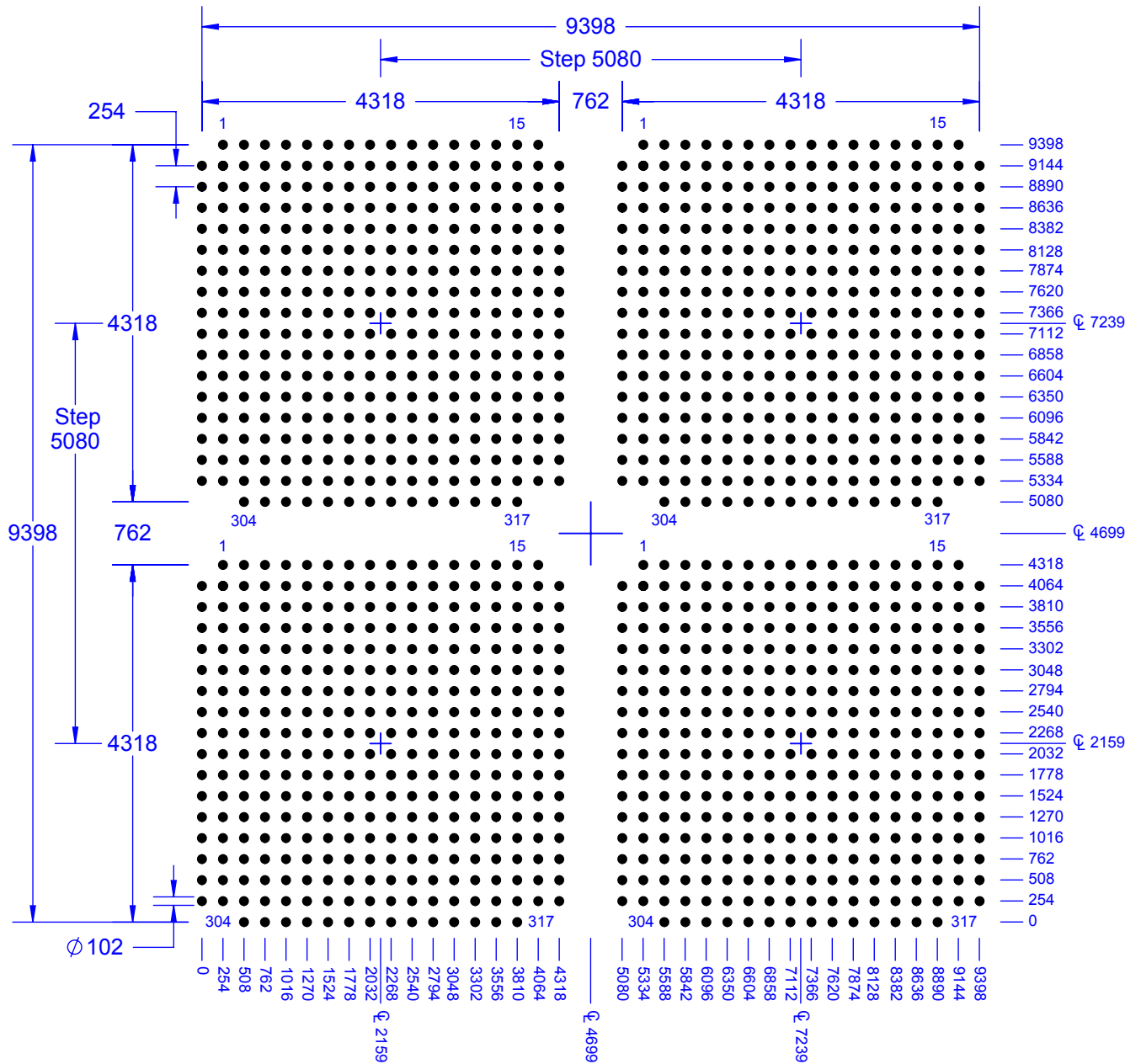
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240	-127	-1143
241	127	-1143
242	381	-1143
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244	889	-1143
245	1143	-1143
246	1397	-1143
247	1651	-1143
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249	2159	-1143
250	-2159	-1397
251	-1905	-1397
252	-1651	-1397
253	-1397	-1397
254	-1143	-1397
255	-889	-1397
256	-635	-1397
257	-381	-1397
258	-127	-1397
259	127	-1397
260	381	-1397
261	635	-1397
262	889	-1397
263	1143	-1397
264	1397	-1397
265	1651	-1397
266	1905	-1397
267	2159	-1397
268	-2159	-1651
269	-1905	-1651
270	-1651	-1651
271	-1397	-1651
272	-1143	-1651
273	-889	-1651
274	-635	-1651
275	-381	-1651
276	-127	-1651
277	127	-1651
278	381	-1651
279	635	-1651
280	889	-1651
281	1143	-1651
282	1397	-1651
283	1651	-1651
284	1905	-1651
285	2159	-1651
286	-2159	-1905

PIN#	X	Y
287	-1905	-1905
288	-1651	-1905
289	-1397	-1905
290	-1143	-1905
291	-889	-1905
292	-635	-1905
293	-381	-1905
294	-127	-1905
295	127	-1905
296	381	-1905
297	635	-1905
298	889	-1905
299	1143	-1905
300	1397	-1905
301	1651	-1905
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303	2159	-1905
304	-1651	-2159
305	-1397	-2159
306	-1143	-2159
307	-889	-2159
308	-635	-2159
309	-381	-2159
310	-127	-2159
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315	1143	-2159
316	1397	-2159
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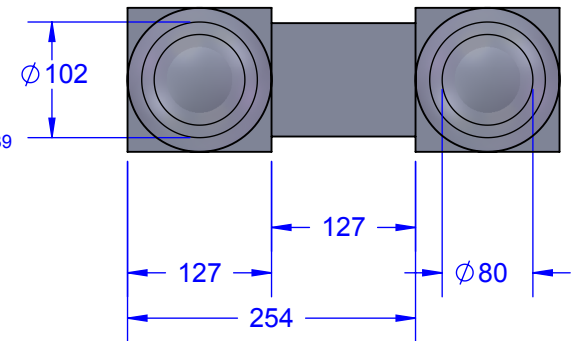
NOTES:  
 1) DIMENSIONS IN MICRON (UM).  
 2) X = 0, Y = 0 IS CENTER OF DIE.

<b>TopLine®</b>			
TITLE      FC317 - 254UM PITCH FLIP CHIP 5.08 x 5.08mm			
SCALE	SIZE	DRAWING NO.	REV
NONE	A	331890	A
DO NOT SCALE DRAWING			SHEET 8 OF 12

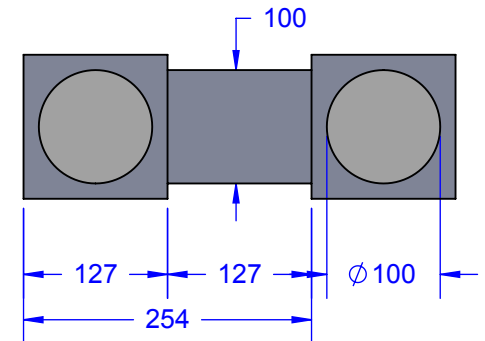
# 4-UP DIE - FC1268



## SOLDER BUMP PAD DETAIL 4 AND 7



## WIRE BONDING PAD DETAIL 2



### PART NUMBER TABLE

PART NUMBER	BUMP ALLOY	Pb-Free	BUMP	DETAIL
FC1268G10C254-DC	SAC - SnAgCu	YES	YES	7
FC1268G10E254-DC	SnPb Eutectic	NO	YES	4
FCN1268G10A254-DC	AI - BUMPLESS	YES	NO	2

**TopLine®**

TITLE FC1268 - 254UM PITCH  
FLIP CHIP 10 x 10mm

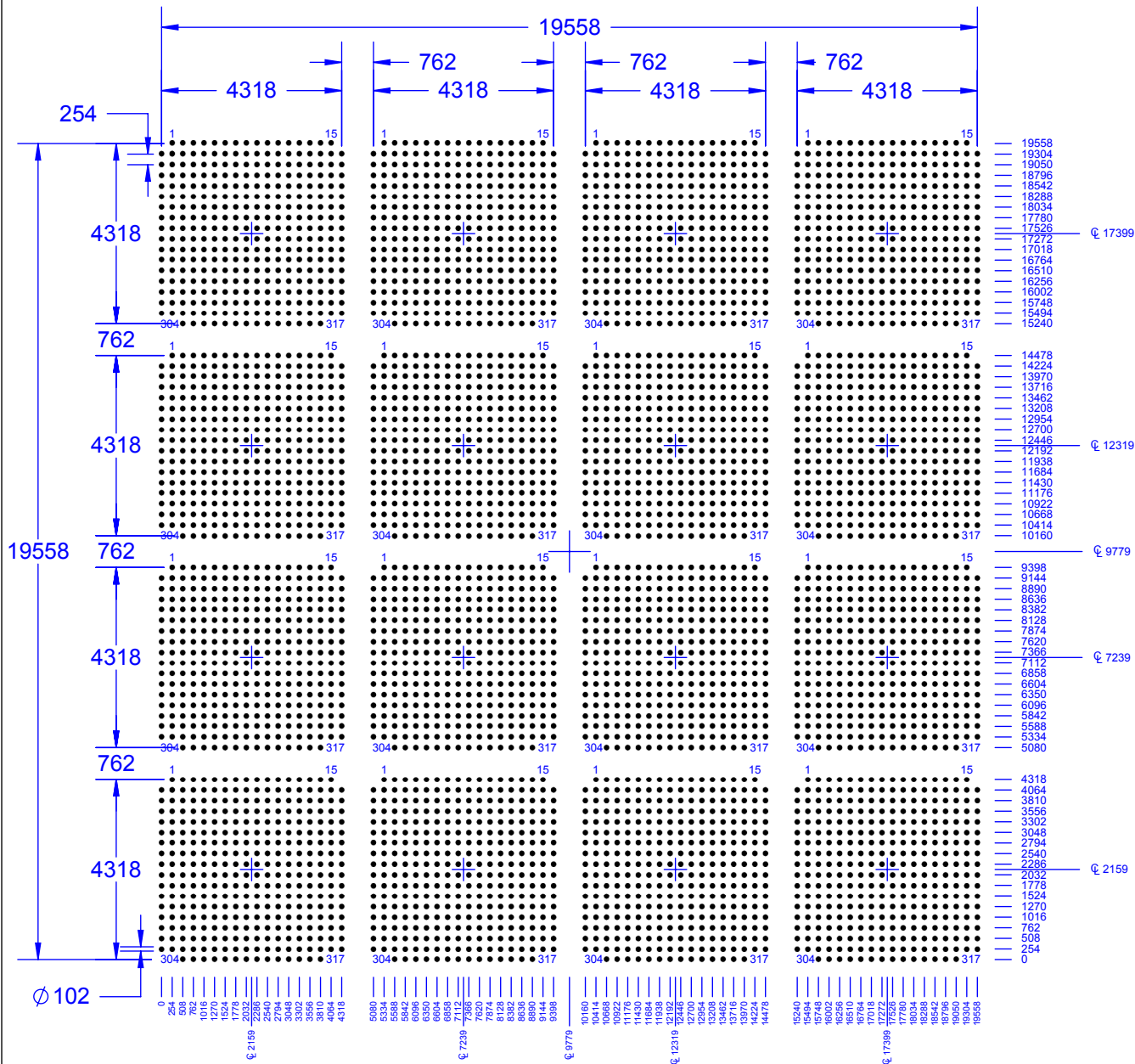
SCALE 13:1	SIZE A	DRAWING NO. 331890	REV A
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DO NOT SCALE DRAWING

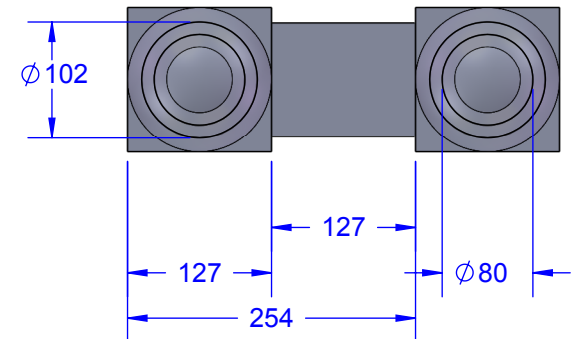
SHEET 9 OF 12



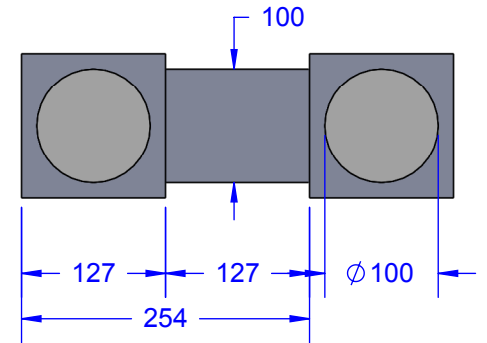
# 16-UP DIE - FC5072



## SOLDER BUMP PAD DETAIL 4 AND 7



## WIRE BONDING PAD DETAIL 2



**PART NUMBER TABLE**

PART NUMBER	BUMP ALLOY	Pb-Free	BUMP	DETAIL
FC5072G20C254-DC	SAC - SnAgCu	YES	YES	7
FC5072G20E254-DC	SnPb Eutectic	NO	YES	4
FCN5072G20A254-DC	AI - BUMPLESS	YES	NO	2

**TopLine®**

TITLE FC5072 - 254UM PITCH  
FLIP CHIP 20 x 20mm

SCALE 6.5:1	SIZE A	DRAWING NO. 331890	REV A
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DO NOT SCALE DRAWING

SHEET 11 OF 12

# PART NUMBERING SYSTEM

**FC**

**1268**

**G**

**10**

**C**

**254**

**- ATTACH -**

**DC**

**- OPTION**

**Flip Chip**

FC = Standard Flip Chip  
 FCW = Bumped Wafer\*  
 FCN = Bumpless Chip  
 FCWN = Bumpless Wafer\*

\* 5-INCH WAFER

**Number Bumps**

Bump	Die Array
317	1x
1268	4x
2853	9x
5070	16x

**Bump Diameter**

Diam  $\phi$  102 $\mu$ m  
 Height 125 $\mu$ m

**Die Size**

Bump	mm	mils
317	5.08mm	200
1268	10mm	400
2853	15mm	600
5070	20mm	800

**Bump Material**

E = Eutectic Sn63  
 C = Lead Free SAC  
 A = Al Pad (Bumpless)  
 For Wirebonding

**Bump Pitch**

in  $\mu$ m

**Options**

Blank = Standard  
 Non-Metal

M = Metal Back Side  
 For Eutectic Solder

**DIE THINNING**

Code	$\mu$ m	Inch
None	635 $\mu$ m	.025"
BG530	530 $\mu$ m	.021"
BG430	430 $\mu$ m	.017"
BG360	360 $\mu$ m	.014"
BG250	250 $\mu$ m	.010"

**Daisy Chain**

**Packaging**

Blank = Tray (Standard)

Bump	Tray	Qty
317	2-inch	36pcs
1268	4-inch	49pcs
2853	4-inch	25pcs
5072	4-inch	9pcs

TR = Tape & Reel

UVR = UV Tape  
 Wafer Ring

NTR = Non UV Tape  
 Wafer Ring



TITLE FC317 - 254UM PITCH  
 FLIP CHIP 5.08 x 5.08mm

SCALE	SIZE	DRAWING NO.	REV
NONE	A	331890	A