

401AZ

Reticle Design Description

General Description:

The 401AZ is a binary line/space poly reticle. The reticle contains nine line/trench structures, nine electrically testable line width structures, six scatterometry structures, and eight VHorgs.

The reticle was built targeting 0.100um features.

The open area of the reticle is 72.51%

The overall die size is 25mm X 20mm, but the structures are limited to a 22mm X 20mm area.

The field layout is illustrated in **Figure A** and the floor plan is shown in **Figure B**.

List of Structures:

The structures featured on this reticle are listed below, with a more detailed description in the next section.

1. Line / Trench Structure (**Figure C**)
2. Line Width Structure (**Figure C**)
3. Scatterometry Structure
4. VHorgs

Structure Descriptions:

1. *Line / Trench Structure*: The structure contains a horizontal and vertical line module and a horizontal trench module. Each size is labeled with the pitch and a letter label indicating the line/trench size (Ex. A = 70nm, B = 80nm, C = 90nm, etc.) The sizes and pitches are listed in **Table 1**.

2. *Line Width Structure*: The structure is placed four times (2, darkfield & 2, clearfield) within each line/trench structure. There are four sizes in the line width structure, .2um, .15um, .1um, and .08um, and each contains an isolated line, an iso-blocked line, and a 2:1 pitch. Each structure is equipped with a standard pad set for electrical testing.

3. *Scatterometry Structures*: Each size and pitch is divided into a 200 x 200um box. The lines run horizontally, however, the 1:1 are also placed vertically in a separate module near the horizontal structures. The sizes and pitches are listed in **Table 2**.

4. *VHorgs*: The VHorgs are in both darkfield and clearfield. There are eight electrically testable VHorgs, four clearfield and four darkfield. The line sizes/pitches are as follows (sizes are in nanometers): L100P220, L100P400, L130P260, L130P500.

LINE/SPACE – Table 1			
Line Width (nm)	ID Label	Pitch (nm)	Pitch Ratio
70	A	210	2:1
70	A	280	3:1
70	A	1000	ISO
80	B	160	1:1
80	B	240	2:1
80	B	320	3:1
80	B	1000	ISO
90	C	180	1:1
90	C	270	2:1
90	C	360	3:1
90	C	1000	ISO
100	D	200	1:1
100	D	220	1.2:1
100	D	300	2:1
100	D	400	3:1
100	D	600	5:1
100	D	1000	ISO
110	E	220	1:1
110	E	270	1.45:1
110	E	330	2:1
110	E	440	3:1
110	E	660	5:1
110	E	1000	ISO
120	F	220	.83:1
120	F	240	1:1
120	F	300	1.5:1
120	F	360	2:1
120	F	480	3:1
120	F	720	5:1
120	F	1000	ISO
130	G	240	.85:1
130	G	260	1:1
130	G	320	1.46:1
130	G	390	2:1
130	G	520	3:1
130	G	780	5:1
130	G	1000	ISO

LINE/SPACE – Table 1 cont.			
Line Width (nm)	ID Label	Pitch (nm)	Pitch Ratio
140	H	260	.86:1
140	H	280	1:1
140	H	340	1.43:1
140	H	420	2:1
140	H	560	3:1
140	H	840	5:1
140	H	1000	ISO
160	I	280	.75:1
160	I	320	1:1
160	I	400	1.5:1
160	I	480	2:1
160	I	640	3:1
160	I	960	5:1
160	I	1500	ISO
180	J	360	1:1
180	J	720	3:1
180	J	1500	ISO
200	K	400	1:1
200	K	800	3:1
200	K	1500	ISO
250	L	500	1:1
250	L	1000	3:1
250	L	1500	5:1
350	M	700	1:1
350	M	1400	3:1
500	N	1000	1:1
500	N	2000	3:1

SCATTEROMETRY – Table 2		
Line Width (nm)	Pitch (nm)	Pitch Ratio
80	160	1:1
80	240	2:1
80	320	3:1
80	480	5:1
90	180	1:1
90	270	2:1
90	360	3:1
90	540	5:1

SCATTEROMETRY – Table 2 cont.

Line Width (nm)	Pitch (nm)	Pitch Ratio
100	200	1:1
100	300	2:1
100	400	3:1
100	600	5:1
110	220	1:1
110	330	2:1
110	440	3:1
110	660	5:1
120	240	1:1
120	360	2:1
120	480	3:1
120	720	5:1
130	260	1:1
130	390	2:1
130	520	3:1
130	780	5:1
140	280	1:1
140	420	2:1
140	560	3:1
140	840	5:1
160	320	1:1
160	480	2:1
160	640	3:1
160	960	5:1

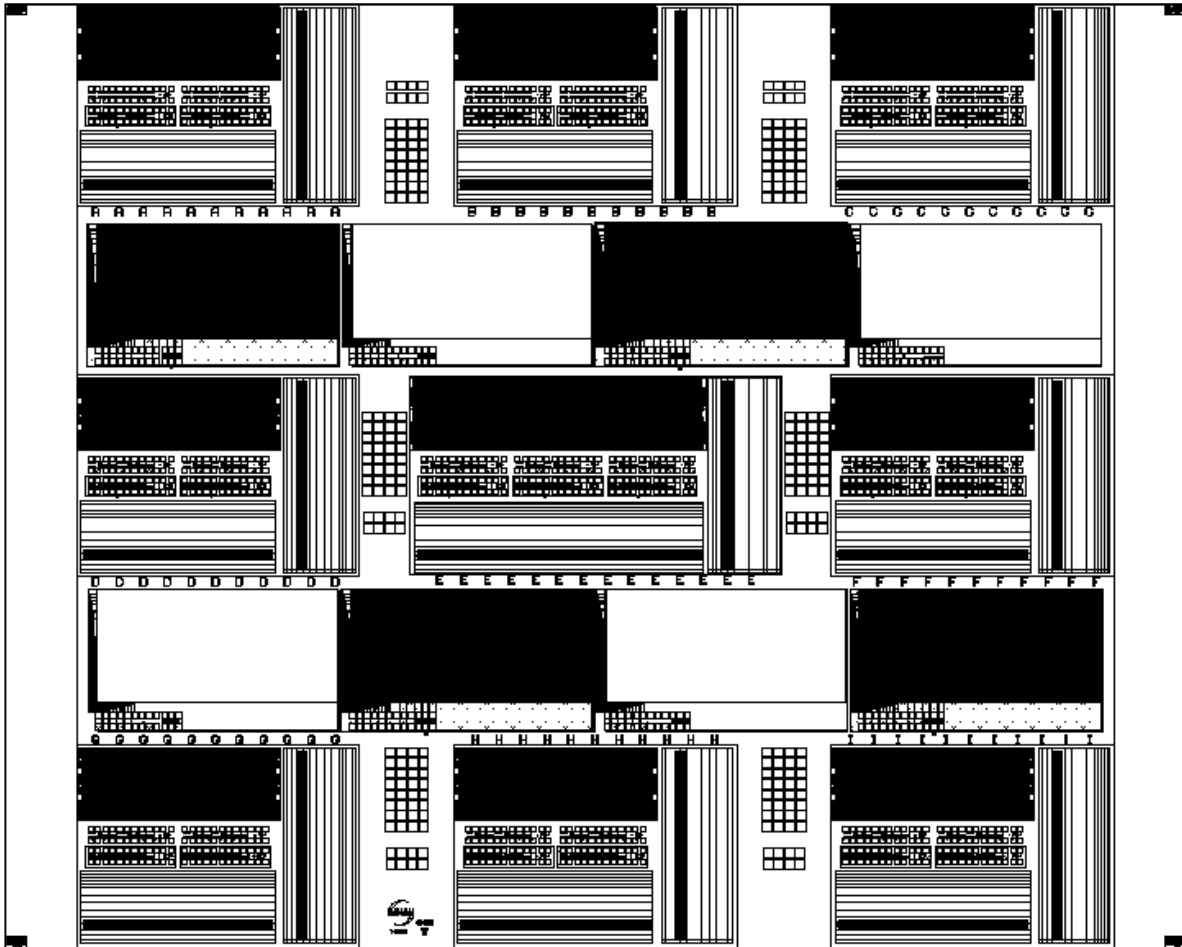


Figure A

