

SKW Associates, Inc.

2920 Scott Blvd.

Santa Clara, CA 95054

Phone (408) 919-0094

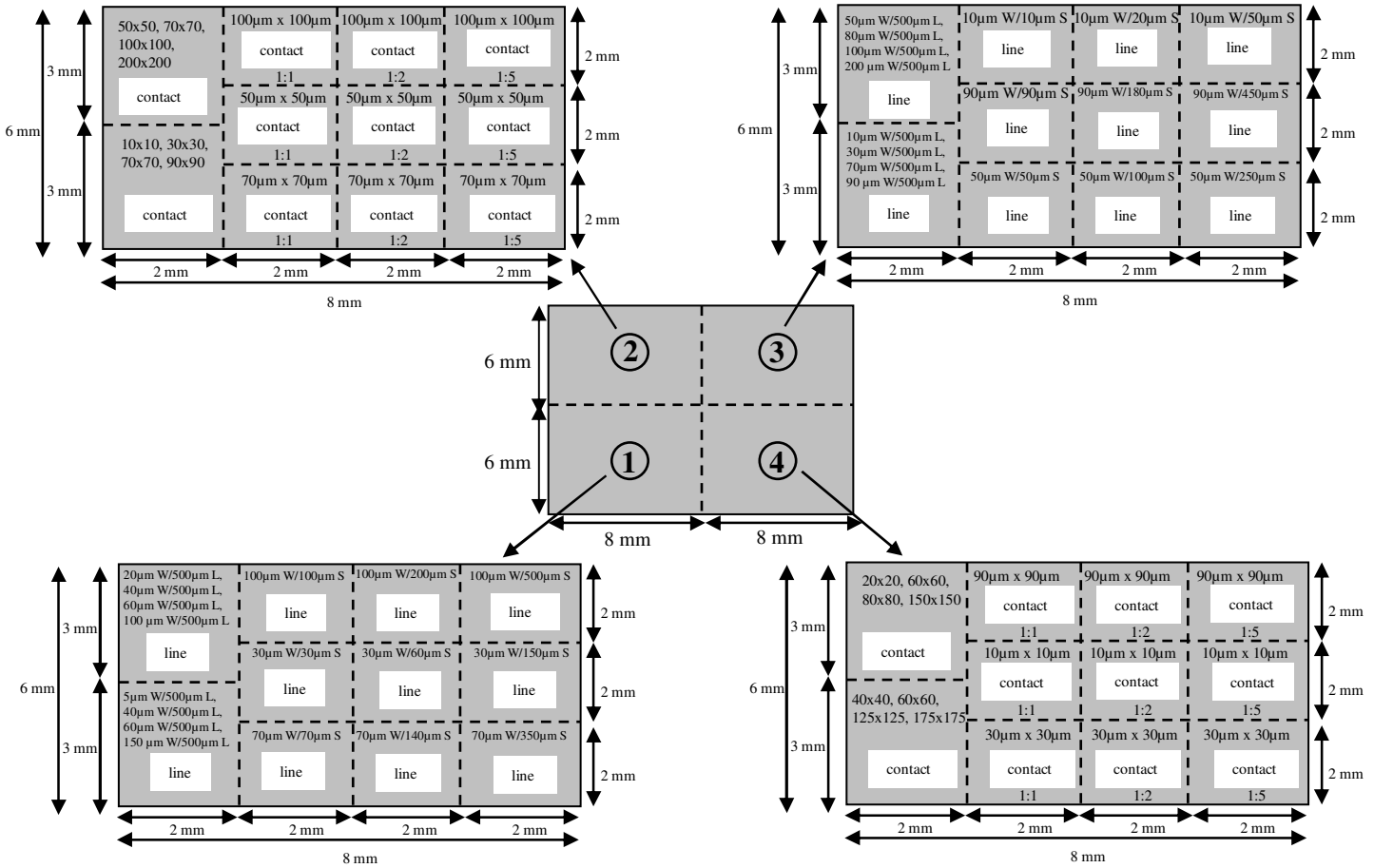
Fax (408) 919-0097

Email: skw@testwafer.com

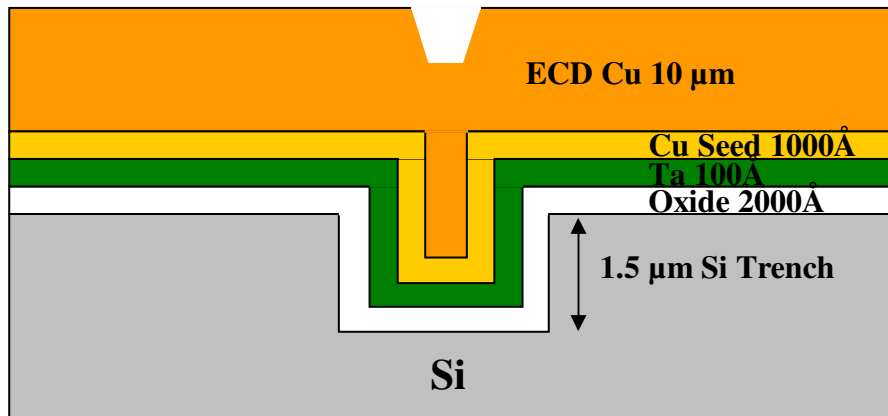
<http://www.testwafer.com>

SKW6TSV3-2 Wafer Specifications

DATE: June 11, 2009



SKW6TSV3 Mask Floor Plan

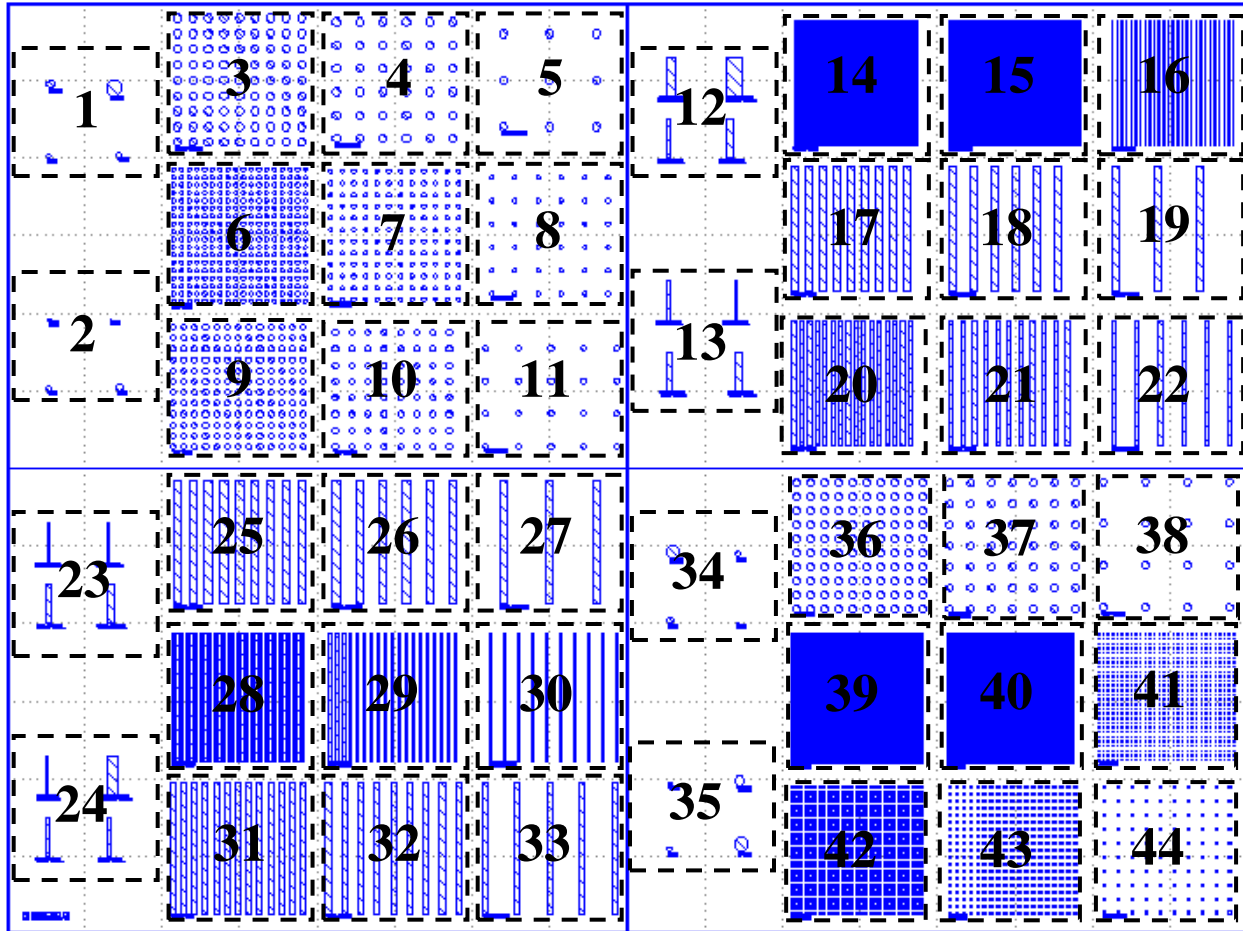


Cross Sectional View

PARAMETER	NOMINAL	TOLERANCE
Patterning		
Die Size: X	16 mm	+/- 10 μm
Die Size: Y	12 mm	+/- 10 μm
Die Stepping (X /Y)	360 / 180 μm	+/- 10%
TEOS Oxide film thickness		
Lot-to-Lot	2,000 \AA	+/- 5 %
Within-Lot (Wafer-to-Wafer)		+/- 5 %
Within-Wafer		+/- 3 %
Within-Die		+/- 3 %
PVD Ta film thickness		
Lot-to-Lot	100 \AA	+/- 5 %
Within-Lot (Wafer-to-Wafer)		+/- 5 %
Within-Wafer		+/- 3 %
Within-Die		+/- 3 %
PVD Cu film thickness		
Lot-to-Lot	1000 \AA	+/- 5 %
Within-Lot (Wafer-to-Wafer)		+/- 5 %
Within-Wafer		+/- 3 %
Within-Die		+/- 3 %
ECD Cu film thickness		
Lot-to-Lot	10 μm	+/- 10 %
Within-Lot (Wafer-to-Wafer)		+/- 10 %
Within-Wafer		+/- 5 %
Within-Die		+/- 5 %
Silicon Trench Depth		
Lot-to-Lot	1.5 μm	+/- 10 %
Within-Lot (Wafer-to-Wafer)		+/- 10 %
Within-Wafer		+/- 10 %
Within-Die		+/- 10 %

Cu Plating Process Conditions:

- 1. Tool: Novellus SabreXT**
- 2. Chemistry: Enthone Low Acid Via Fill Chemistry**



SKW6-TSV3 Feature Block Descriptions

Block #	Description
1	Isolated Contact Structures: 50x50 μm^2 , 70x70 μm^2 , 100x100 μm^2 , 200x200 μm^2
2	Isolated Contact Structures: 10x10 μm^2 , 30x30 μm^2 , 70x70 μm^2 , 90x90 μm^2
3	100x100 μm^2 Contact Array (1:1 spacing)
4	100x100 μm^2 Contact Array (1:2 spacing)
5	100x100 μm^2 Contact Array (1:5 spacing)
6	50x50 μm^2 Contact Array (1:1 spacing)
7	50x50 μm^2 Contact Array (1:2 spacing)
8	50x50 μm^2 Contact Array (1:5 spacing)
9	70x70 μm^2 Contact Array (1:1 spacing)
10	70x70 μm^2 Contact Array (1:2 spacing)
11	70x70 μm^2 Contact Array (1:5 spacing)
12	Isolated Line Structures: 50 μm W/500 μm L, 80 μm W/500 μm L, 100 μm W/500 μm L, 200 μm W/500 μm L
13	Isolated Line Structures: 10 μm W/500 μm L, 30 μm W/500 μm L, 70 μm W/500 μm L, 90 μm W/500 μm L

Block #	Description
14	10 μ m LW/10 μ m LS Line Array
15	10 μ m LW/20 μ m LS Line Array
16	10 μ m LW/50 μ m LS Line Array
17	90 μ m LW/90 μ m LS Line Array
18	90 μ m LW/180 μ m LS Line Array
19	90 μ m LW/450 μ m LS Line Array
20	50 μ m LW/50 μ m LS Line Array
21	50 μ m LW/100 μ m LS Line Array
22	50 μ m LW/250 μ m LS Line Array
23	Isolated Line Structures: 20 μ m W/500 μ m L, 40 μ m W/500 μ m L, 60 μ m W/500 μ m L, 100 μ m W/500 μ m L
24	Isolated Line Structures: 5 μ m W/500 μ m L, 40 μ m W/500 μ m L, 60 μ m W/500 μ m L, 150 μ m W/500 μ m L
25	100 μ m LW/100 μ m LS Line Array
26	100 μ m LW/200 μ m LS Line Array
27	100 μ m LW/500 μ m LS Line Array
28	30 μ m LW/30 μ m LS Line Array
29	30 μ m LW/60 μ m LS Line Array
30	30 μ m LW/150 μ m LS Line Array
31	70 μ m LW/70 μ m LS Line Array
32	70 μ m LW/140 μ m LS Line Array
33	70 μ m LW/350 μ m LS Line Array
34	Isolated Contact Structures: 20x20 μ m ² , 60x60 μ m ² , 80x80 μ m ² , 100x100 μ m ²
35	Isolated Contact Structures: 40x40 μ m ² , 60x60 μ m ² , 125x125 μ m ² , 175x175 μ m ²
36	90x90 μ m ² Contact Array (1:1 spacing)
37	90x90 μ m ² Contact Array (1:2 spacing)
38	90x90 μ m ² Contact Array (1:5 spacing)
39	10x10 μ m ² Contact Array (1:1 spacing)
40	10x10 μ m ² Contact Array (1:2 spacing)
41	10x10 μ m ² Contact Array (1:5 spacing)
42	30x30 μ m ² Contact Array (1:1 spacing)
43	30x30 μ m ² Contact Array (1:2 spacing)
44	30x30 μ m ² Contact Array (1:5 spacing)

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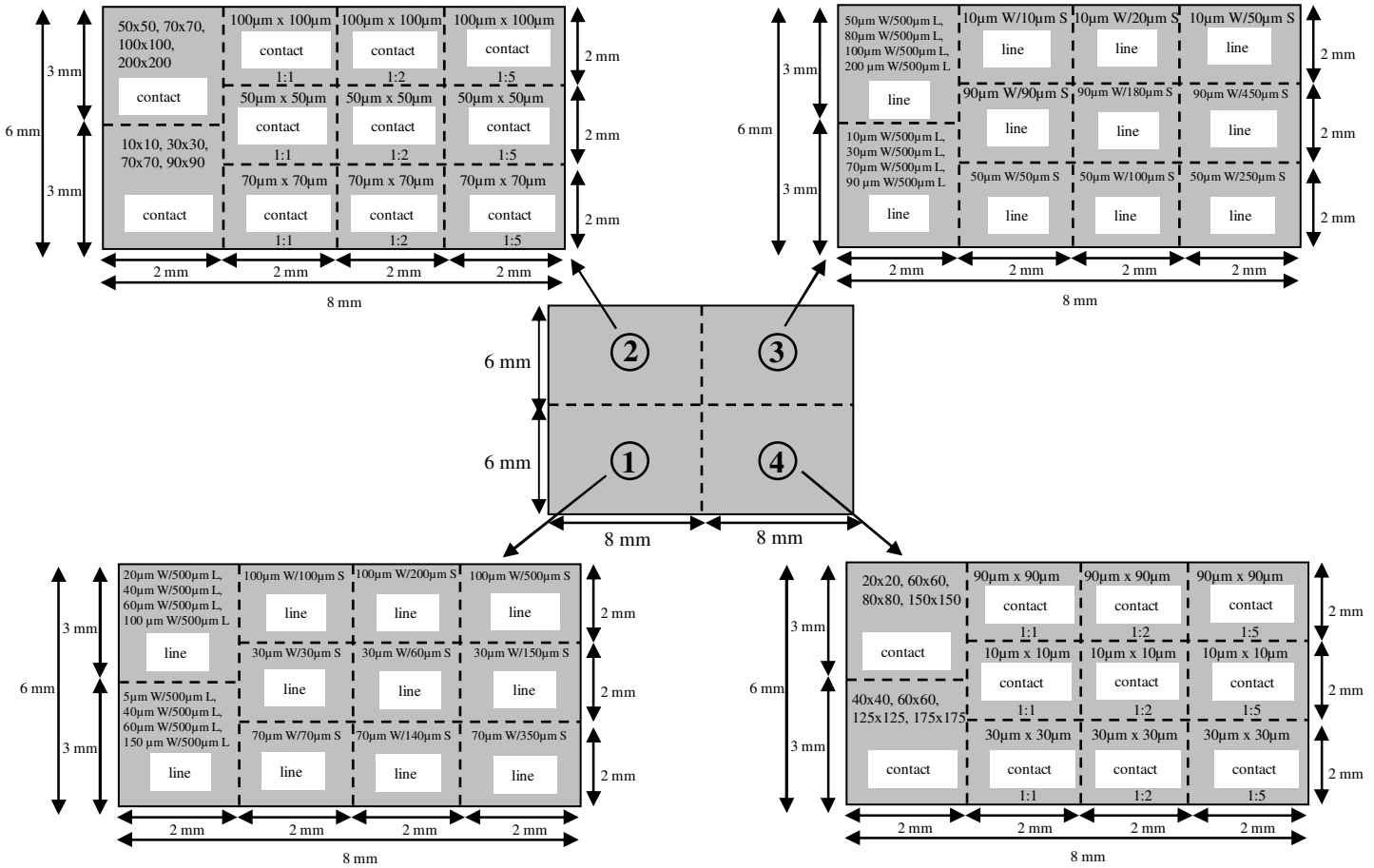
Email: skw@testwafer.com

<http://www.testwafer.com>

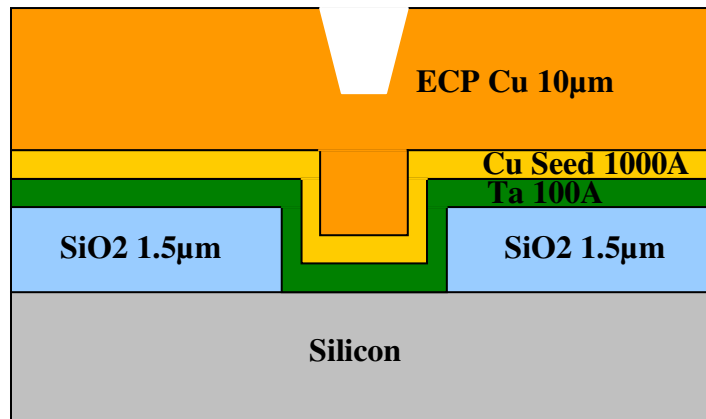
SKW6TSV3-NT

Wafer Specifications

DATE: June 11, 2009



SKW6TSV3 Mask Floor Plan

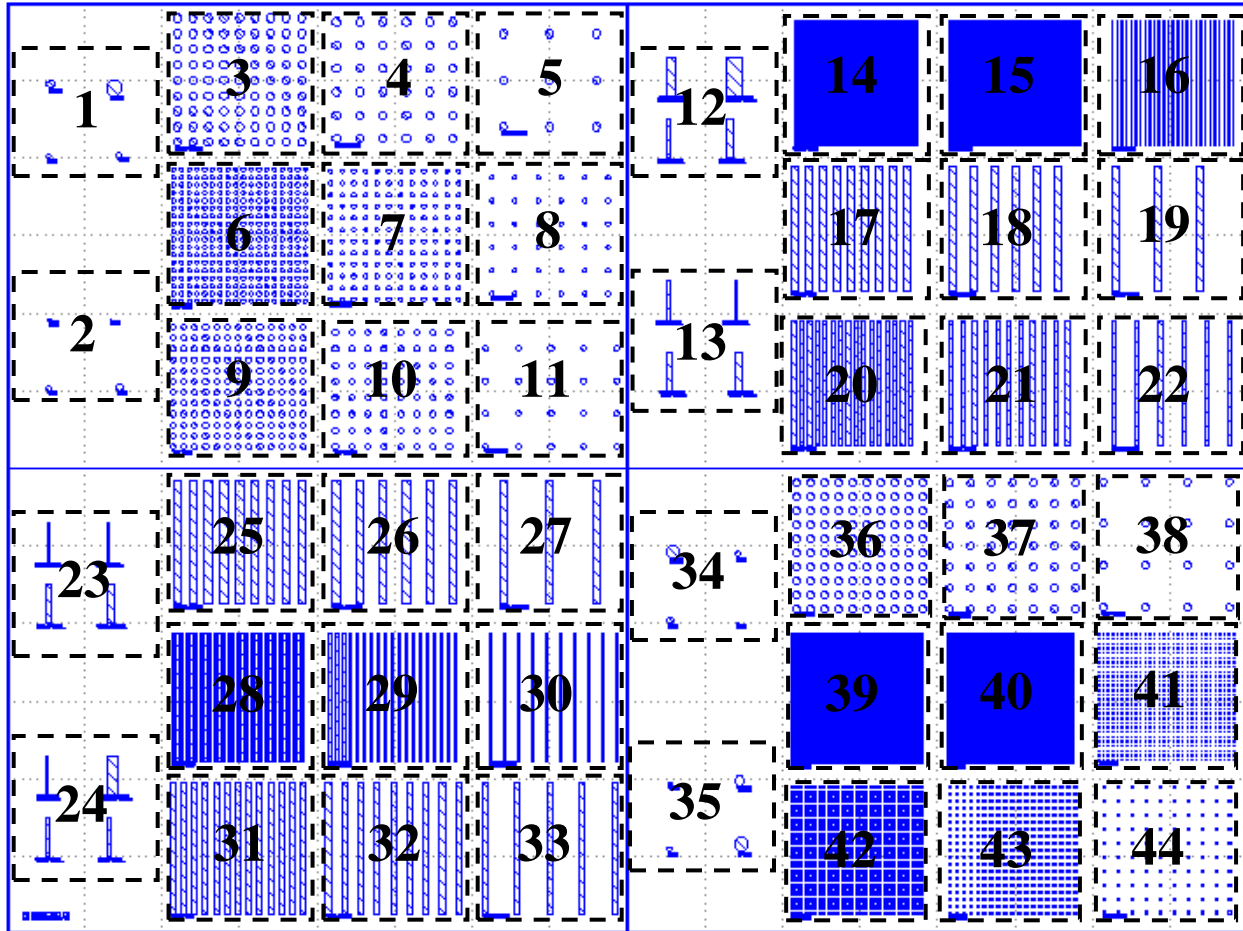


Cross Sectional View

PARAMETER	NOMINAL	TOLERANCE
Patterning		
Die Size: X	16 mm	+/- 10 μm
Die Size: Y	12 mm	+/- 10 μm
Die Stepping (X /Y)	360 / 180 μm	+/- 10%
Oxide film thickness		
Lot-to-Lot	1.5 μm	+/- 5 %
Within-Lot (Wafer-to-Wafer)		+/- 5 %
Within-Wafer		+/- 3 %
Within-Die		+/- 3 %
PVD Ta film thickness		
Lot-to-Lot	100 \AA	+/- 5 %
Within-Lot (Wafer-to-Wafer)		+/- 5 %
Within-Wafer		+/- 3 %
Within-Die		+/- 3 %
PVD Cu film thickness		
Lot-to-Lot	1000 \AA	+/- 5 %
Within-Lot (Wafer-to-Wafer)		+/- 5 %
Within-Wafer		+/- 3 %
Within-Die		+/- 3 %
ECD Cu film thickness		
Lot-to-Lot	10 μm	+/- 10 %
Within-Lot (Wafer-to-Wafer)		+/- 10 %
Within-Wafer		+/- 5 %
Within-Die		+/- 5 %

Cu Plating Process Conditions:

- 1. Tool: Novellus SabreXT**
- 2. Chemistry: Enthone Low Acid Via Fill Chemistry**



SKW6-TSV3 Feature Block Descriptions

Block #	Description
1	Isolated Contact Structures: 50x50 μm^2 , 70x70 μm^2 , 100x100 μm^2 , 200x200 μm^2
2	Isolated Contact Structures: 10x10 μm^2 , 30x30 μm^2 , 70x70 μm^2 , 90x90 μm^2
3	100x100 μm^2 Contact Array (1:1 spacing)
4	100x100 μm^2 Contact Array (1:2 spacing)
5	100x100 μm^2 Contact Array (1:5 spacing)
6	50x50 μm^2 Contact Array (1:1 spacing)
7	50x50 μm^2 Contact Array (1:2 spacing)
8	50x50 μm^2 Contact Array (1:5 spacing)
9	70x70 μm^2 Contact Array (1:1 spacing)
10	70x70 μm^2 Contact Array (1:2 spacing)
11	70x70 μm^2 Contact Array (1:5 spacing)
12	Isolated Line Structures: 50 μm W/500 μm L, 80 μm W/500 μm L, 100 μm W/500 μm L, 200 μm W/500 μm L
13	Isolated Line Structures: 10 μm W/500 μm L, 30 μm W/500 μm L, 70 μm W/500 μm L, 90 μm W/500 μm L

Block #	Description
14	10 μ m LW/10 μ m LS Line Array
15	10 μ m LW/20 μ m LS Line Array
16	10 μ m LW/50 μ m LS Line Array
17	90 μ m LW/90 μ m LS Line Array
18	90 μ m LW/180 μ m LS Line Array
19	90 μ m LW/450 μ m LS Line Array
20	50 μ m LW/50 μ m LS Line Array
21	50 μ m LW/100 μ m LS Line Array
22	50 μ m LW/250 μ m LS Line Array
23	Isolated Line Structures: 20 μ m W/500 μ m L, 40 μ m W/500 μ m L, 60 μ m W/500 μ m L, 100 μ m W/500 μ m L
24	Isolated Line Structures: 5 μ m W/500 μ m L, 40 μ m W/500 μ m L, 60 μ m W/500 μ m L, 150 μ m W/500 μ m L
25	100 μ m LW/100 μ m LS Line Array
26	100 μ m LW/200 μ m LS Line Array
27	100 μ m LW/500 μ m LS Line Array
28	30 μ m LW/30 μ m LS Line Array
29	30 μ m LW/60 μ m LS Line Array
30	30 μ m LW/150 μ m LS Line Array
31	70 μ m LW/70 μ m LS Line Array
32	70 μ m LW/140 μ m LS Line Array
33	70 μ m LW/350 μ m LS Line Array
34	Isolated Contact Structures: 20x20 μ m ² , 60x60 μ m ² , 80x80 μ m ² , 100x100 μ m ²
35	Isolated Contact Structures: 40x40 μ m ² , 60x60 μ m ² , 125x125 μ m ² , 175x175 μ m ²
36	90x90 μ m ² Contact Array (1:1 spacing)
37	90x90 μ m ² Contact Array (1:2 spacing)
38	90x90 μ m ² Contact Array (1:5 spacing)
39	10x10 μ m ² Contact Array (1:1 spacing)
40	10x10 μ m ² Contact Array (1:2 spacing)
41	10x10 μ m ² Contact Array (1:5 spacing)
42	30x30 μ m ² Contact Array (1:1 spacing)
43	30x30 μ m ² Contact Array (1:2 spacing)
44	30x30 μ m ² Contact Array (1:5 spacing)

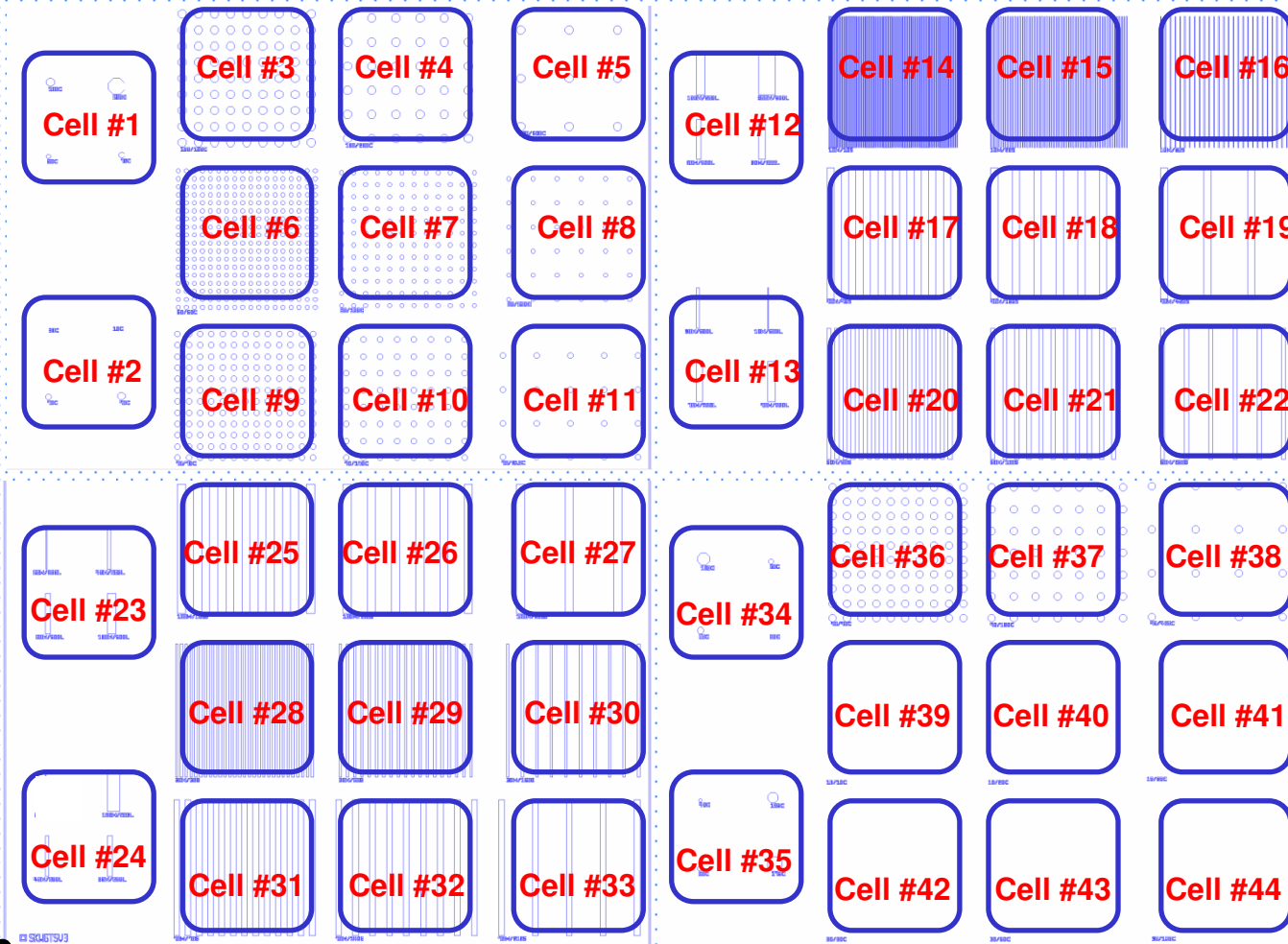
300mm SKW6TSV3 Mask Description

SKW ASSOCIATES, INC.

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Outline



(0,0) position

SKW6TSV3 Cell Descriptions

Cell #	Feature Type	Description
1	Contact	Contact #1: 100x100 μm^2 , Contact #2: 200x200 μm^2 , Contact #3: 50x50 μm^2 , Contact #4: 70x70 μm^2
2	Contact	Contact #1: 30x30 μm^2 , Contact #2: 10x10 μm^2 , Contact #3: 70x70 μm^2 , Contact #4: 90x90 μm^2
3	Contact	100x100 μm^2 Contact Array (1:1)
4	Contact	100x100 μm^2 Contact Array (1:2)
5	Contact	100x100 μm^2 Contact Array (1:5)
6	Contact	50x50 μm^2 Contact Array (1:1)
7	Contact	50x50 μm^2 Contact Array (1:2)
8	Contact	50x50 μm^2 Contact Array (1:5)
9	Contact	70x70 μm^2 Contact Array (1:1)
10	Contact	70x70 μm^2 Contact Array (1:2)
11	Contact	70x70 μm^2 Contact Array (1:5)
12	Line	Line #1: 100 μm W/500 μm L, Line #2: 200 μm W/500 μm L, Line #3: 50 μm W/500 μm L, Line #4: 80 μm W/500 μm L
13	Line	Line #1: 30 μm W/500 μm L, Line #2: 10 μm W/500 μm L, Line #3: 70 μm W/500 μm L, Line #4: 90 μm W/500 μm L
14	Line	10 μm W/10 μm S Line Array
15	Line	10 μm W/20 μm S Line Array

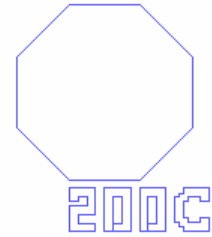
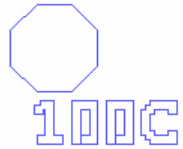
SKW6TSV3 Cell Descriptions

Cell #	Feature Type	Description
16	Line	10 μ m W/50 μ m S Line Array
17	Line	90 μ m W/90 μ m S Line Array
18	Line	90 μ m W/180 μ m S Line Array
19	Line	90 μ m W/450 μ m S Line Array
20	Line	50 μ m W/50 μ m S Line Array
21	Line	50 μ m W/100 μ m S Line Array
22	Line	50 μ m W/250 μ m S Line Array
23	Line	Line #1: 20 μ m W/500 μ m L, Line #2: 40 μ m W/500 μ m L, Line #3: 60 μ m W/500 μ m L, Line #4: 100 μ m W/500 μ m L
24	Line	Line #1: 150 μ m W/500 μ m L, Line #2: 40 μ m W/500 μ m L, Line #3: 60 μ m W/500 μ m L
25	Line	100 μ m W/100 μ m S Line Array
26	Line	100 μ m W/200 μ m S Line Array
27	Line	100 μ m W/500 μ m S Line Array
28	Line	30 μ m W/30 μ m S Line Array
29	Line	30 μ m W/60 μ m S Line Array
30	Line	30 μ m W/150 μ m S Line Array

SKW6TSV3 Cell Descriptions

Cell #	Feature Type	Description
31	Line	70 μ m W/70 μ m S Line Array
32	Line	70 μ m W/140 μ m S Line Array
33	Line	70 μ m W/350 μ m S Line Array
34	Contact	Contact #1: 150x150 μ m ² , Contact #2: 60x60 μ m ² , Contact #3: 80x80 μ m ² , Contact #4: 20x20 μ m ²
35	Contact	Contact #1: 40x40 μ m ² , Contact #2: 125x125 μ m ² , Contact #3: 60x60 μ m ² , Contact #4: 175x175 μ m ²
36	Contact	90x90 μ m ² Contact Array (1:1)
37	Contact	90x90 μ m ² Contact Array (1:2)
38	Contact	90x90 μ m ² Contact Array (1:5)
39	Contact	10x10 μ m ² Contact Array (1:1)
40	Contact	10x10 μ m ² Contact Array (1:2)
41	Contact	10x10 μ m ² Contact Array (1:5)
42	Contact	30x30 μ m ² Contact Array (1:1)
43	Contact	30x30 μ m ² Contact Array (1:2)
44	Contact	30x30 μ m ² Contact Array (1:5)

Cell #1



(515, 10015) / unit: um




Cell #2

 30C

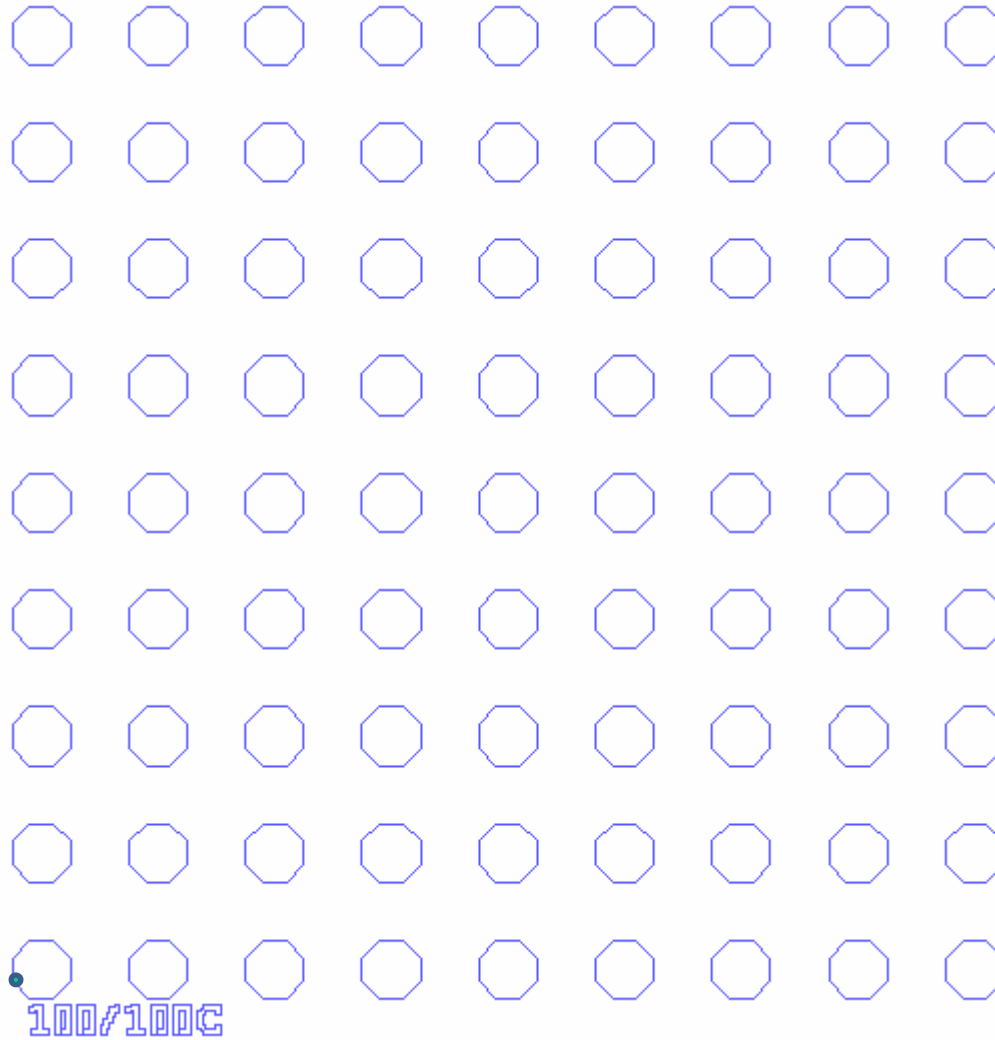
 10C

(509, 7021) / unit: um

 70C

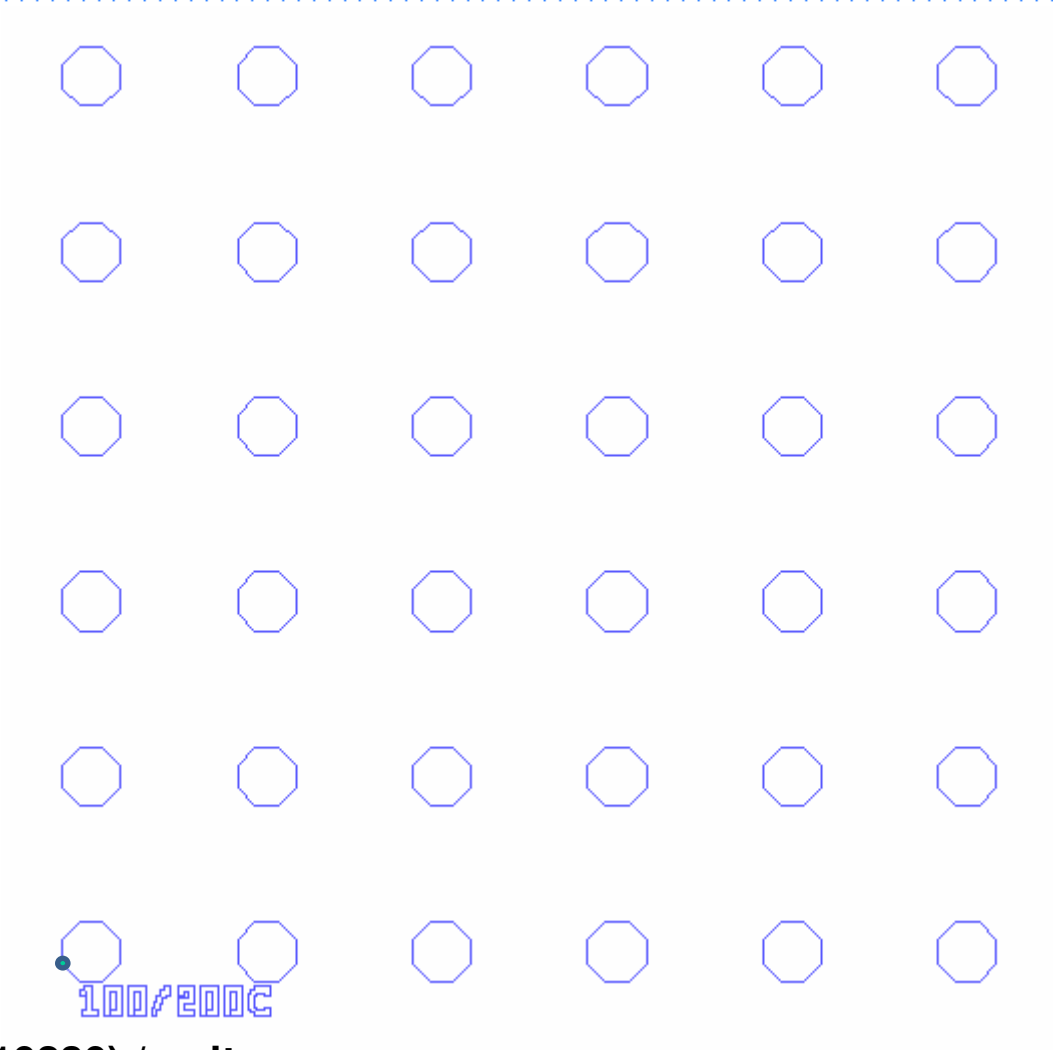
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Cell #3



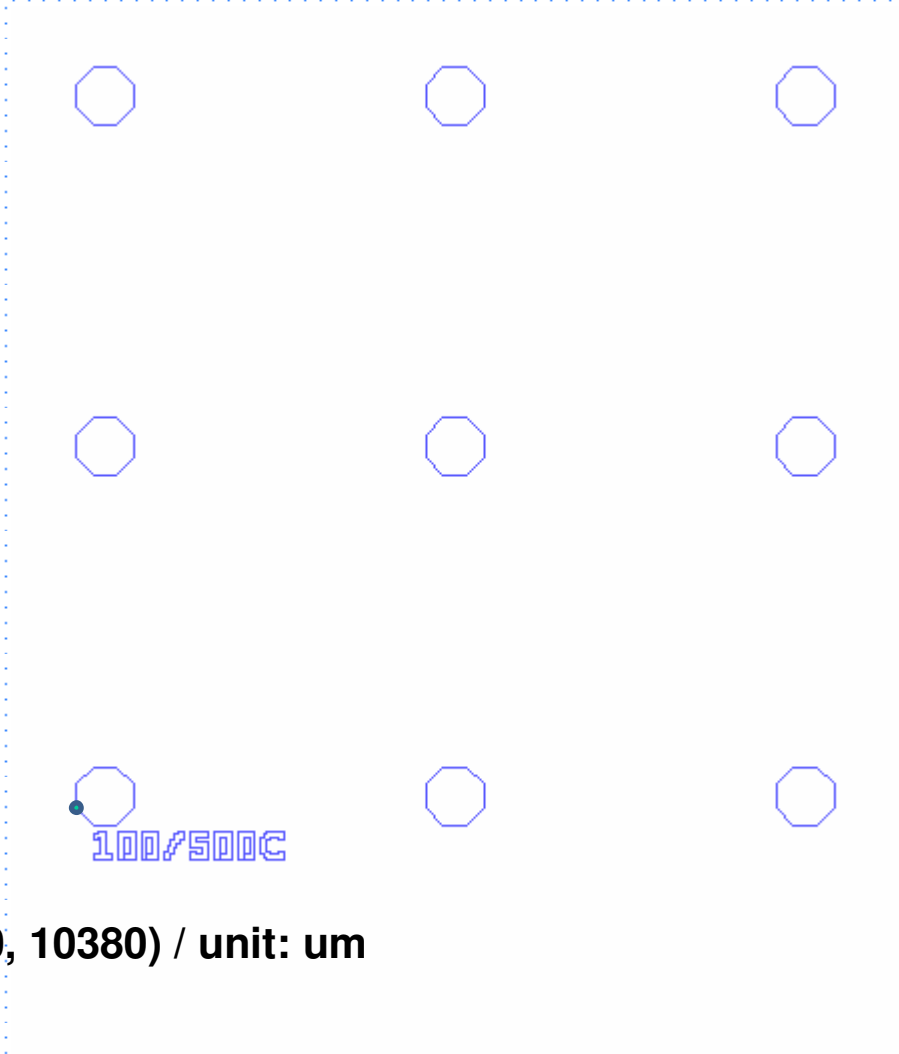
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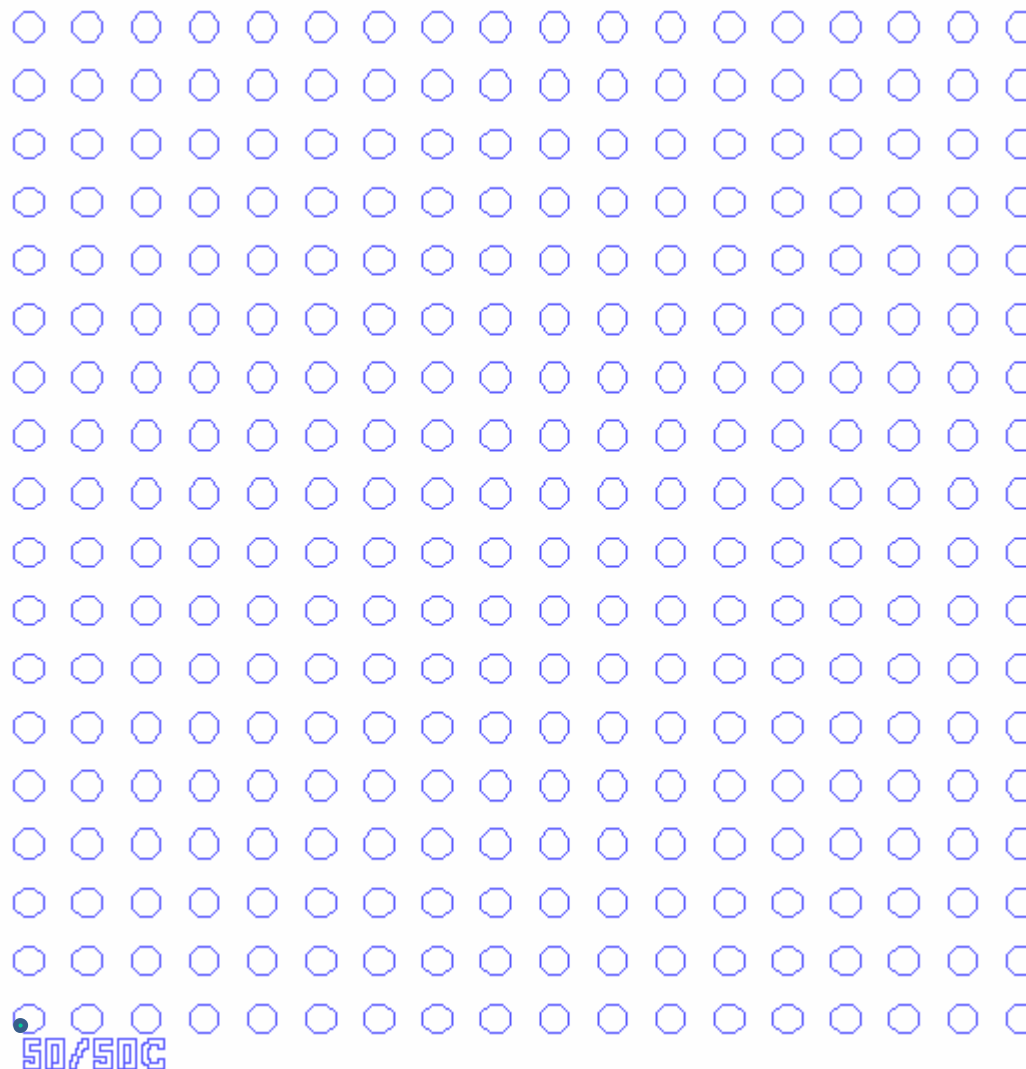


(4200, 10230) / unit: um

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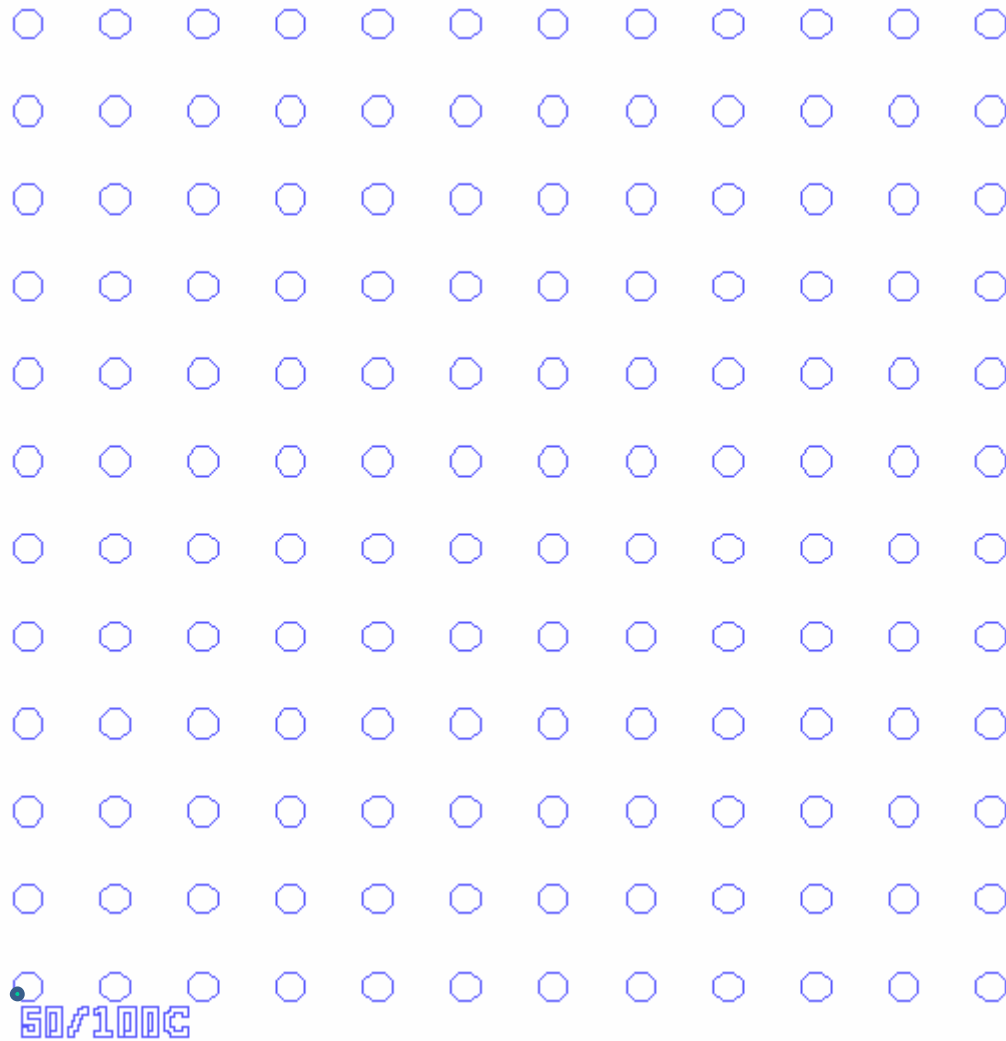


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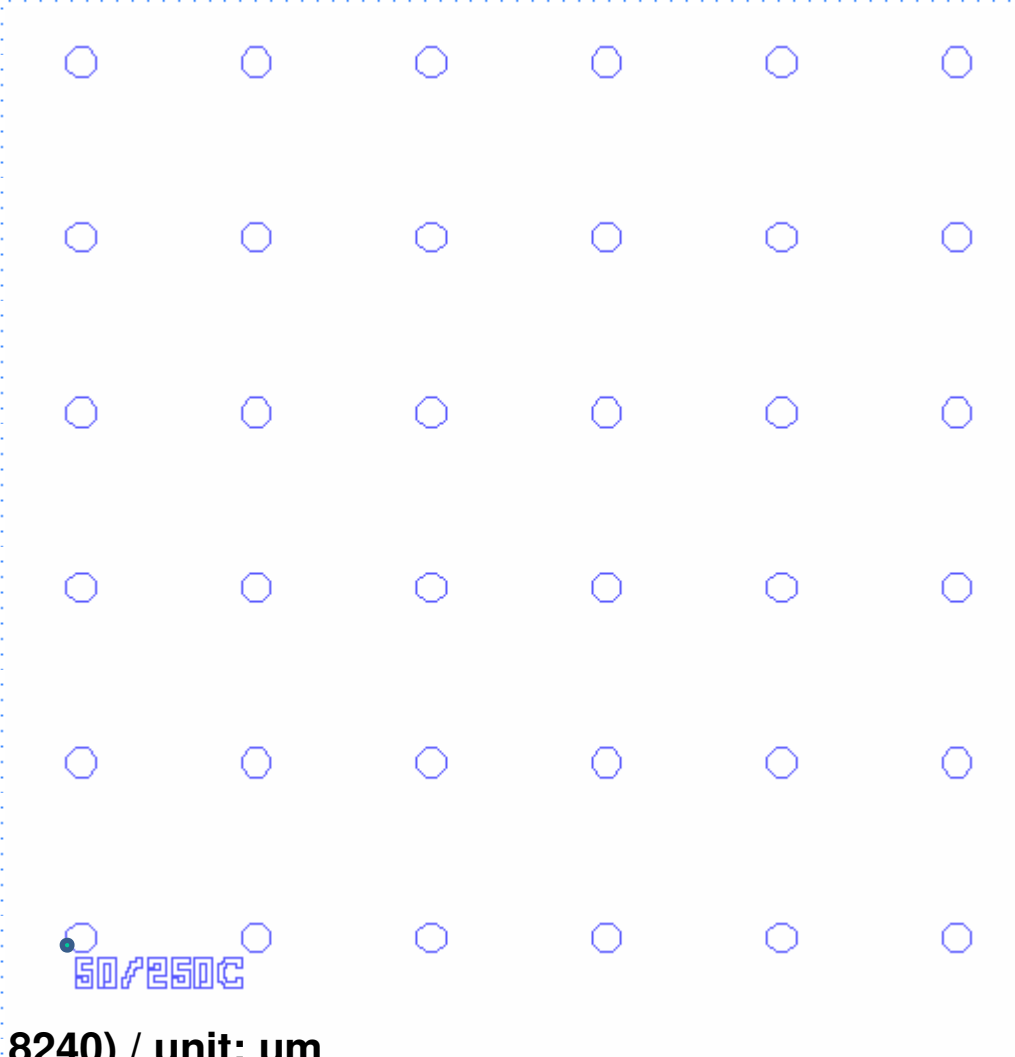
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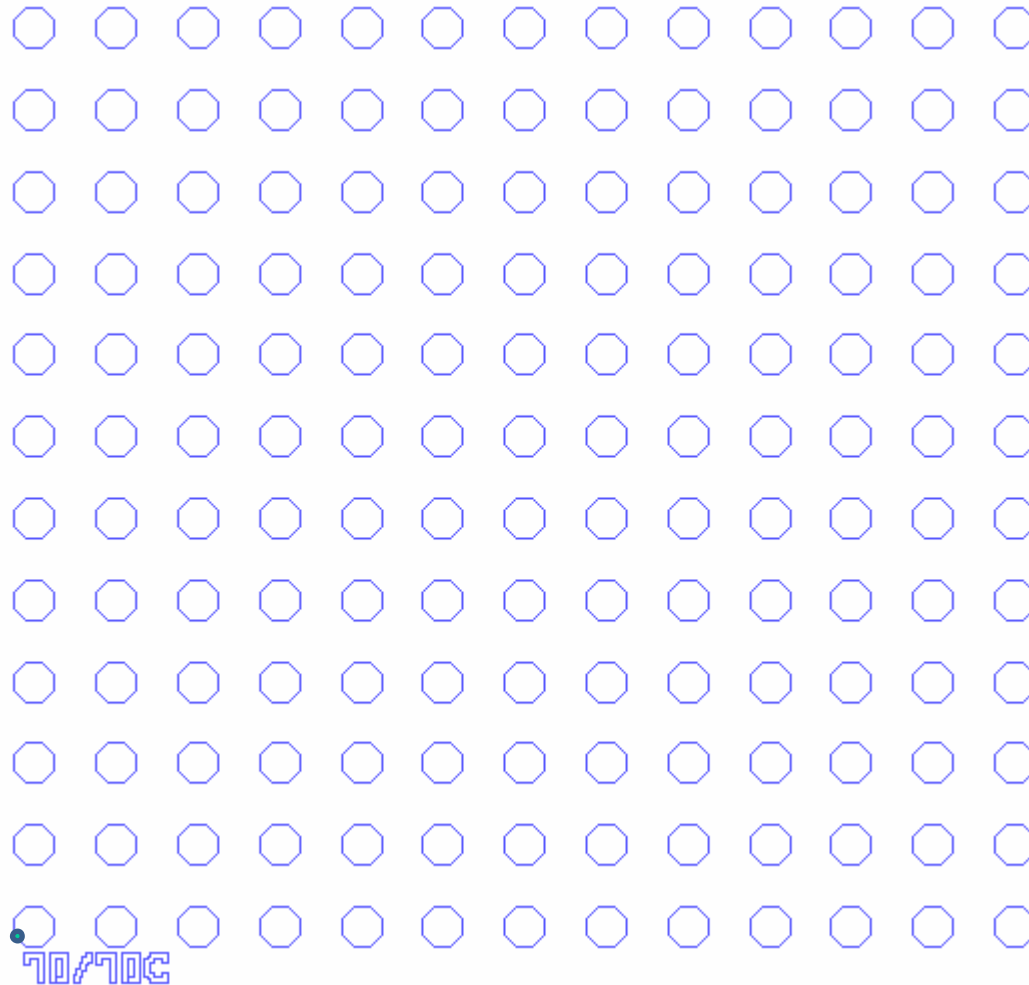
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Cell #8



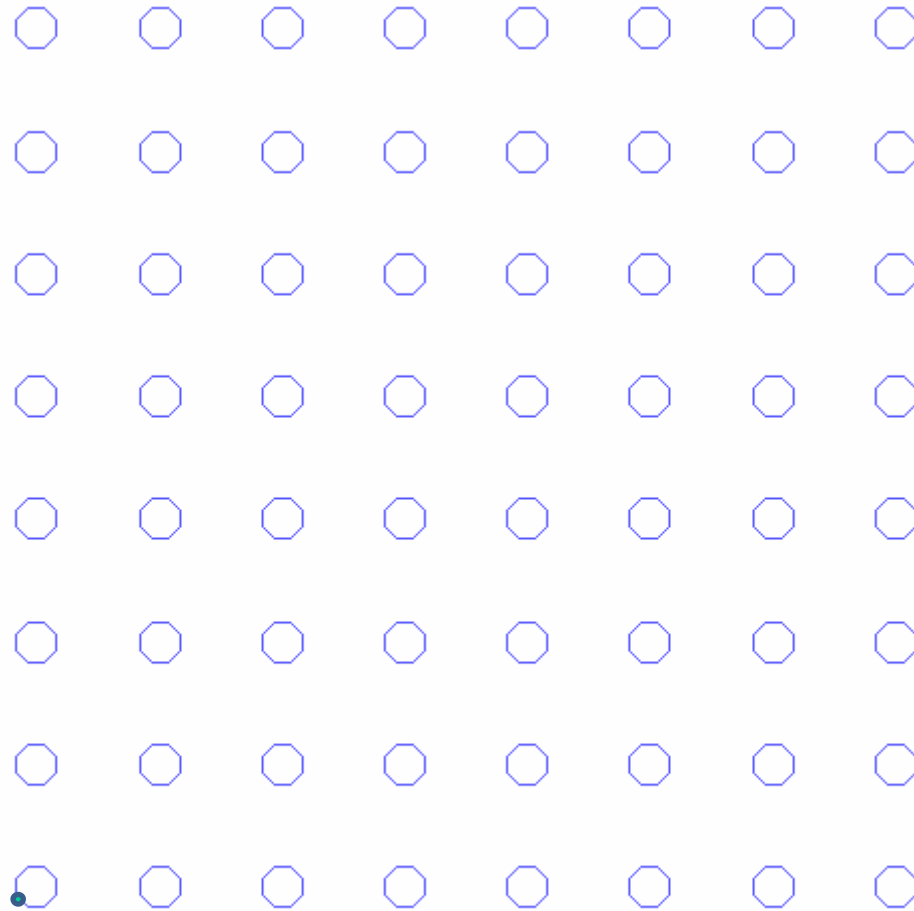
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Cell #9



(2108, 6266) / unit: um

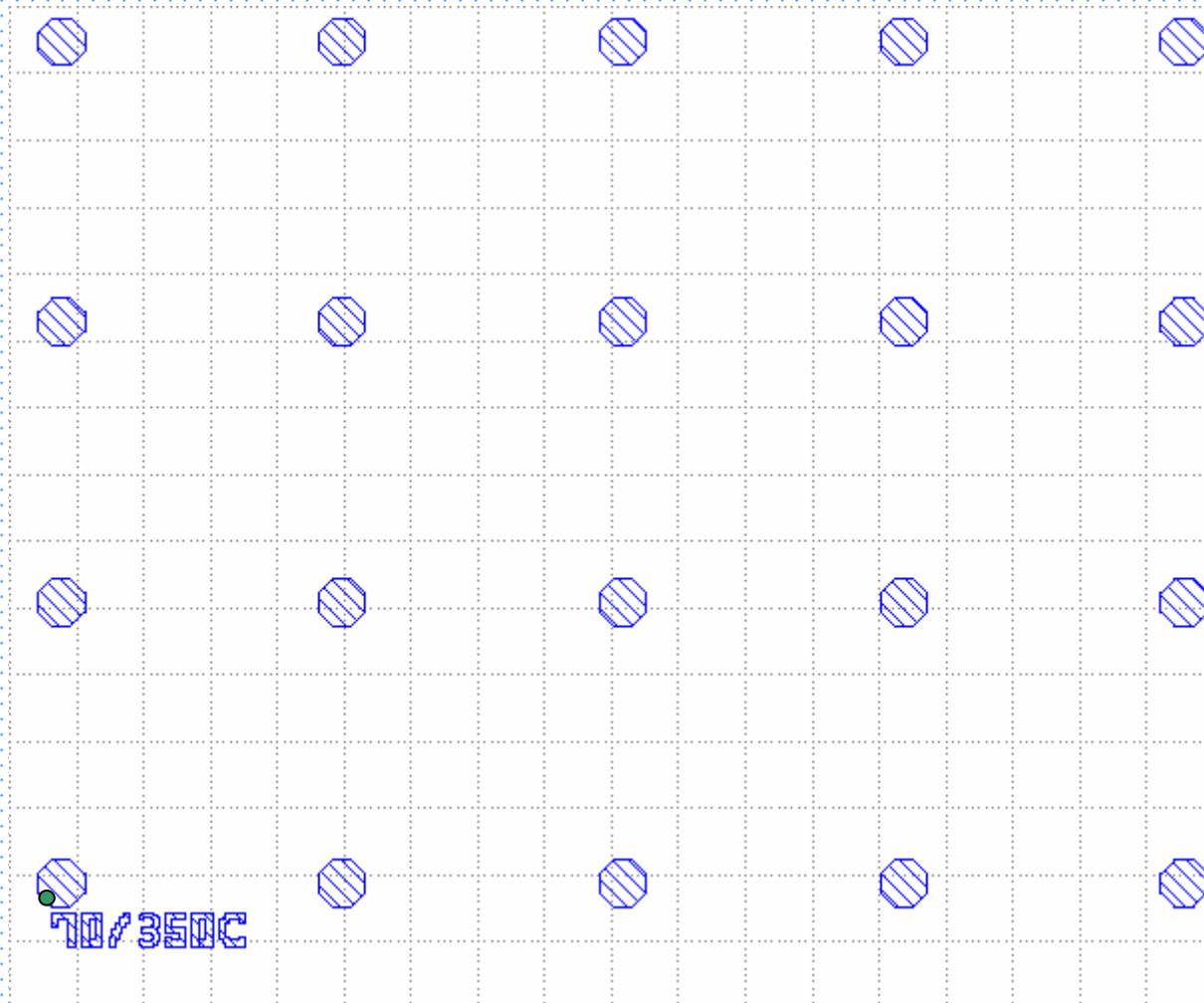
Cell #10



70/140C

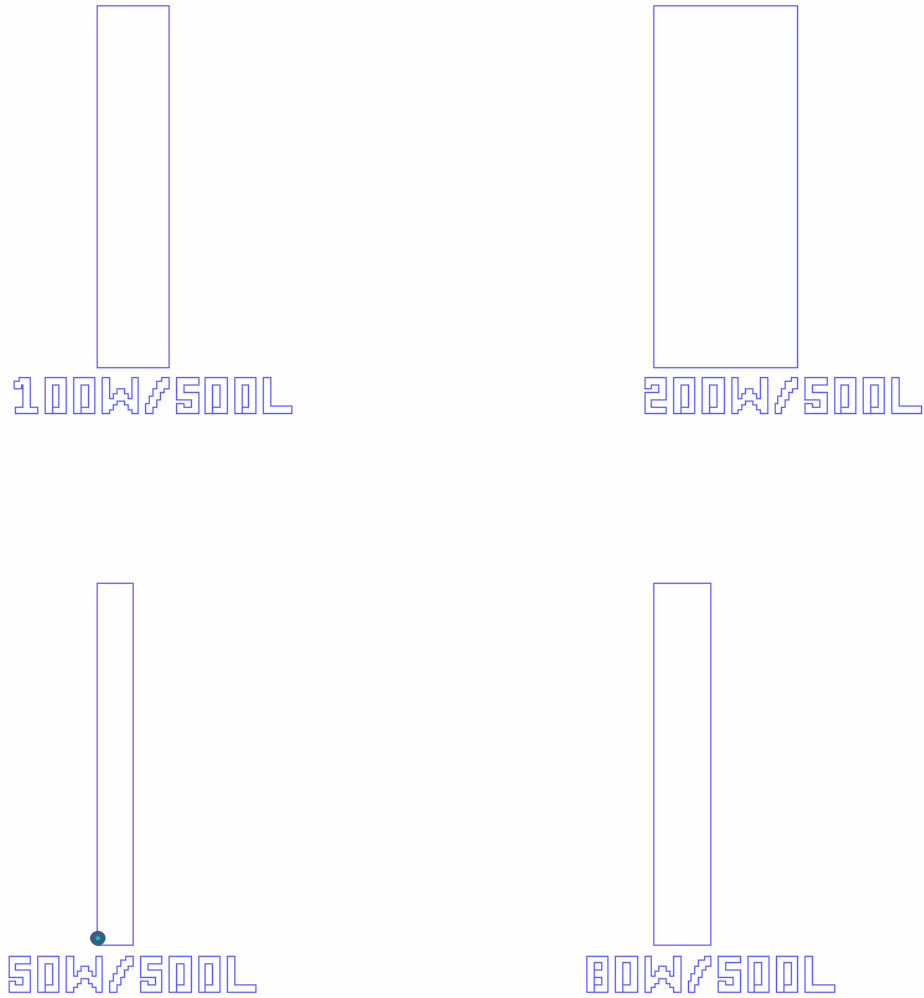
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Cell #11



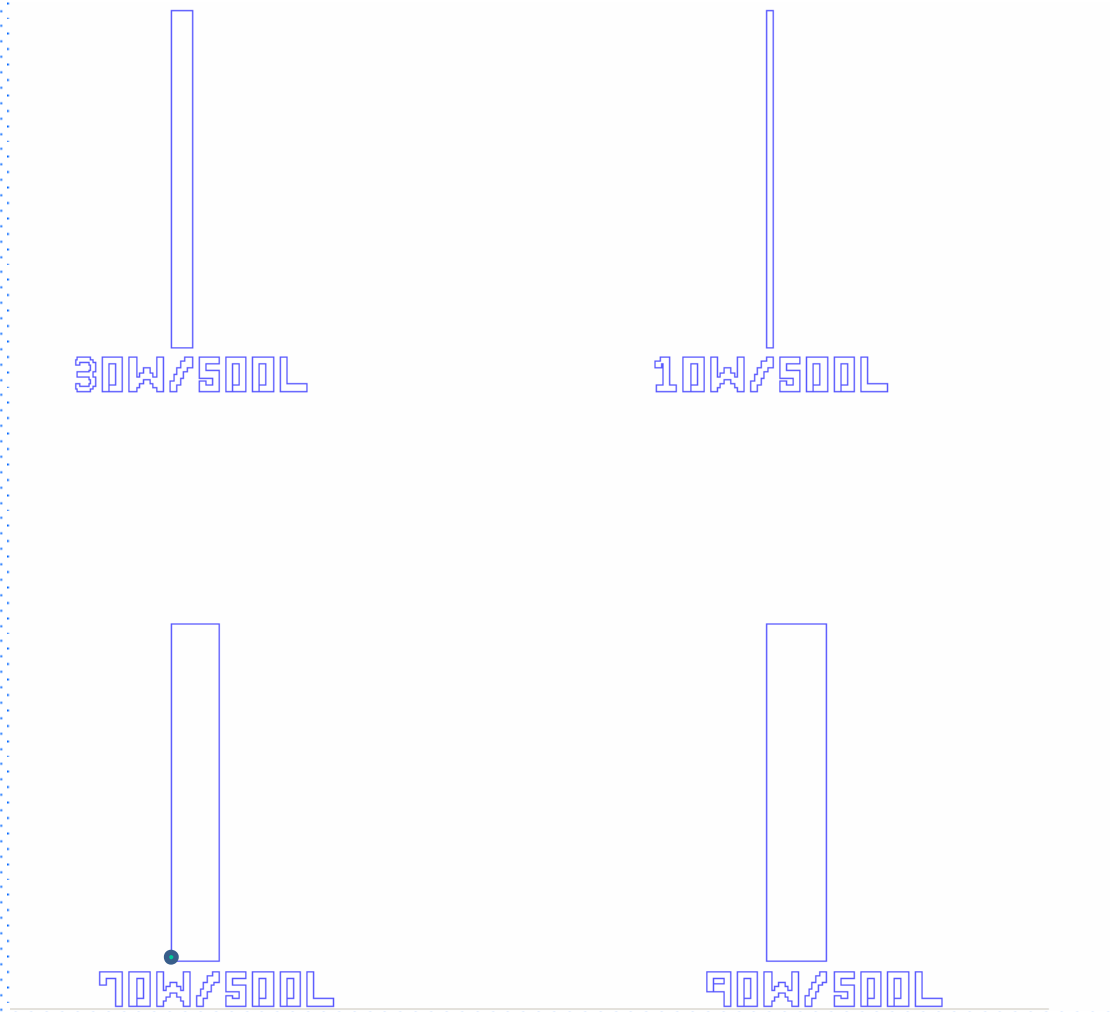
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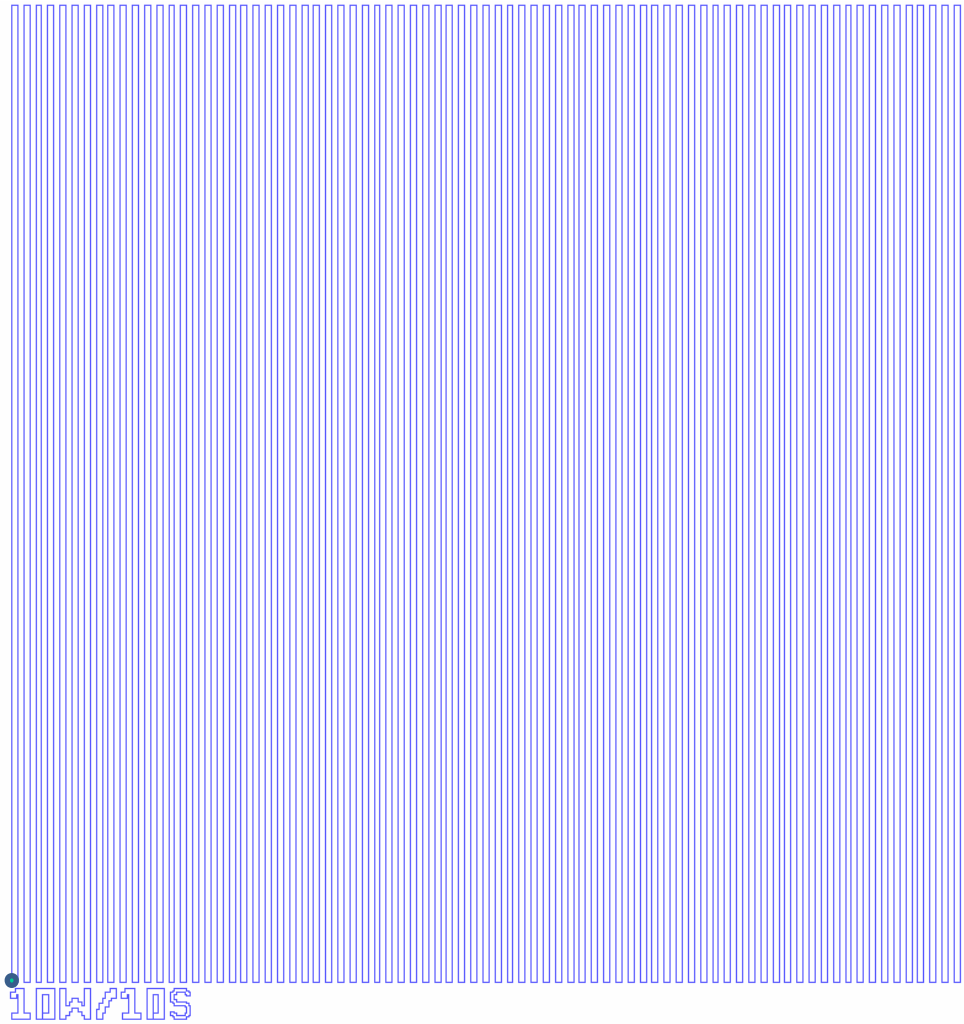
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Cell #13



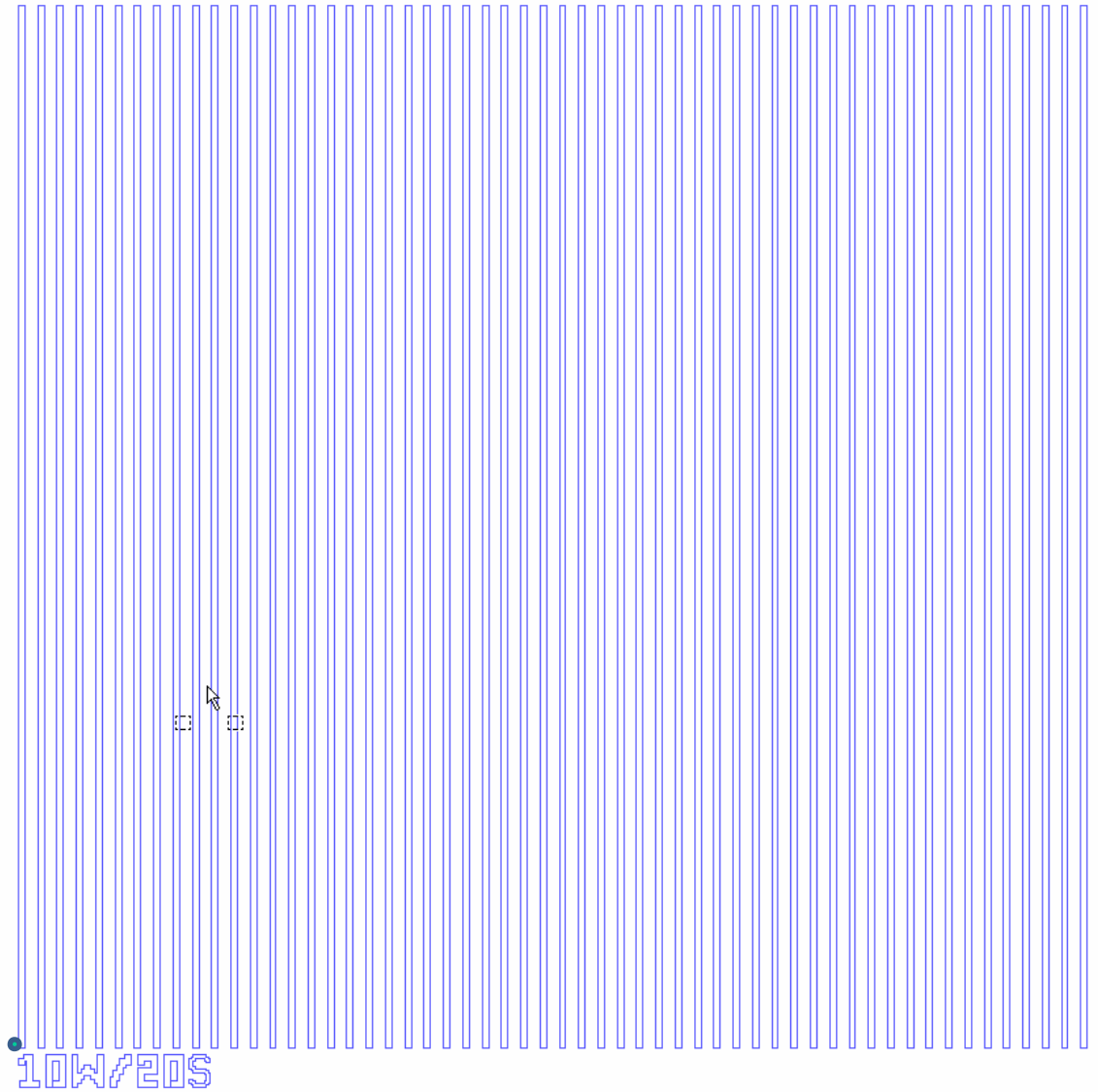
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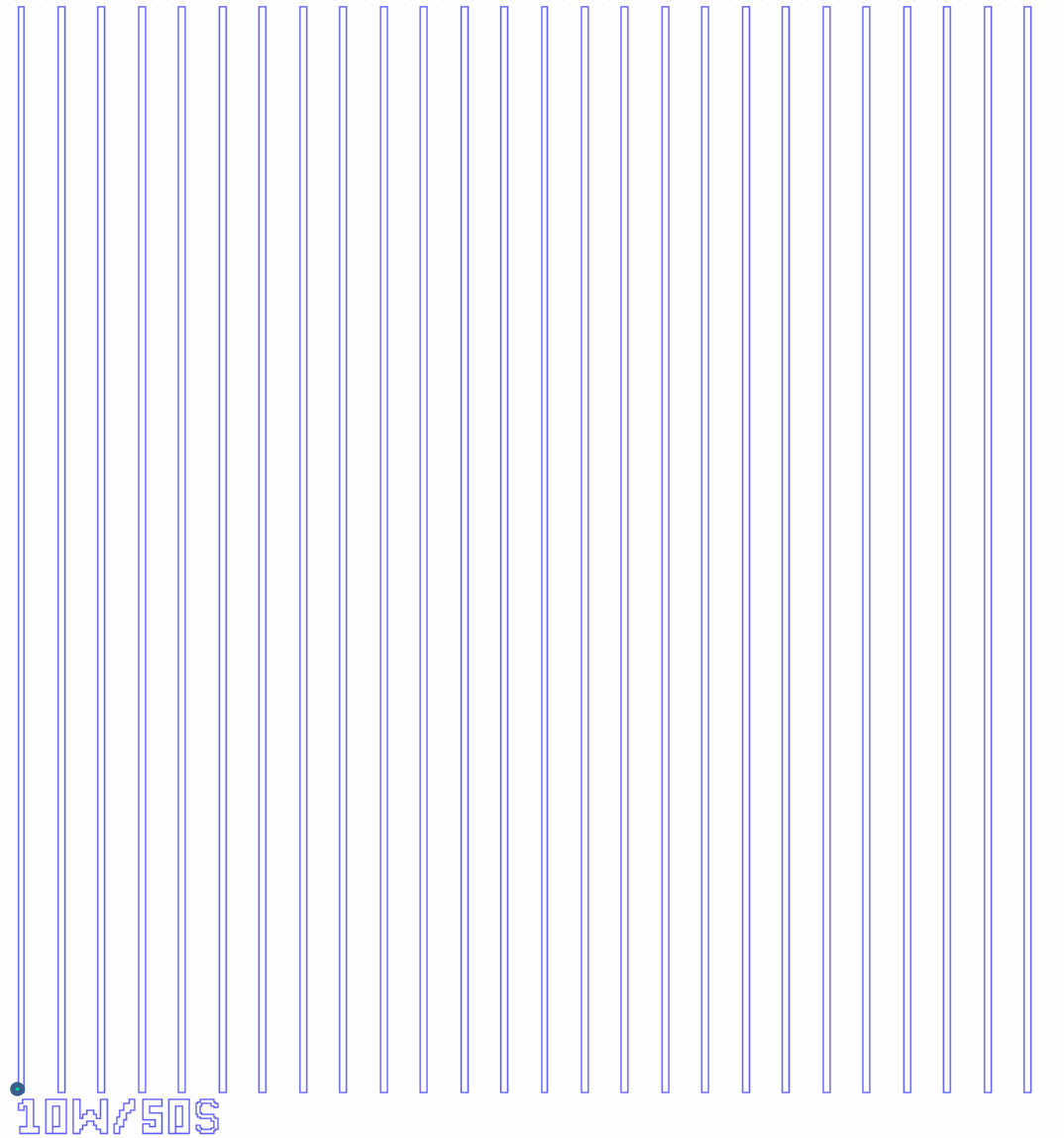
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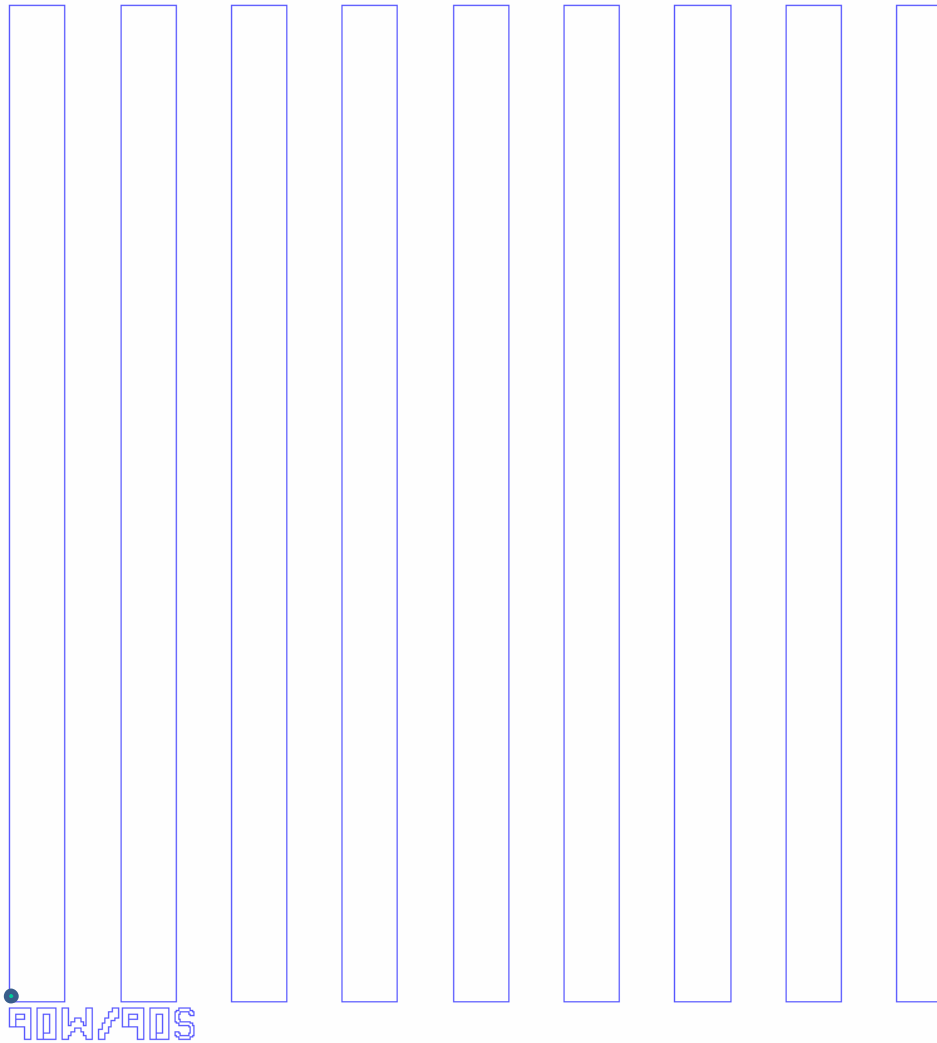
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Cell #16



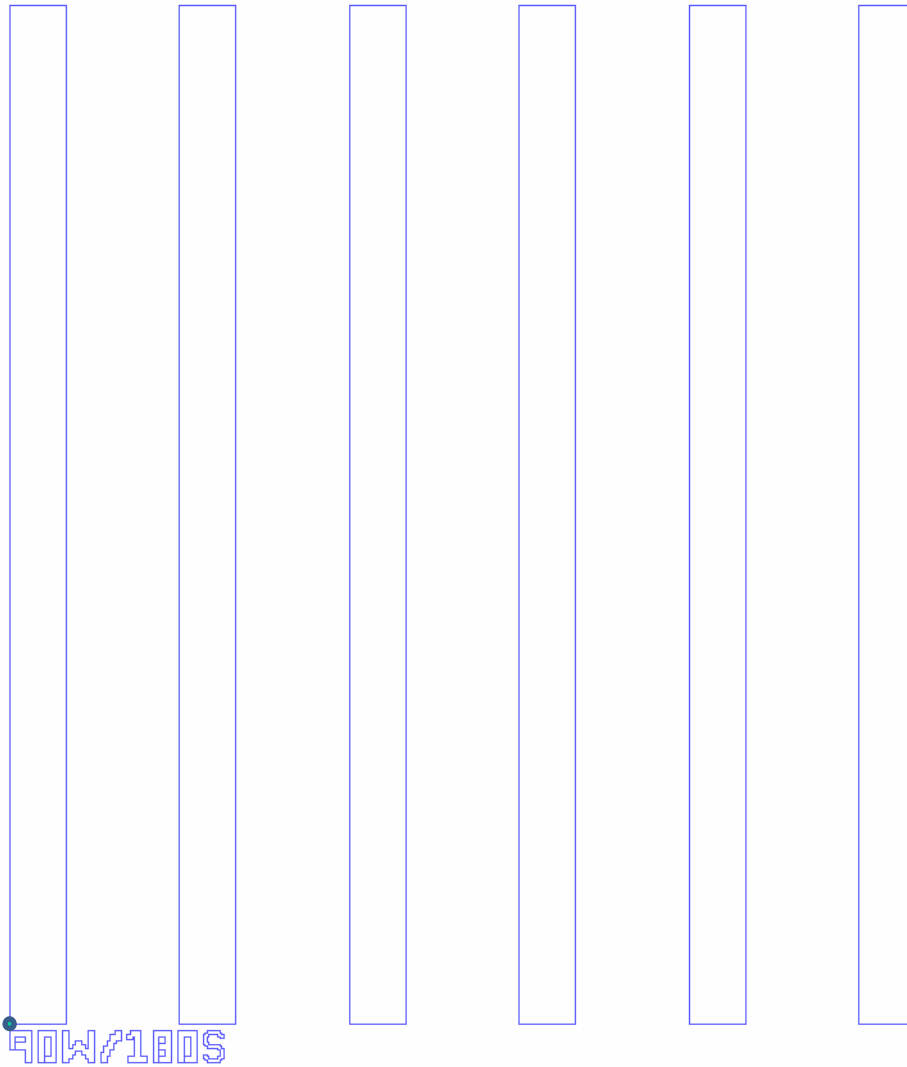
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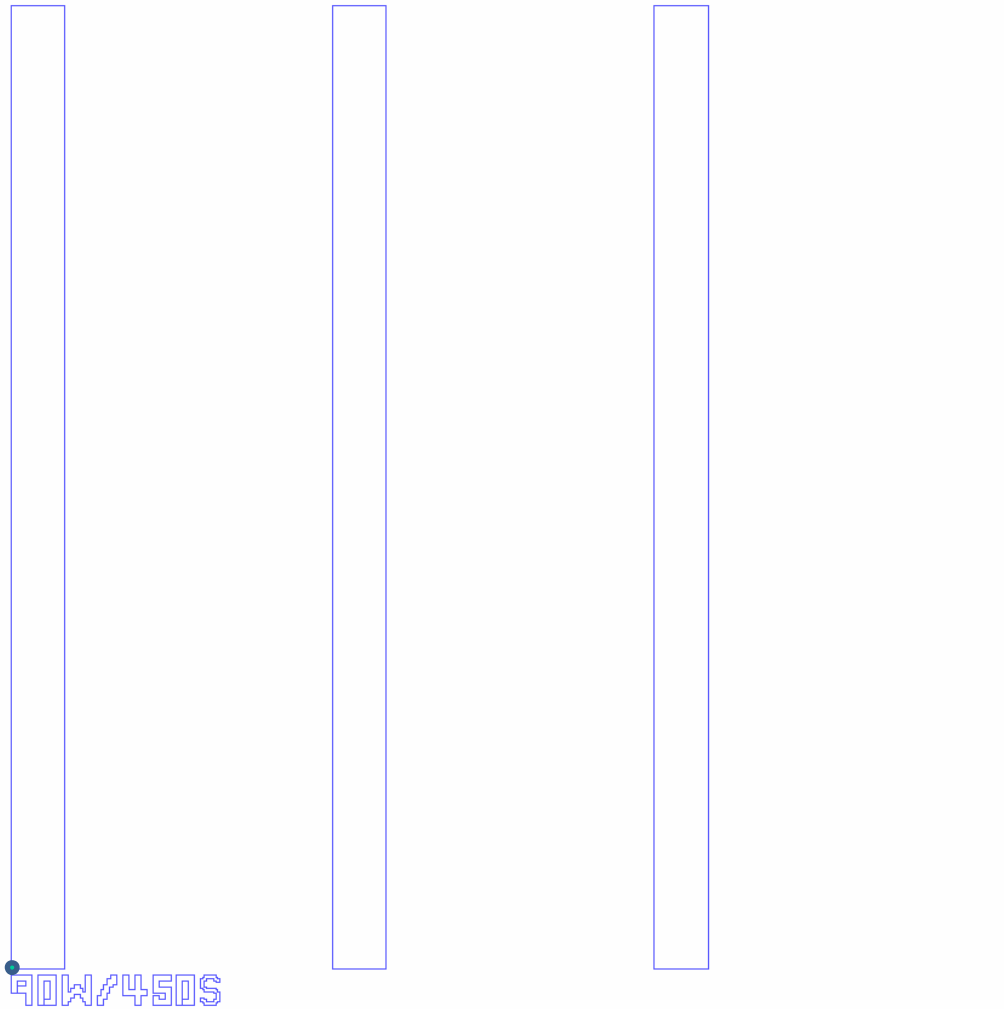
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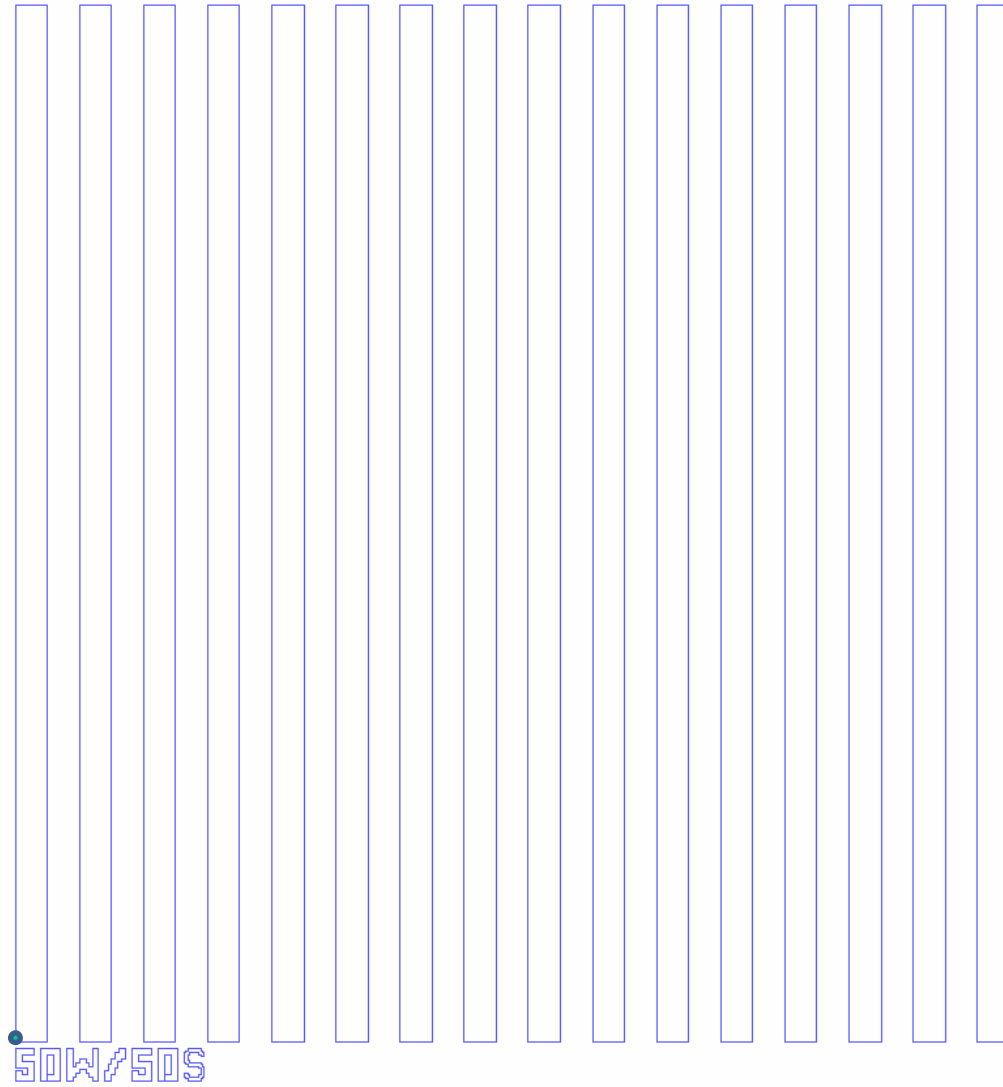
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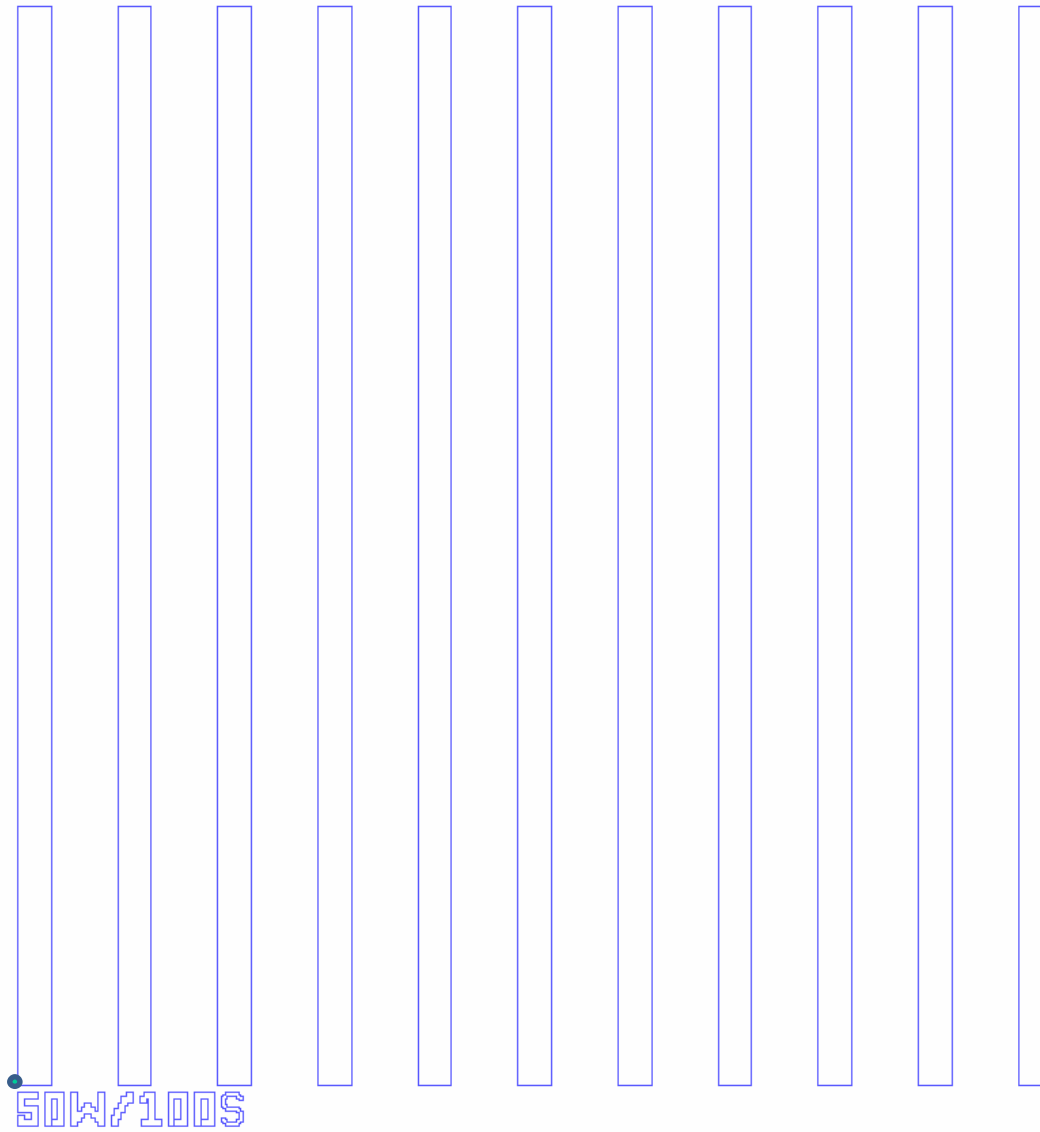
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Cell #20



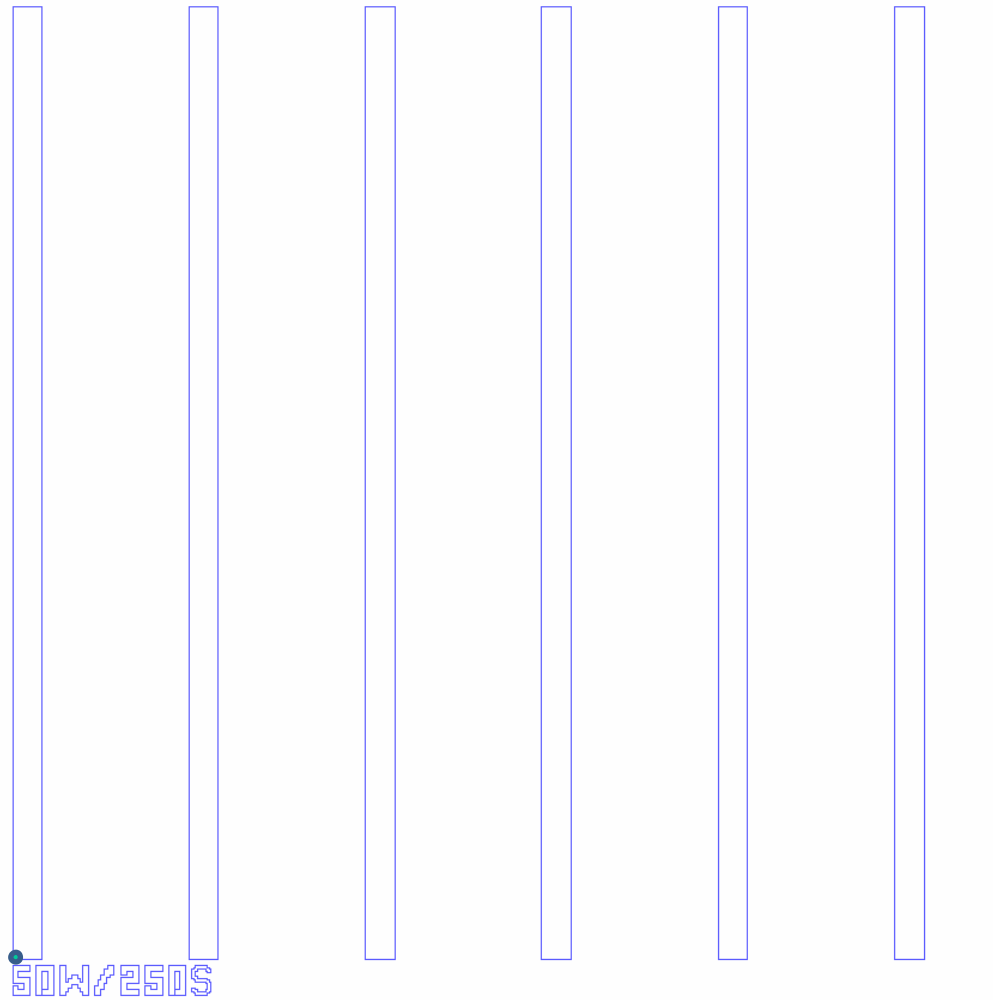
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Cell #21



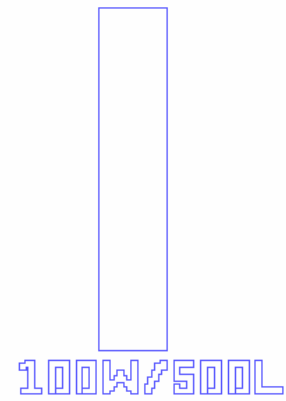
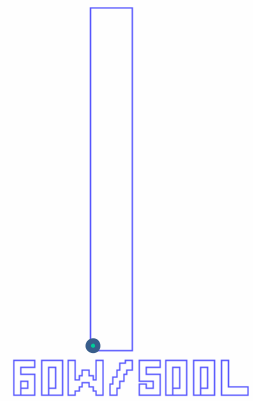
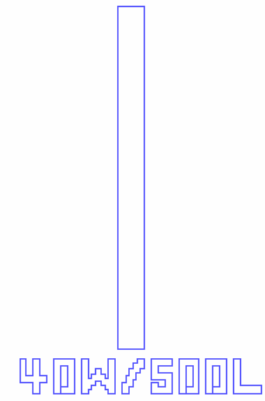
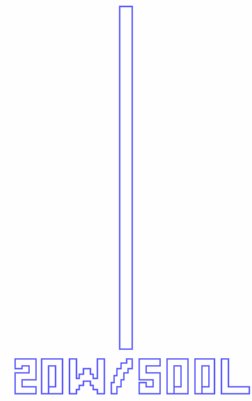
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Cell #22



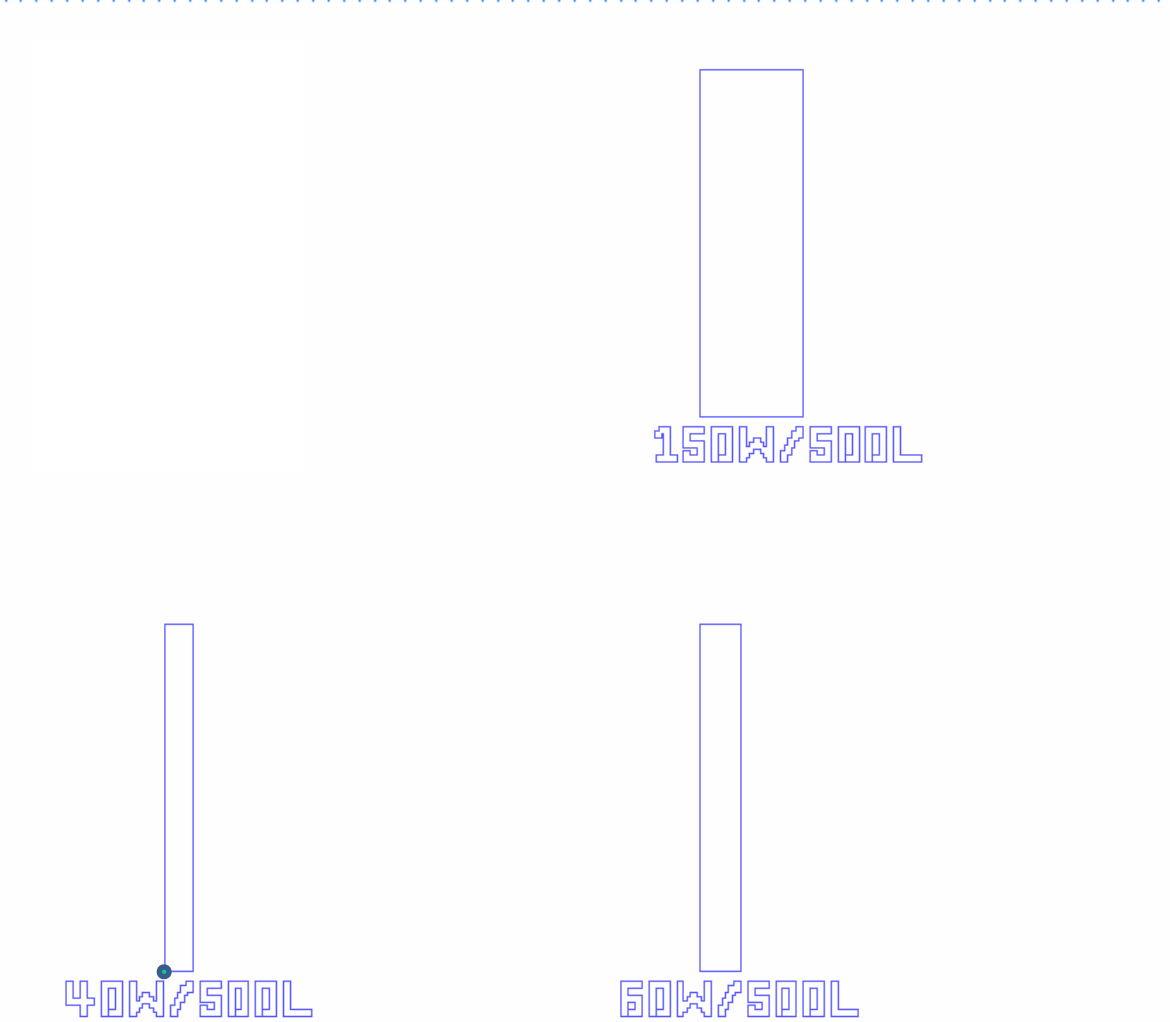
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Cell #23



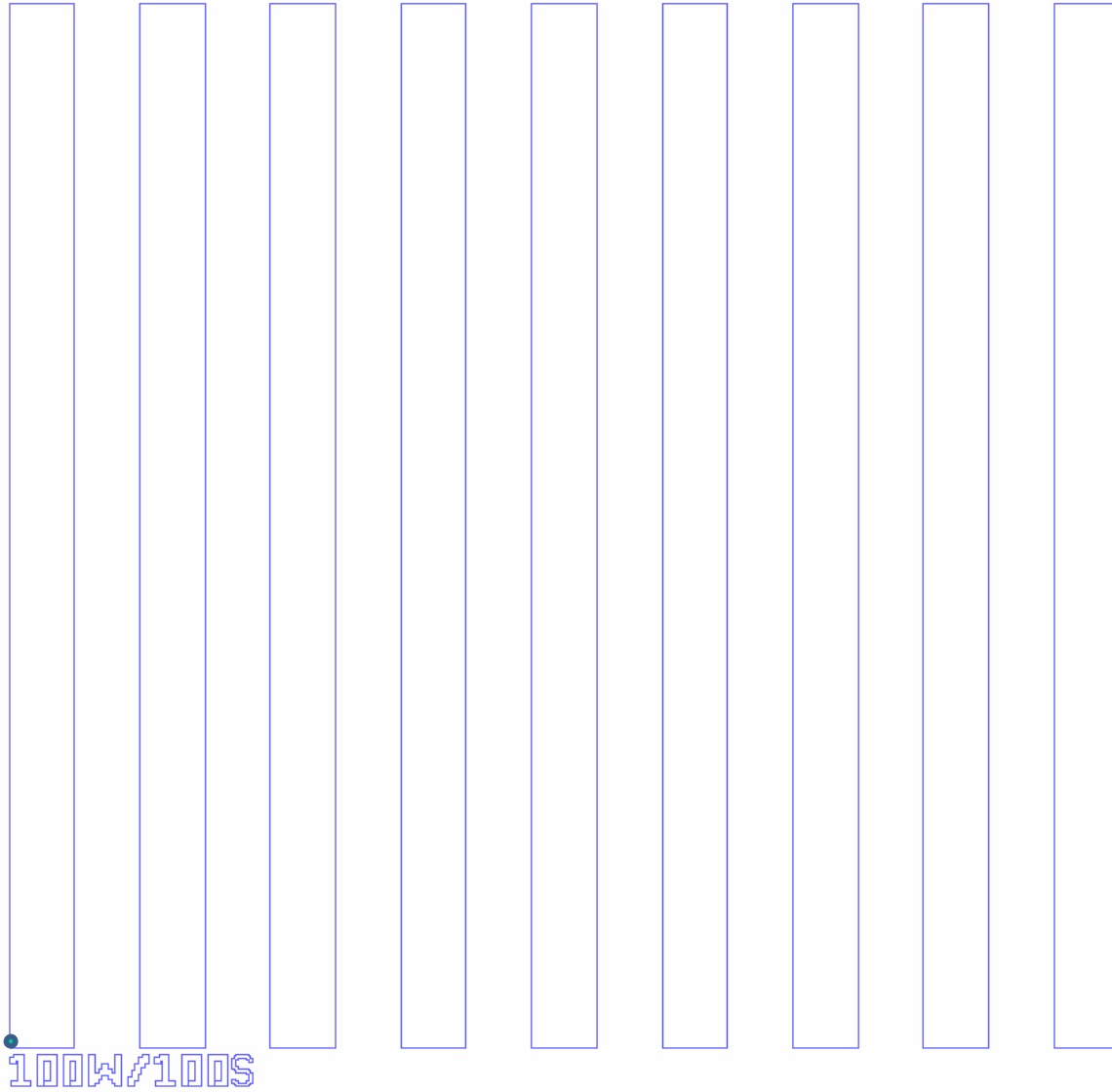
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Cell #24



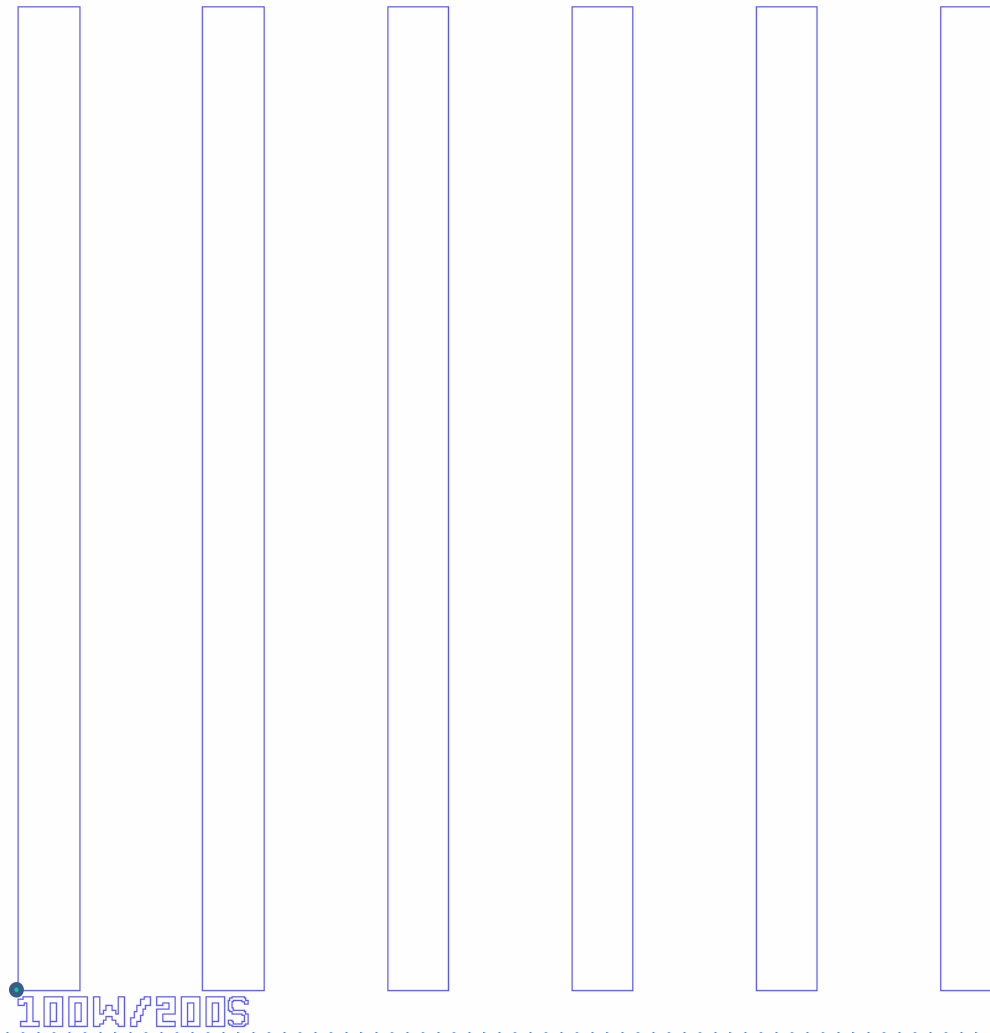
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Cell #25



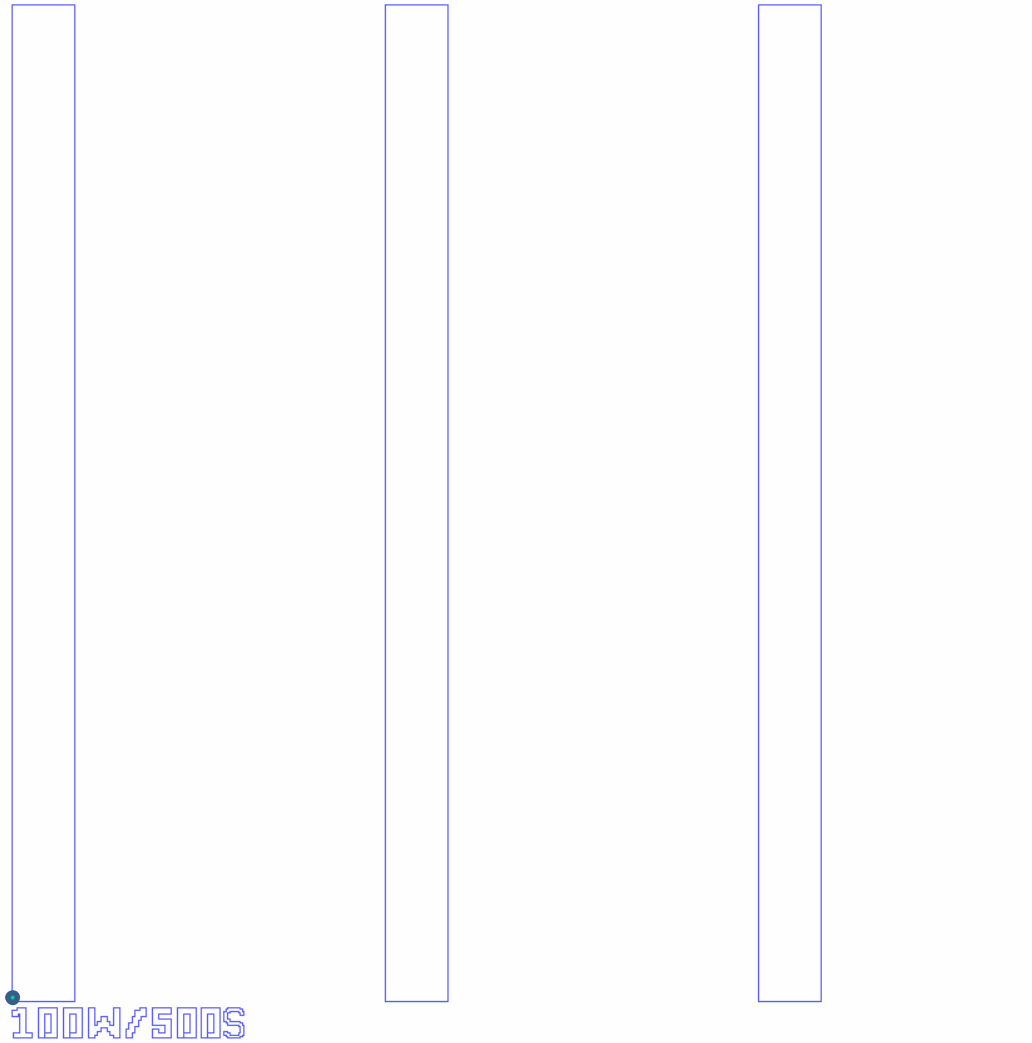
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Cell #26



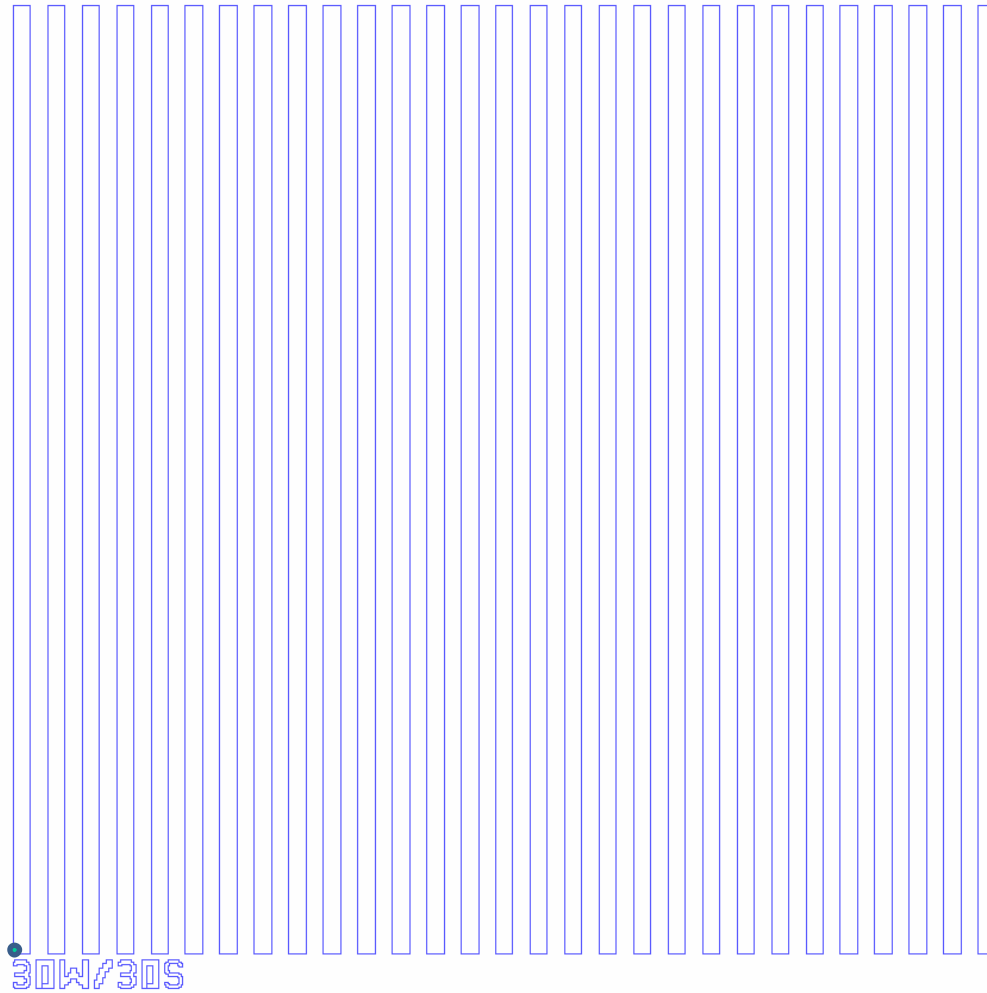
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Cell #27



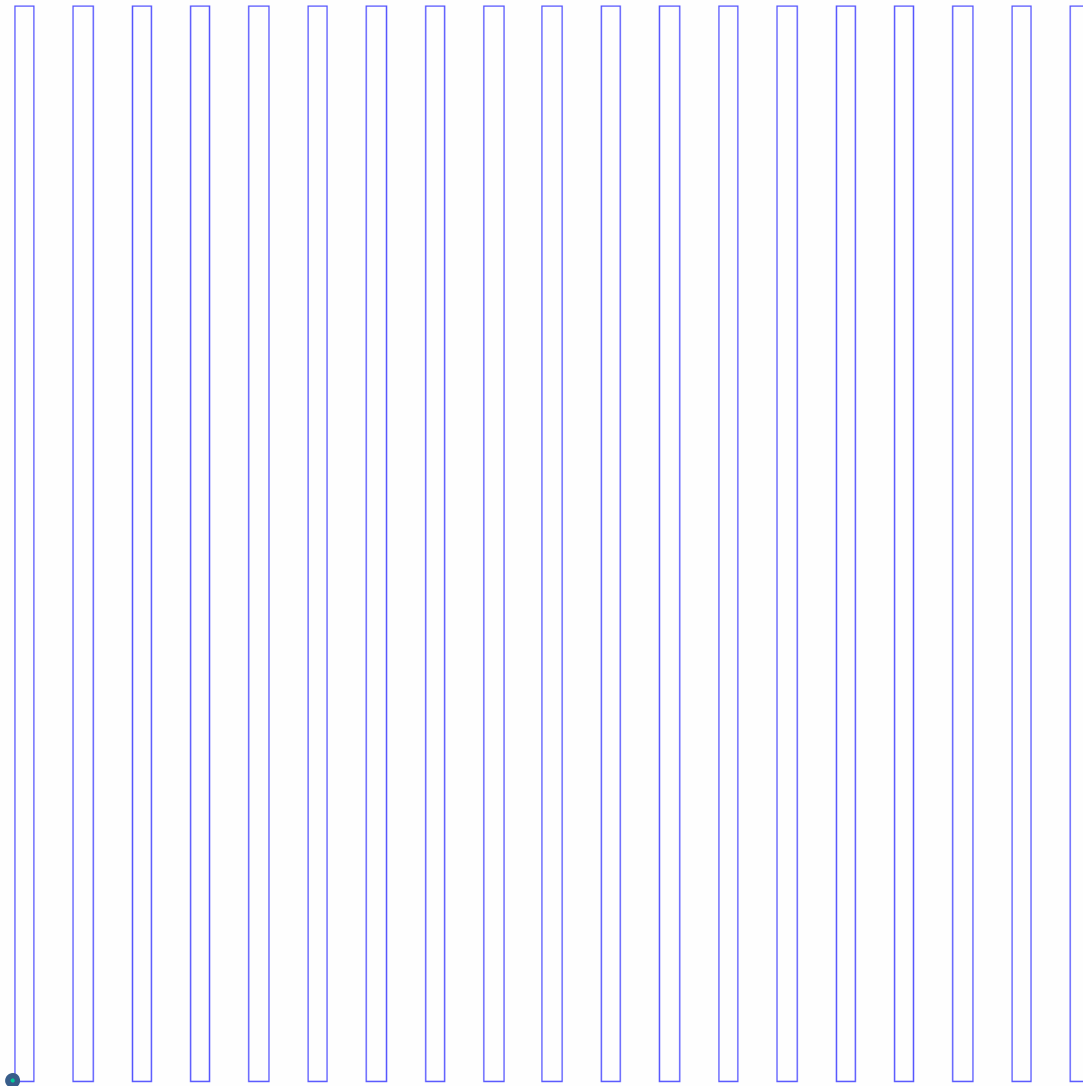
(6350,4250) / unit: um

Cell #28



(2125, 2225) / unit: um

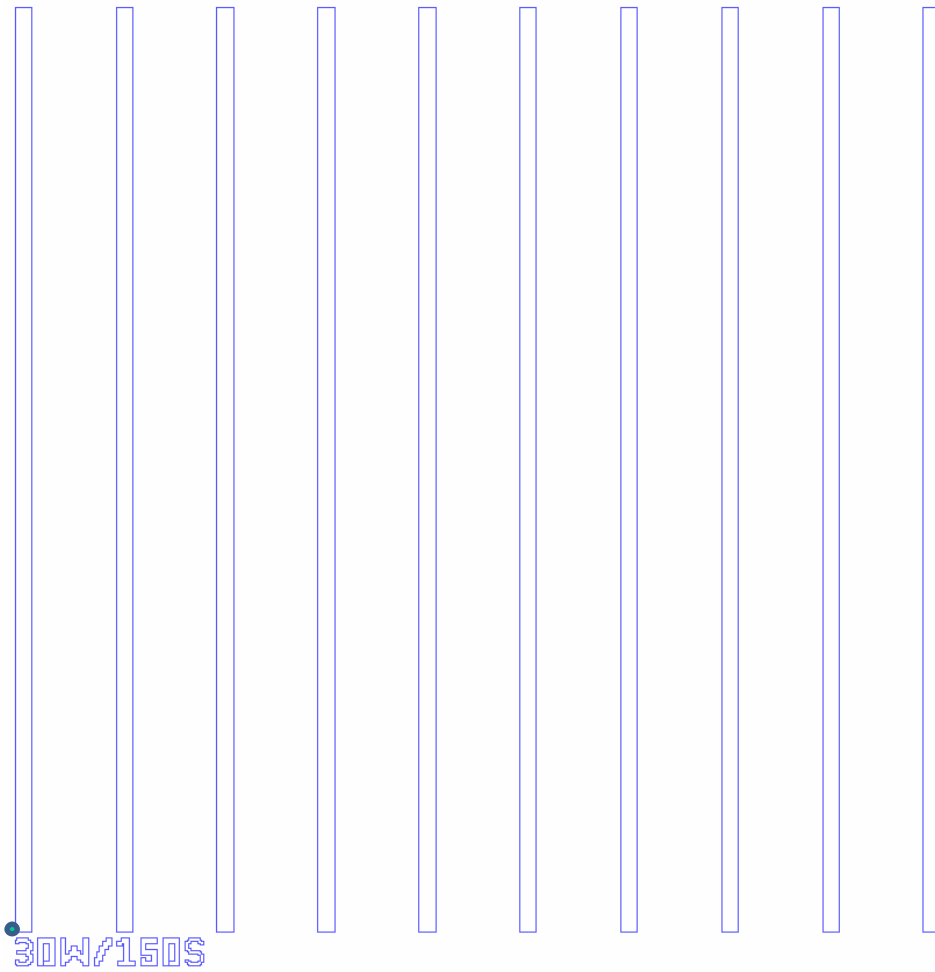
Cell #29



30W/60S

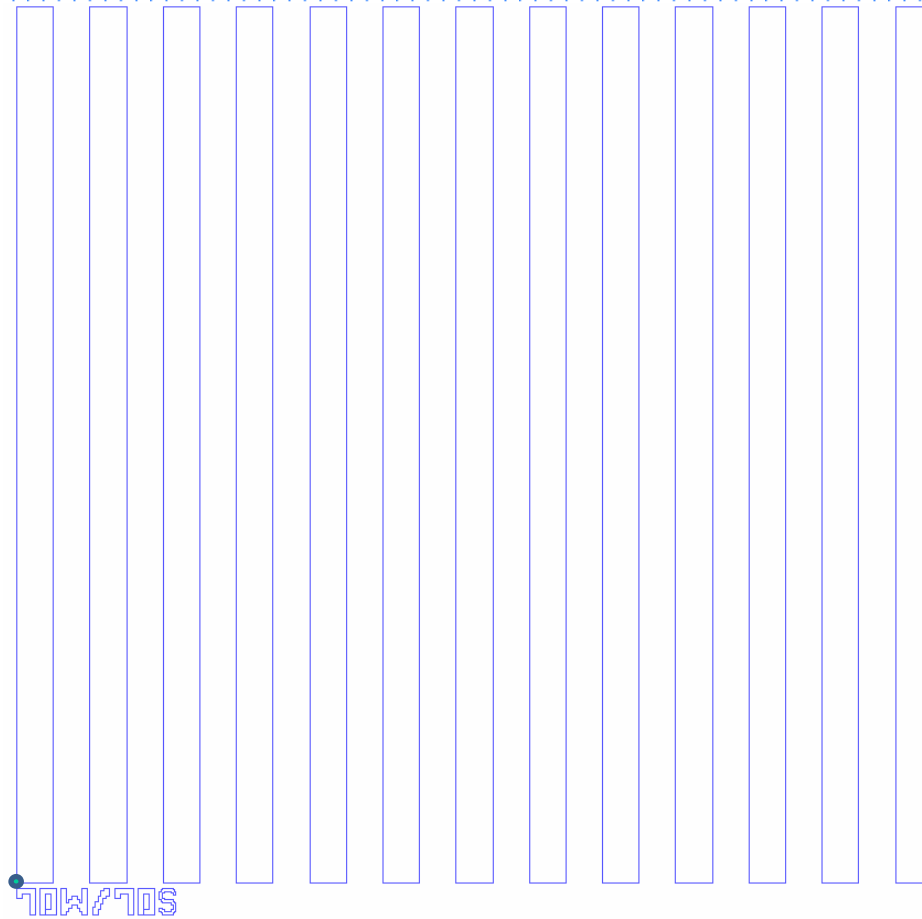
(4150, 2225) / unit: um

Cell #30



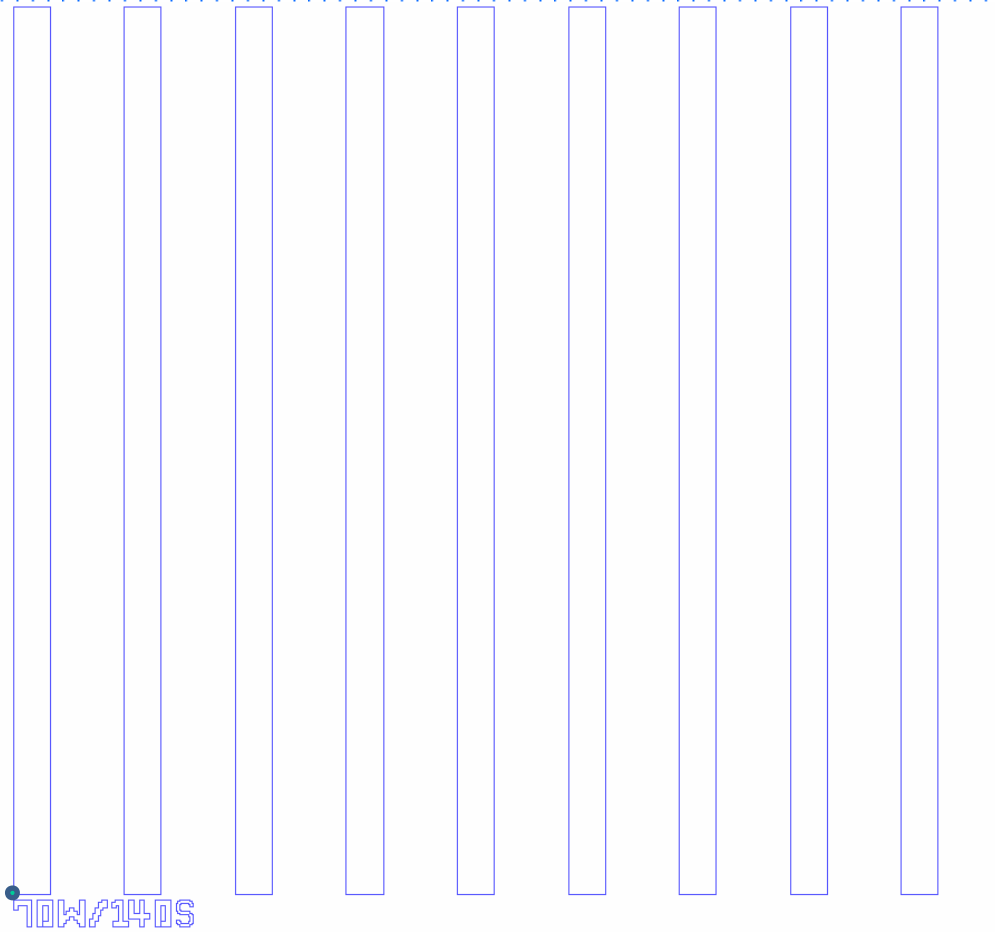
(6225, 2225) / unit: um

Cell #31



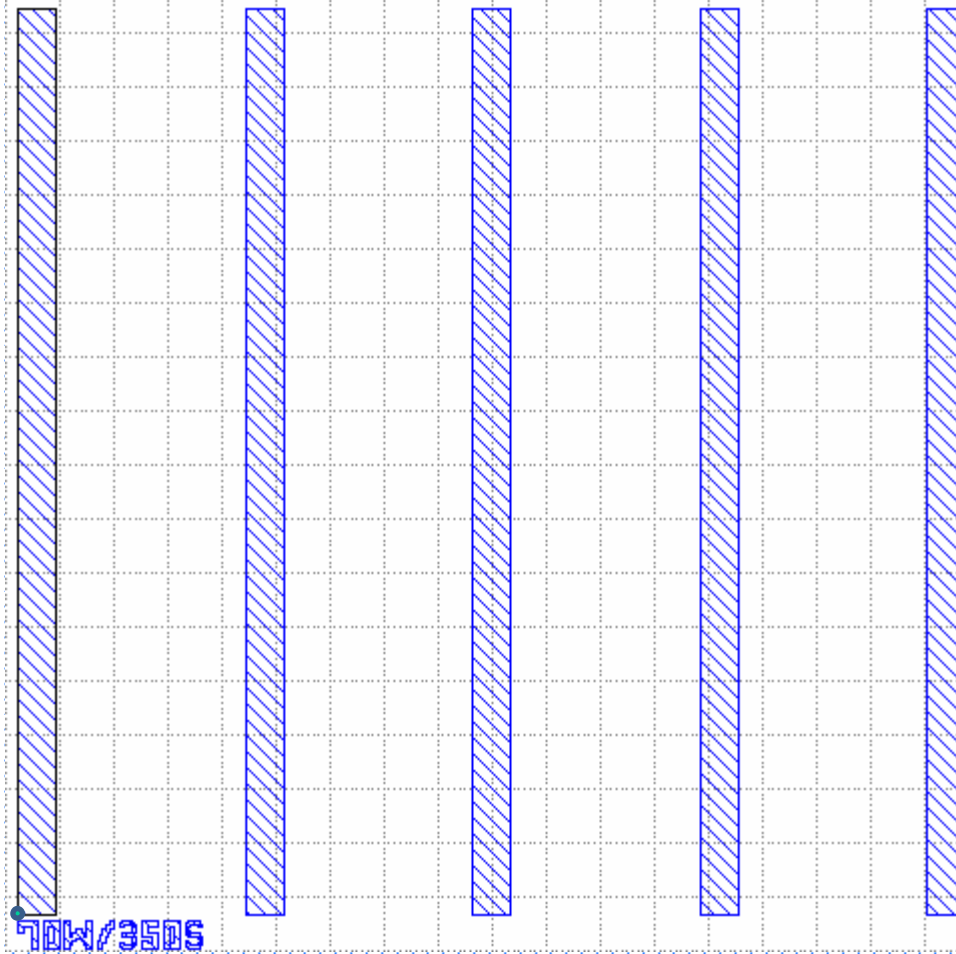
(2105, 265) / unit: um

Cell #32



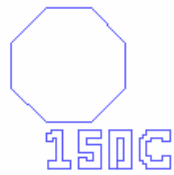
(4110, 265) / unit: um

Cell #33



(6125,265) / unit: um


Cell #34



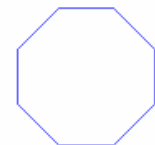
(8515, 4024) / unit: um

Cell #35


40C

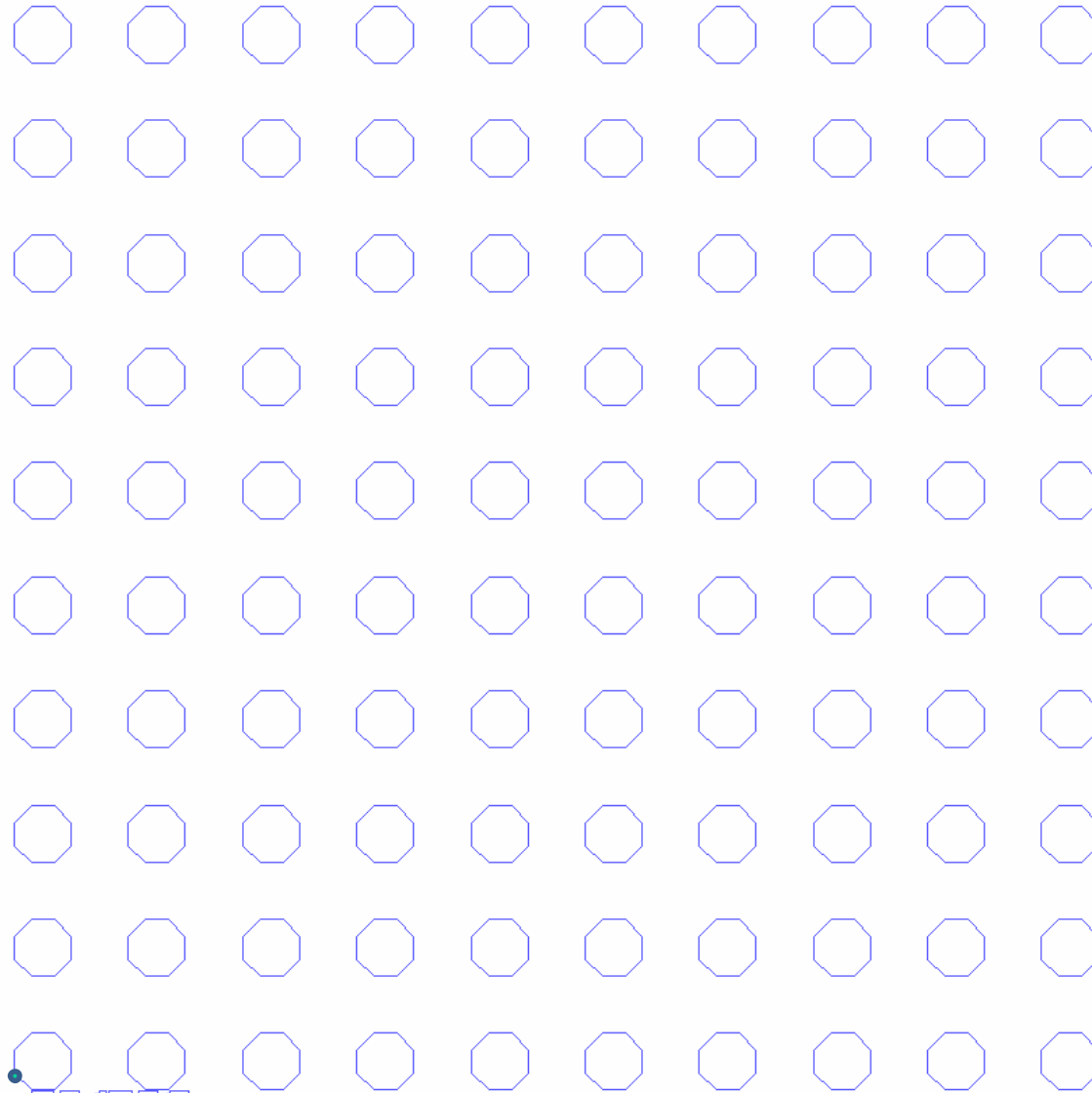

125C


60C


175C

(8515, 1084) / unit: um

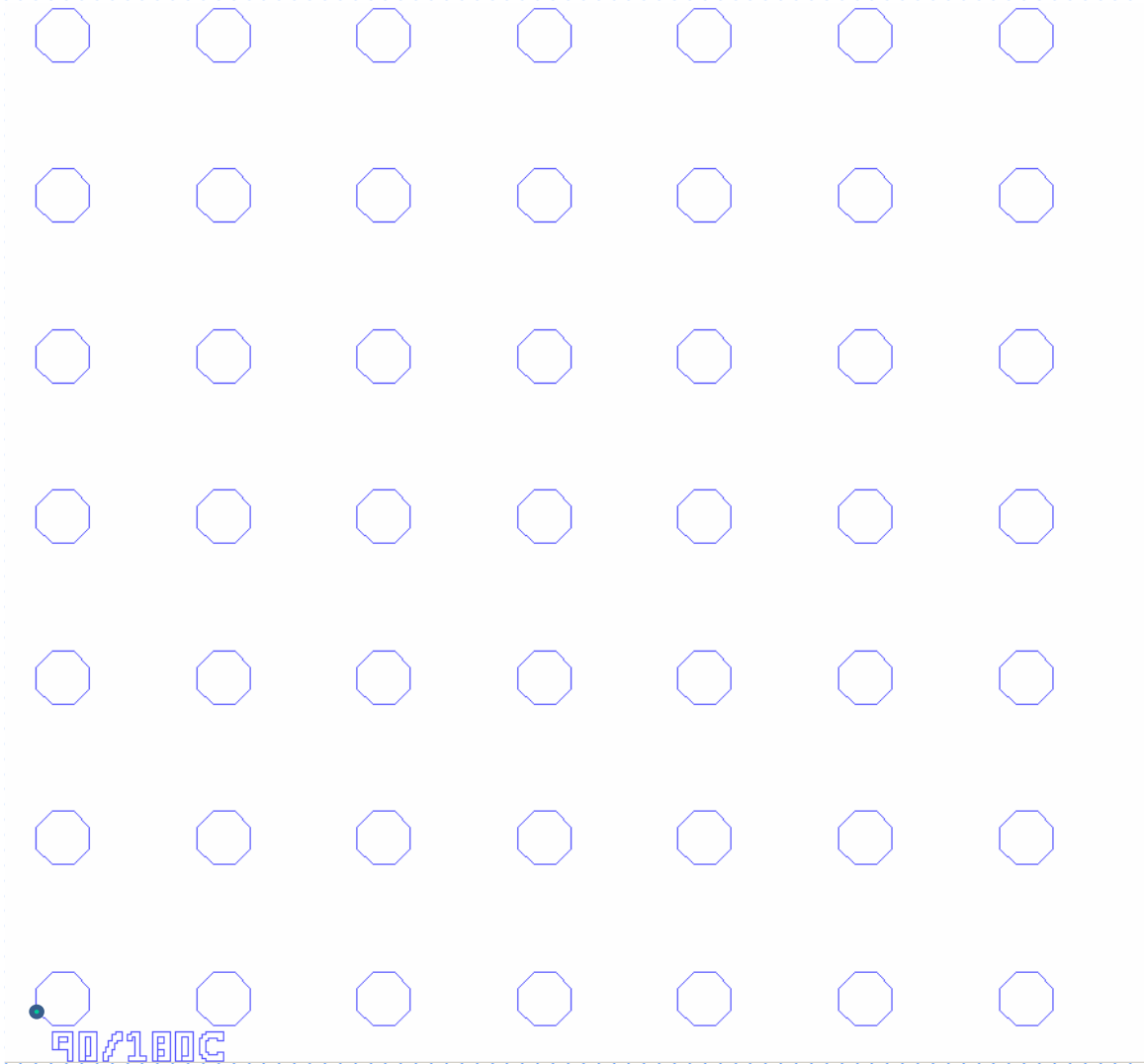
Cell #36



90/90C

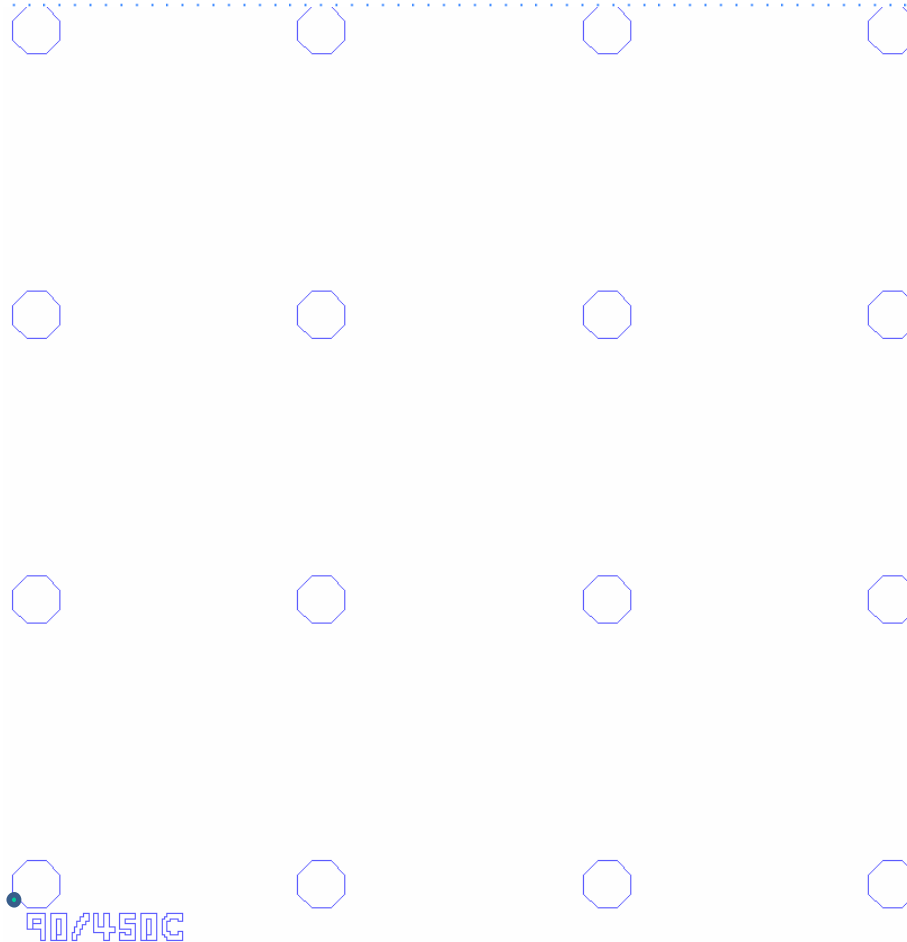
(10140,4177) / unit: um

Cell #37



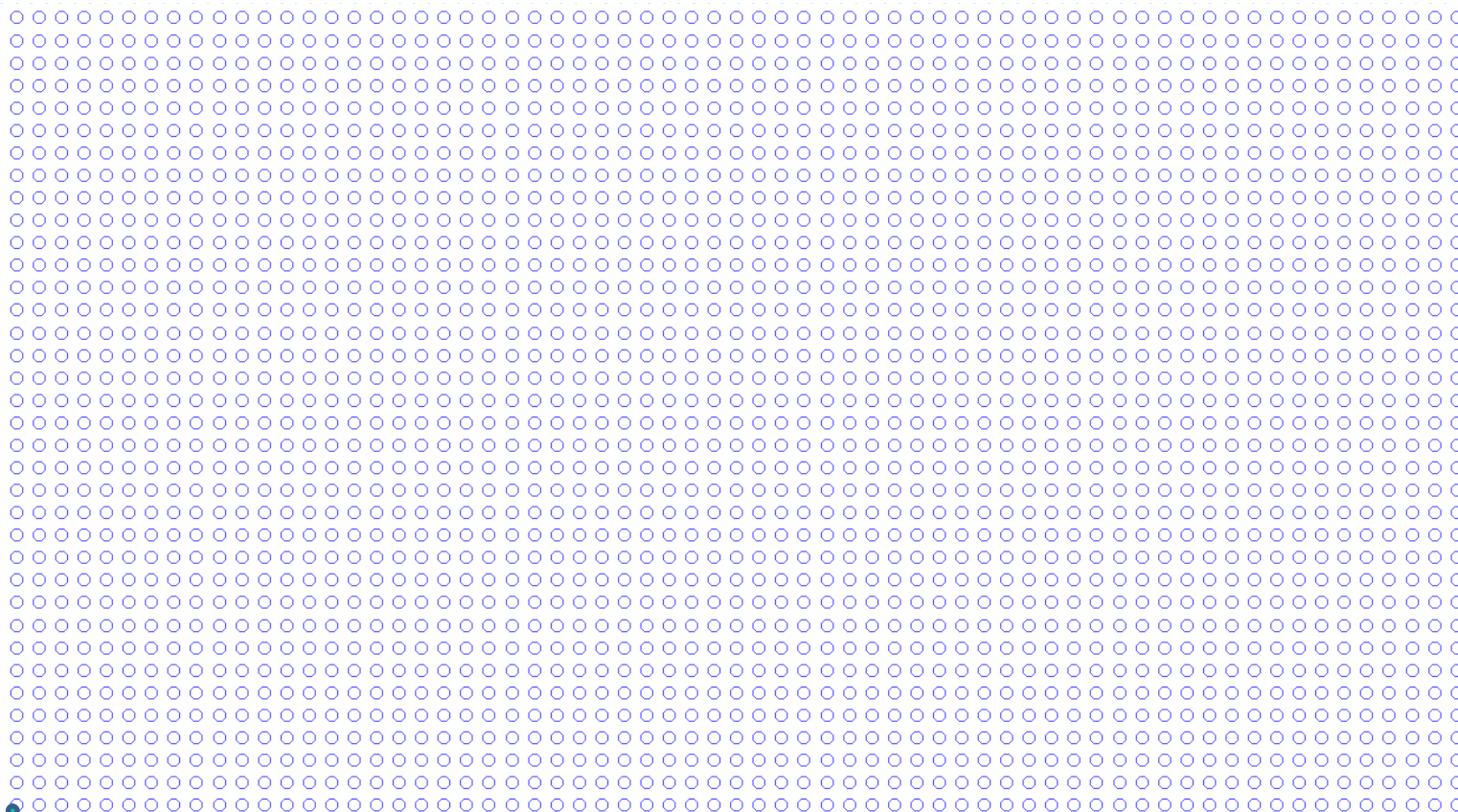
(12114.45, 4173.65) / unit: um

Cell #38



(14094.45, 4192) / unit: um

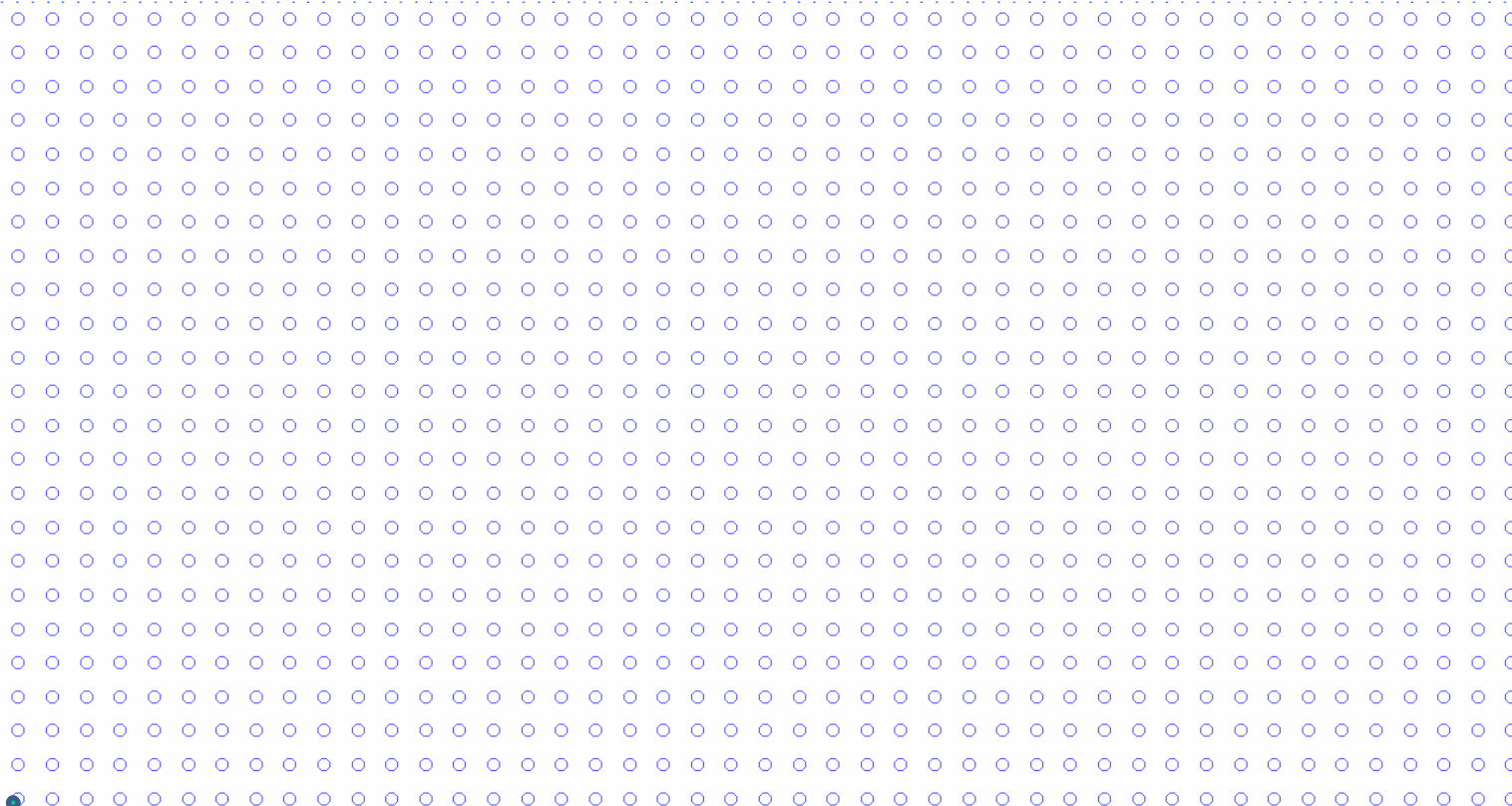
Cell #39



10/10C

(10110.9, 2201.90) / unit: um

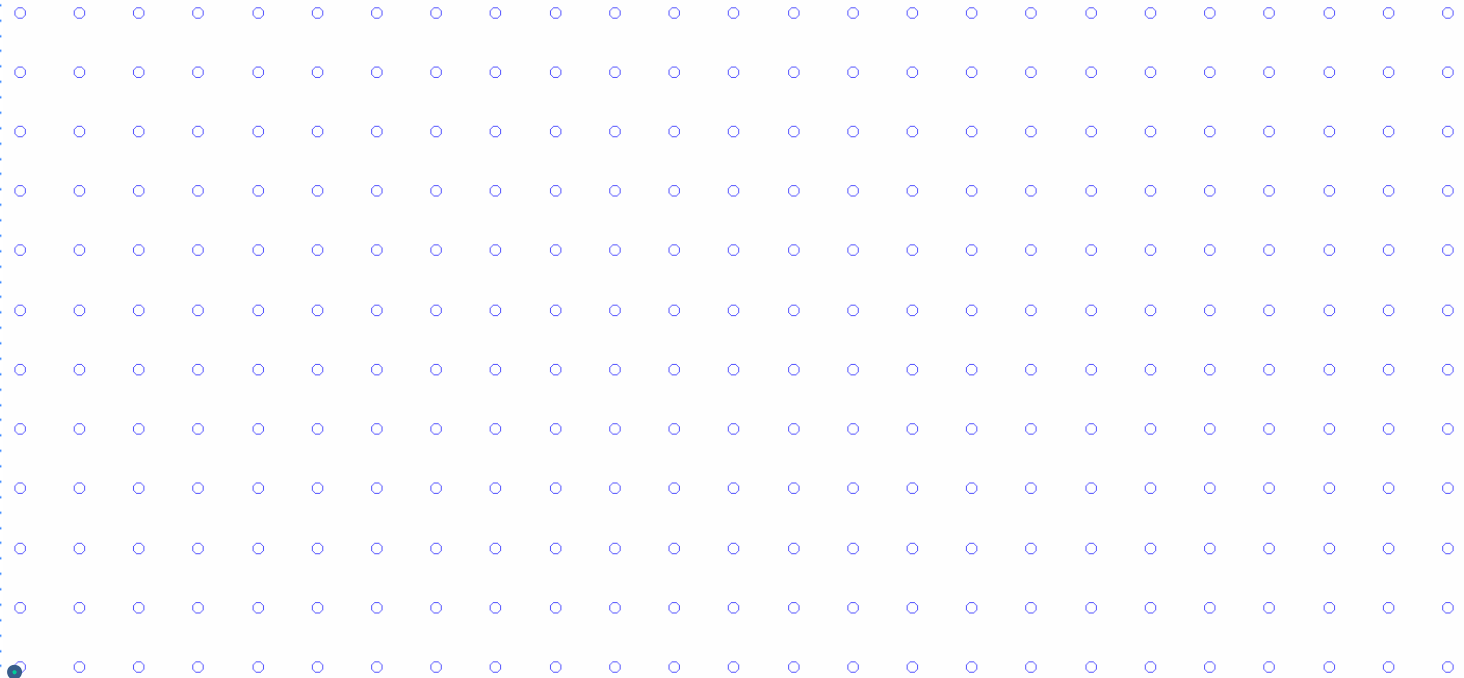
Cell #40



10/20C

(12119.4, 2210.8) / unit: um

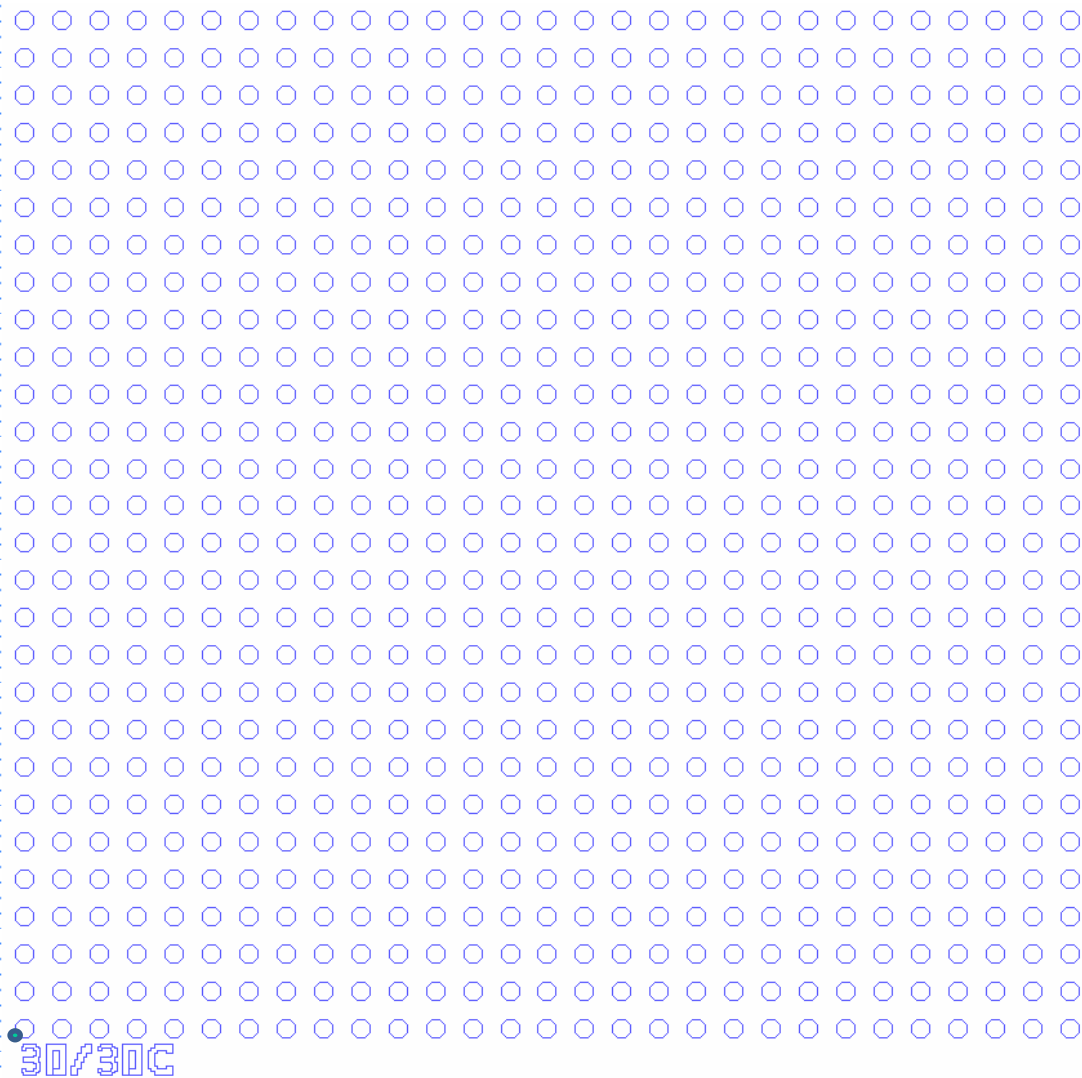
Cell #41



10/50C

(14074.95, 2240.8) / unit: um

Cell #42



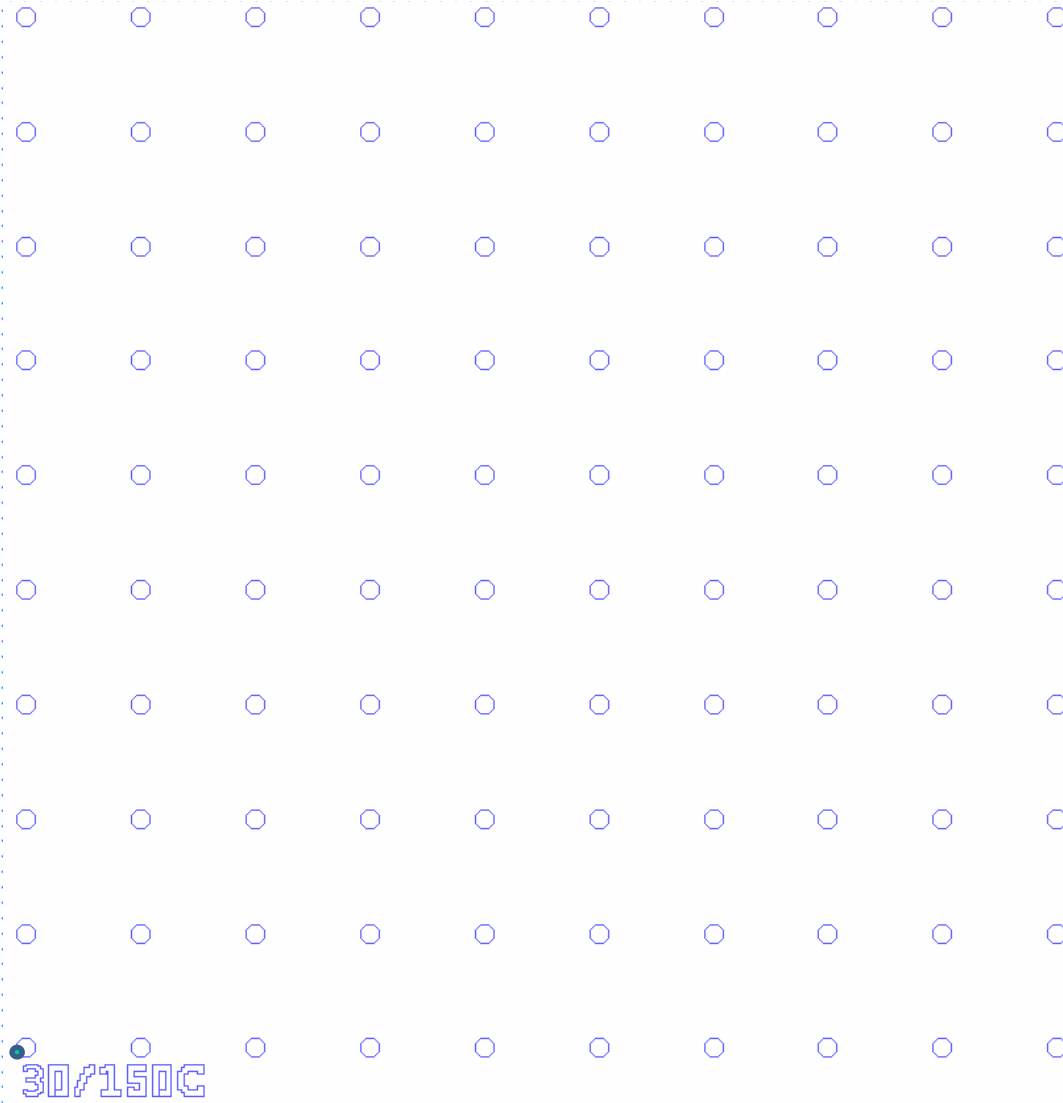
(10104.95, 265.35) / unit: um

Cell #43

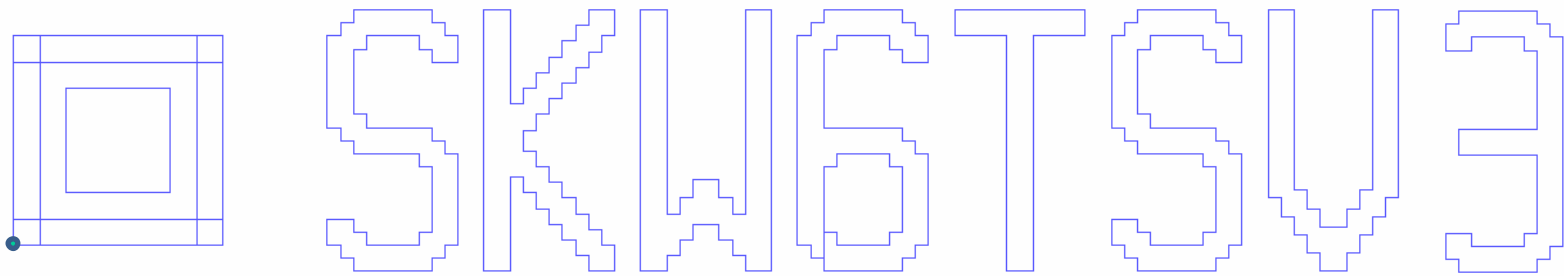


(12139.6, 264) / unit: um

Cell #44



(14134.85, 270.10) / unit: um



(200, 200) / unit=um