SUMMiT V Fabrication Design Review Checklist

This checklist is intended to increase the chance of first pass success for designers working with the SUMMiT V technology. Please interrogate your design with each of the following checklist topics. You will be asked for verification that this checklist was completed upon design submission.

1) Verify that all traces are connected properly. If the die will be packaged, pull all traces out to bond pads on the die perimeter. For thermally actuated devices, the traces should be wide and should be metallized whenever possible to reduce the series resistance of the trace.

2) Review the design for interferences. Individual devices are often designed in isolation and then "assembled" into the final module layout. During this final assembly it is common to see layout errors where designs may be overlapping or where designs will encounter mechanical interference during operation/motion. Verify that there is adequate space around each different device in the layout.

3) Consider the location of etch release holes and dimples. Etch release holes should be placed every 25 microns. Insure that dimples will not interfere with lower level etch release holes or topography. Look for dimples “out in space” that may be unintended and could impact function of design.

4) Because features in AutoCAD are drawn as only an outline (as opposed to a shaded feature as is common in IC layout tools), it is easy to have layout errors associated with features that are hidden underneath a coincident feature. The easiest way to check for this type of error is to utilize the "isolate" commands in the Sandia AutoCAD toolset. For example, the command "im4" will freeze (turn off) all layers except for the MMPOLY4 layer. Similarly, "is4c" will freeze all layers except for the SACOX4_CUT layer. This provides a quick and easy way to walk through the layer stack in a design and verify that features are drawn as expected. The complete list of "isolate" commands is described in the Sandia Toolset help file.

5) Inspect each poly level with their associated anchor layer. Look for poly structures without anchors, investigate each occurrence for possibility of “floater” creation. Also insure all gears are anchored.

6) Inspect all poly layers one at a time for unintended polygon inside polygon features.

7) Inspect all poly cut layers for odd geometry; insure no mistake was made in drawing feature in the Cut layer instead of Poly layer.

8) Verify that the MMPOLY0 layer is used properly. It should be underneath all SACOX1_CUT features, and should not short across parts of the design intended to be at different electrical potentials.

9) When the design is complete, refer to Pre-Submission Checklist and follow all instructions before submitting design.
   Pre-Submission Checklist for SAMPLES:
   http://mems.sandia.gov/samples/checklist.html
   Pre-Submission Checklist for University Alliance:
   http://drc.sandia.gov/scripts/UniversityAlliance/SubmitDesign.asp

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