

850AZ

Reticle Design Description

General Description:

The 850AZ is an Etch Development Reticle set consisting of two levels, Poly and Contact. The structures in this design are Self-Aligned Contacts (SAC); Self-Aligned Local Inter-connect (SALI); and High Aspect Ratio (HAR)/ Bi-Level Contact structures.

Both the Poly and Contact level reticles were manufactured targeting 0.25um features.

The open are of the Poly reticle is 72.80%, the Contact is 11.05%

The die size is 20mm x 20mm. The floorplan is detailed in Figure 1 and the overall Die is pictured in Figure 1A. It consists of two identical halves.

Each of the halves contains SALI, SAC, and HAR/Bi-level structures. See Figure 2.

Structure Descriptions:

Self-Aligned Contact:

The Self –Aligned Contact structures are divided into two types; Single Poly, and Double Poly.

The Single Poly (SAC1) structures consist of contacts straddling the edge of a single Poly line. (See Figure 3)

The Double Poly (SAC2) structures consist of contacts between two Poly lines. (See Figure 4)

Self Aligned Local Interconnect:

The SALI structures are divided into three types, SALI-1, SALI-2, and SALI-3.

The SALI-1 structures are made up of rectangular contacts connecting two poly lines, with a single square contact on a third poly line parallel to the two connected by the rectangle. (See figure 5)

The SALI-2 structures are made up of rectangular contacts connecting four poly lines, with a single square contact on a fifth poly line parallel to the four connected by the rectangle. (See figure 6)

The SALI-3 structures are made up of L-shaped contacts straddling the edge of a poly line, with square contacts on a second poly line parallel to the first. (See figure 7)

Hi Aspect Ratio/Bi-level:

The HAR/Bi-level structure consists of rows of contacts with every other row being on top of a poly line.

Additionally, an array of large contacts with no poly lines is included.

Table 1

Note that this table contains “DESIGN SIZES” which do not necessarily reflect the sizes printed on the wafer.

Structure Type	Poly Line Width (um)	Poly Line Space (um)	Contact Size (um)
SALI-1	0.30	0.30	0.225
SALI-1	0.30	0.30	0.25
SALI-1	0.30	0.30	0.30
SALI-1	0.30	0.40	0.35
SALI-1	0.30	0.30	0.75
SALI-2	0.30	0.30	0.225
SALI-2	0.30	0.30	0.25
SALI-2	0.30	0.30	0.30
SALI-3	0.30	0.30	0.25
SALI-3	0.30	0.30	0.30
SAC-1	0.30	0.50	0.20
SAC-1	0.30	0.50	0.25
SAC-1	0.30	0.50	0.30
SAC-1	0.30	0.60	0.35
SAC-1	0.30	0.70	0.40
SAC-1	0.30	1.20	0.60
SAC-2	0.30	0.25	0.20
SAC-2	0.30	0.25	0.25
SAC-2	0.30	0.30	0.30
SAC-2	0.30	0.35	0.30
SAC-2	0.30	0.35	0.35
SAC-2	0.30	0.40	0.40
SAC-2	0.30	0.40	0.60
HAR/Bi-level	0.30	0.70	0.20
HAR/Bi-level	0.30	0.90	0.225
HAR/Bi-level	0.30	1.00	0.25
HAR/Bi-level	0.45	1.05	0.30
HAR/Bi-level	0.55	1.25	0.35
HAR/Bi-level	0.60	1.40	0.40
HAR/Bi-level	-----	-----	1.00

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Floorplan

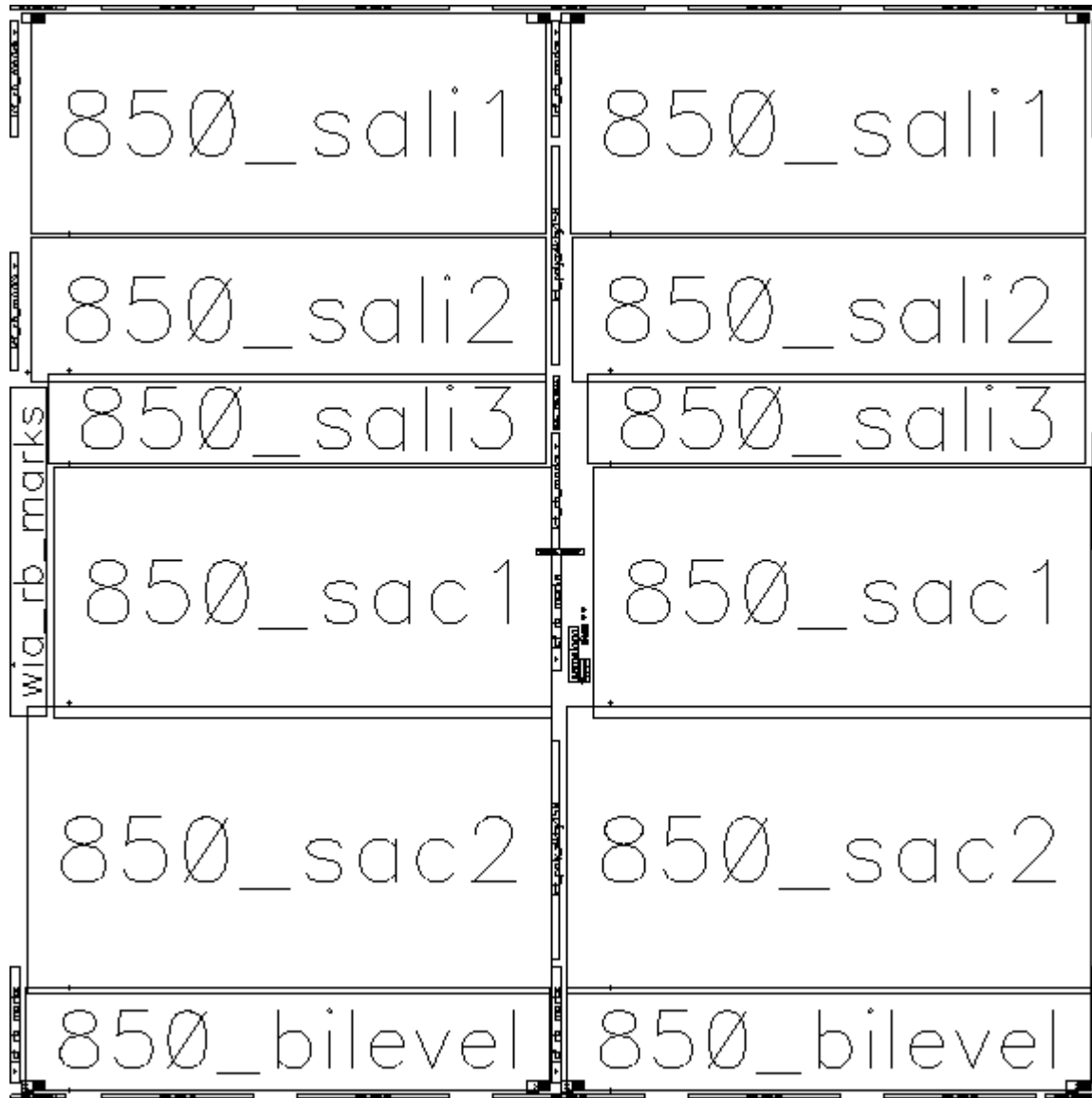


FIGURE 1

850AZ Half Quad

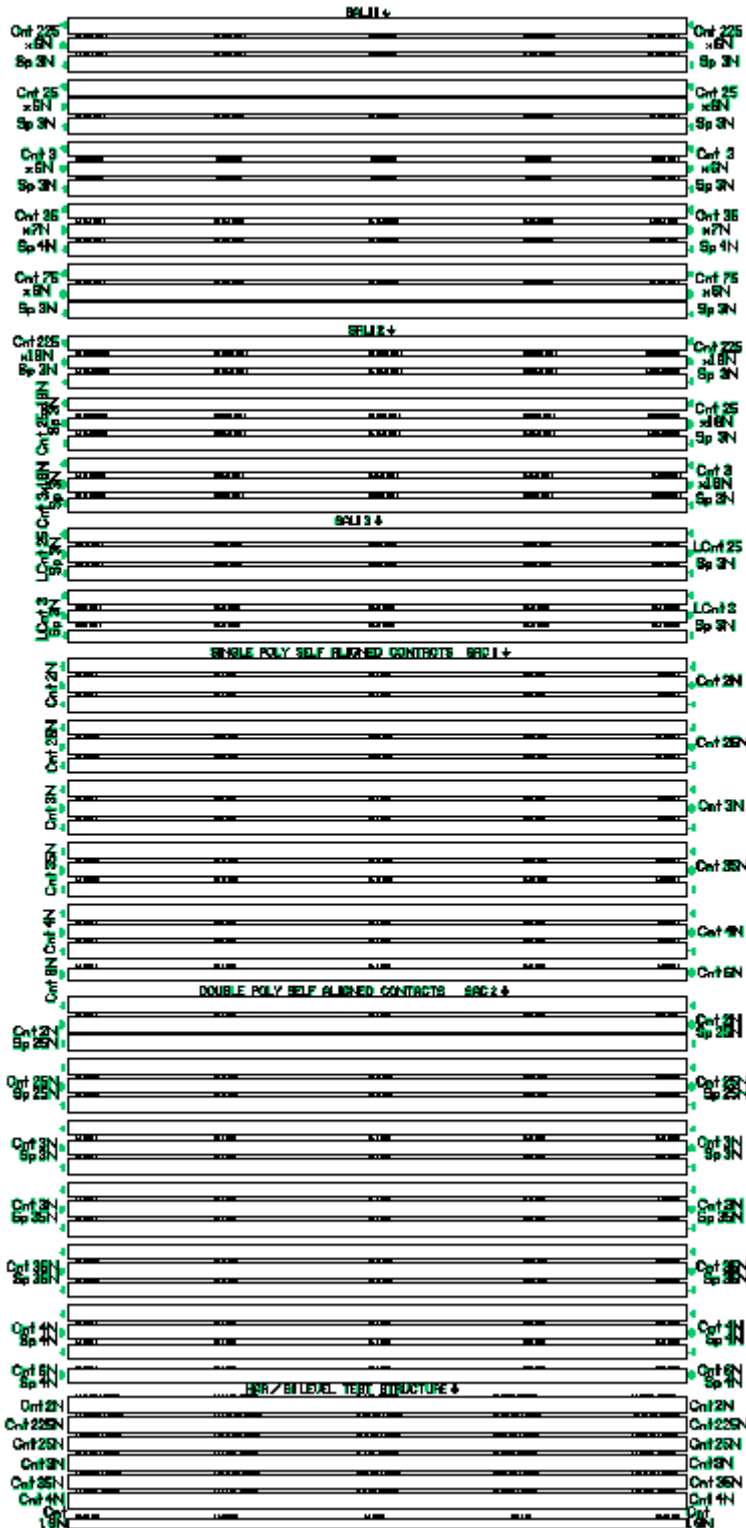


Figure 2

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Single Poly Self Aligned Contacts

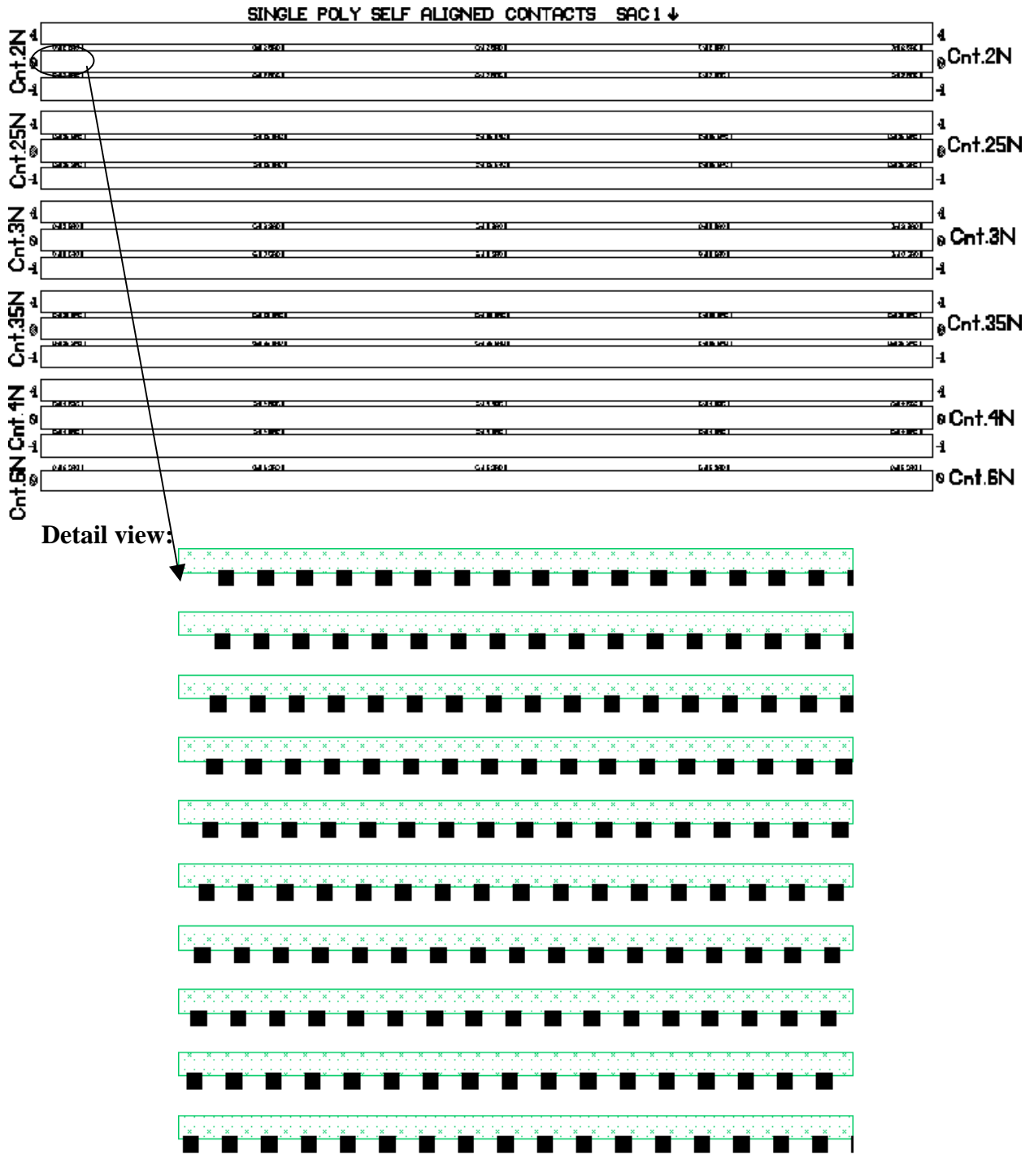


FIGURE 3

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Double Poly Self Aligned Contacts

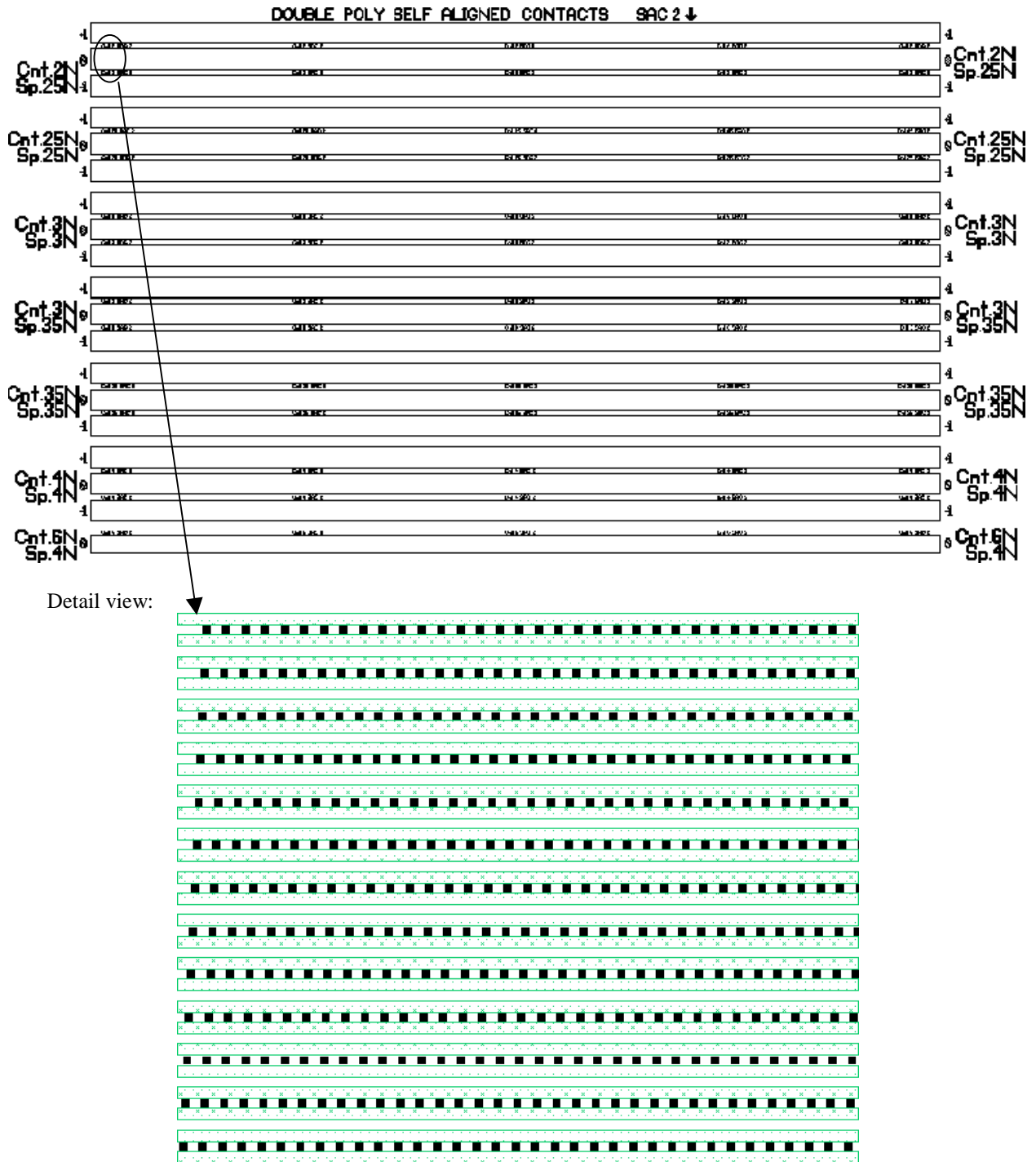
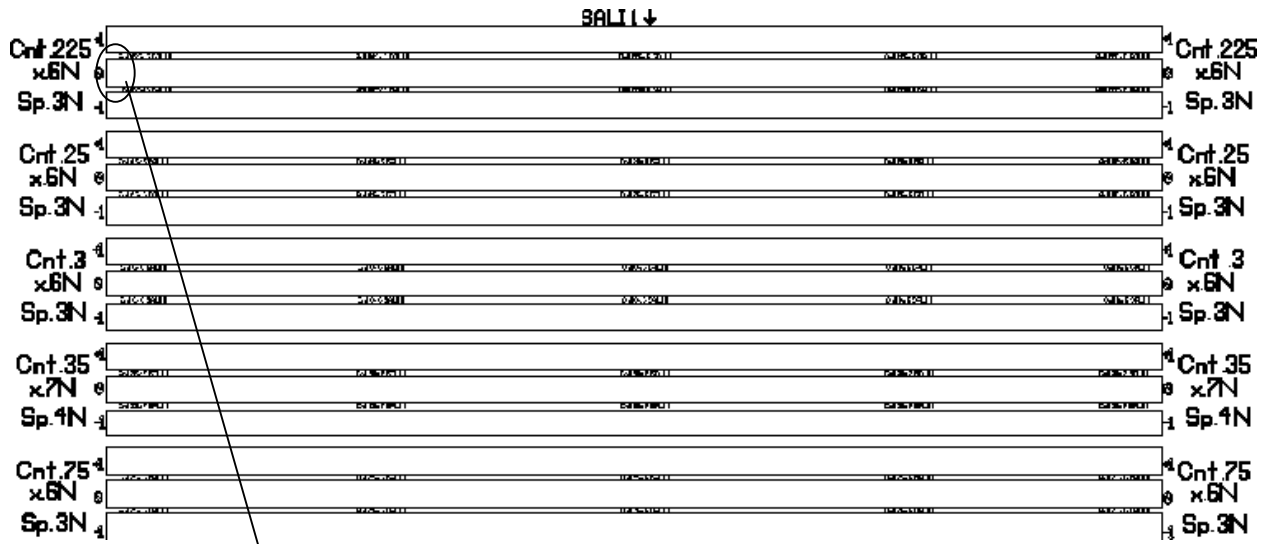


FIGURE 4

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SALI - 1



Detail View:

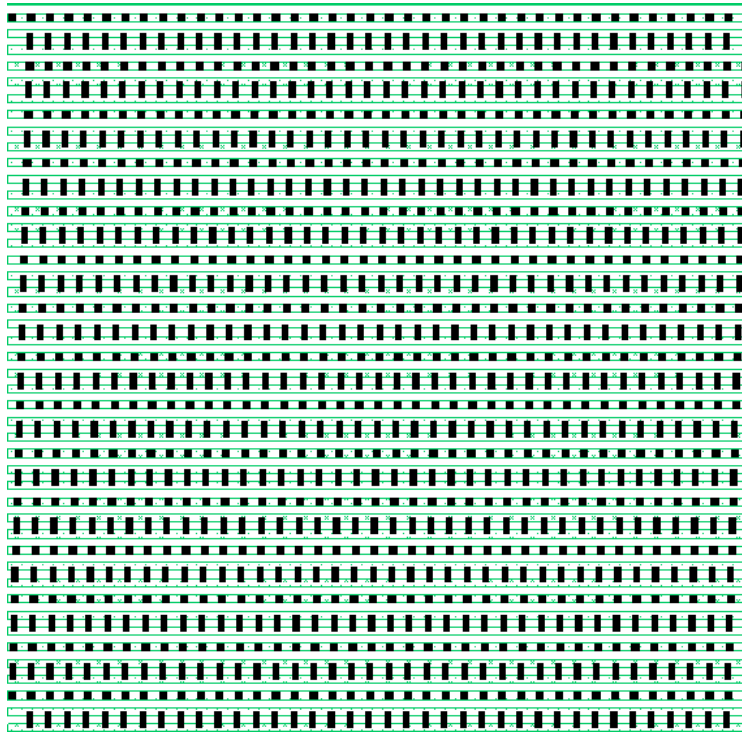
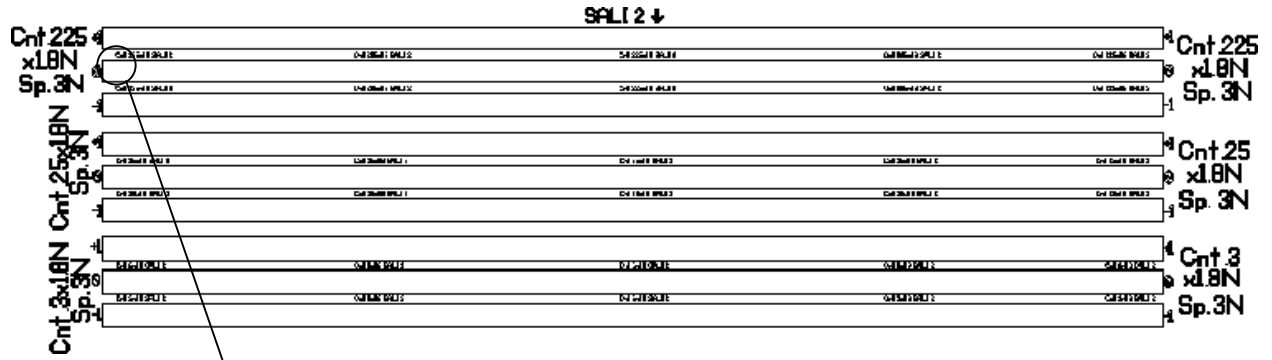


FIGURE 5

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SALI - 2



Detail View:

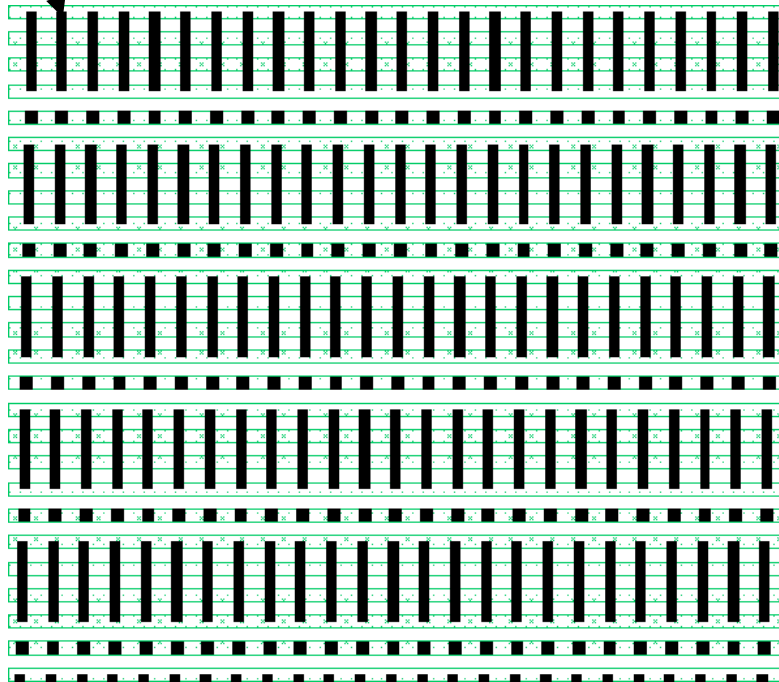
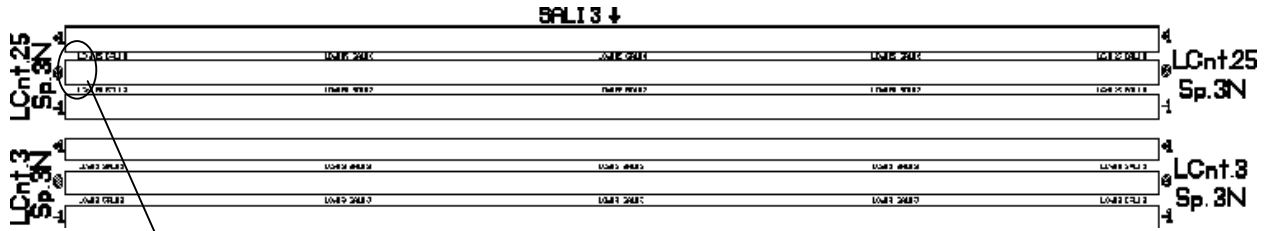


FIGURE 6

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SALI - 3



Detail View:

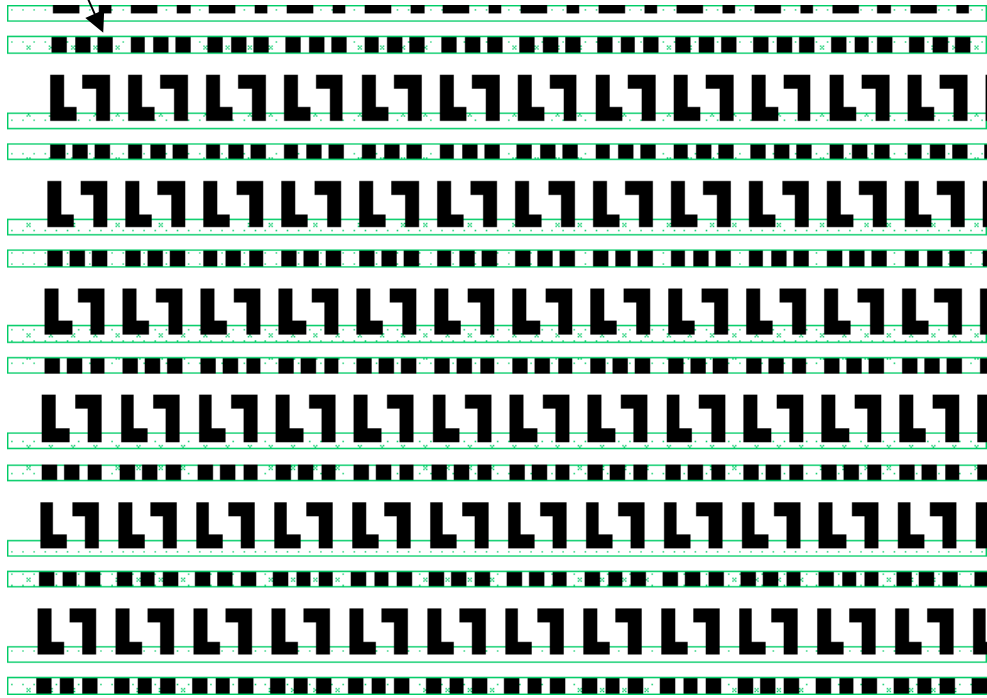


FIGURE 7