Laser Testing for Latchup in COTs Parts

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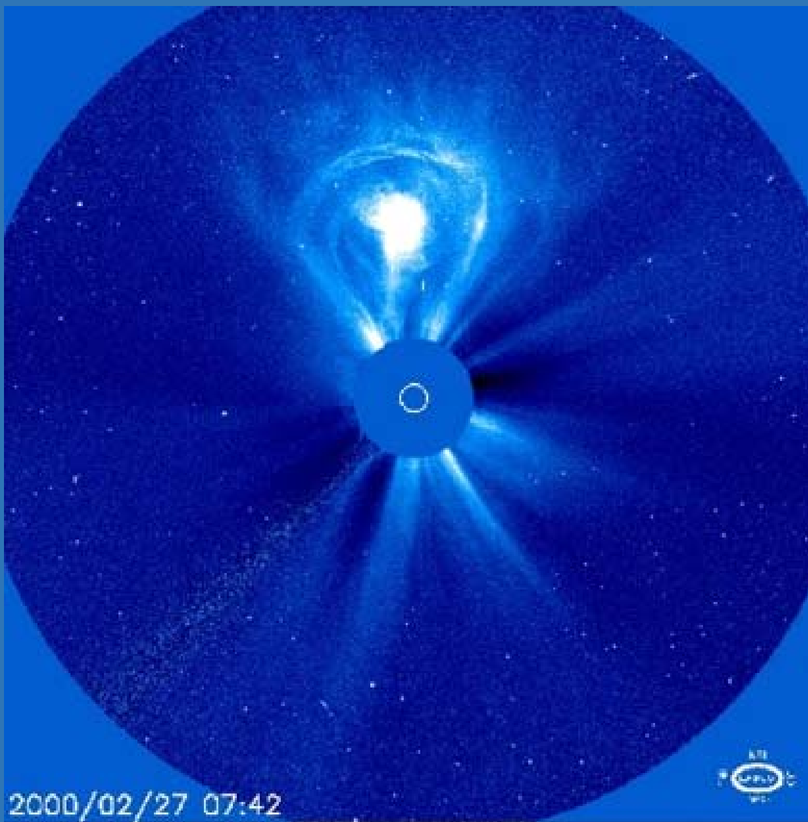
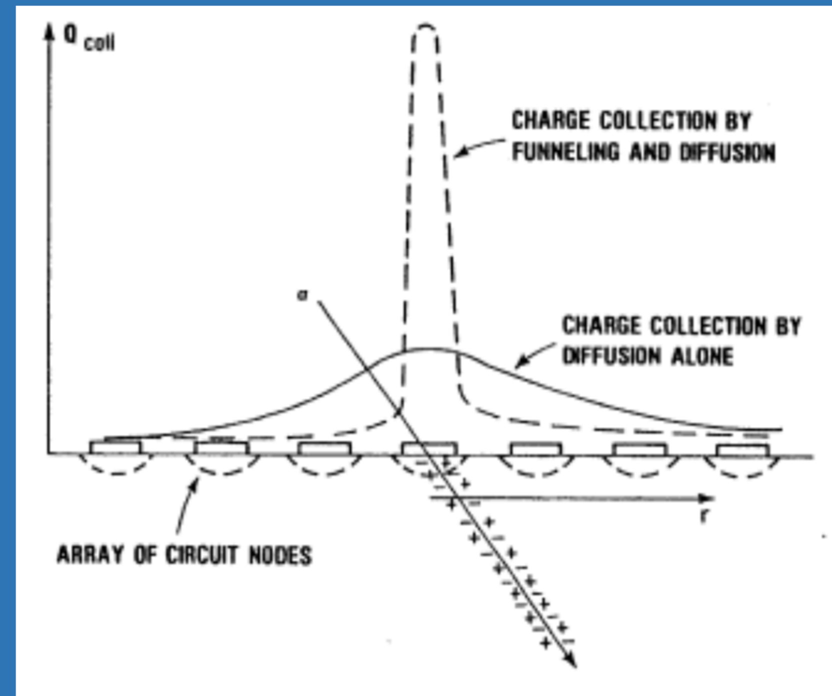
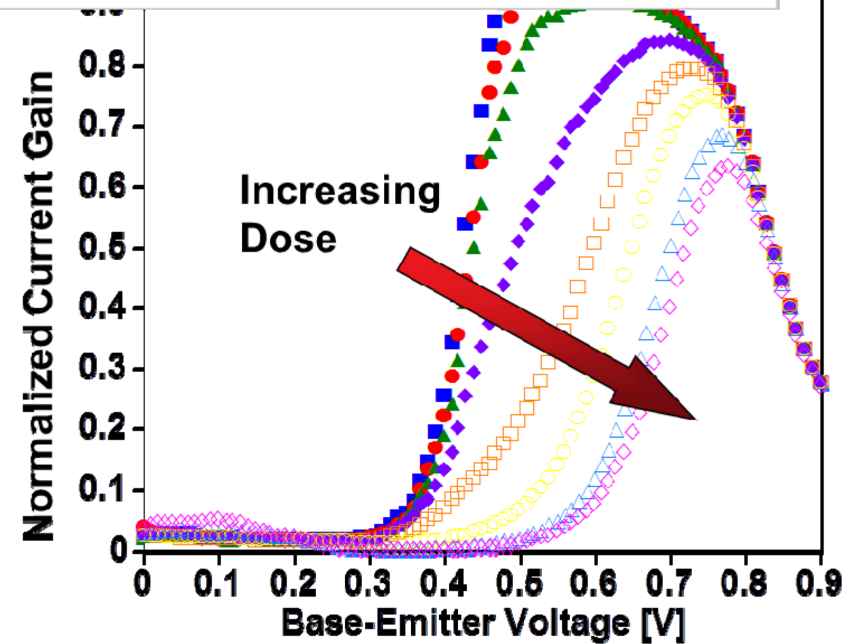
Introduction

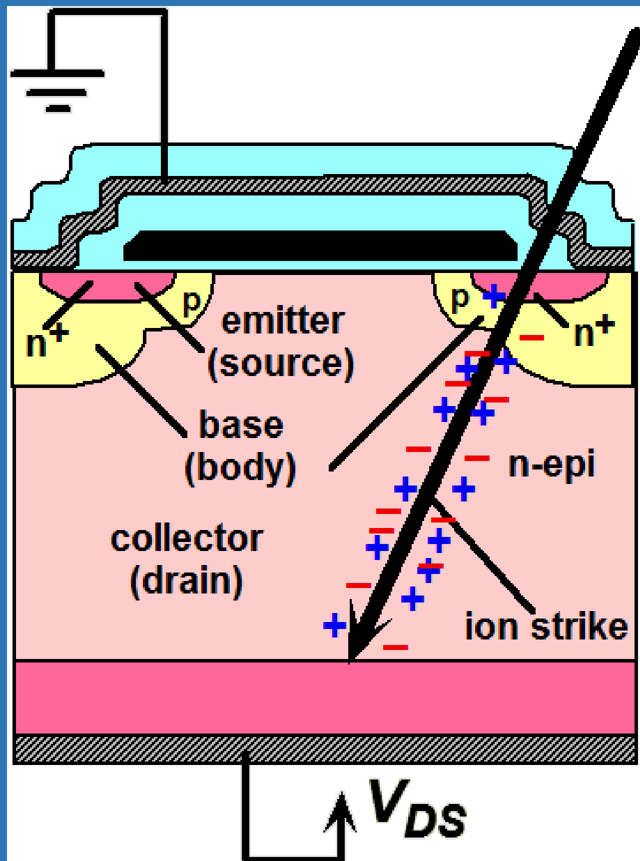


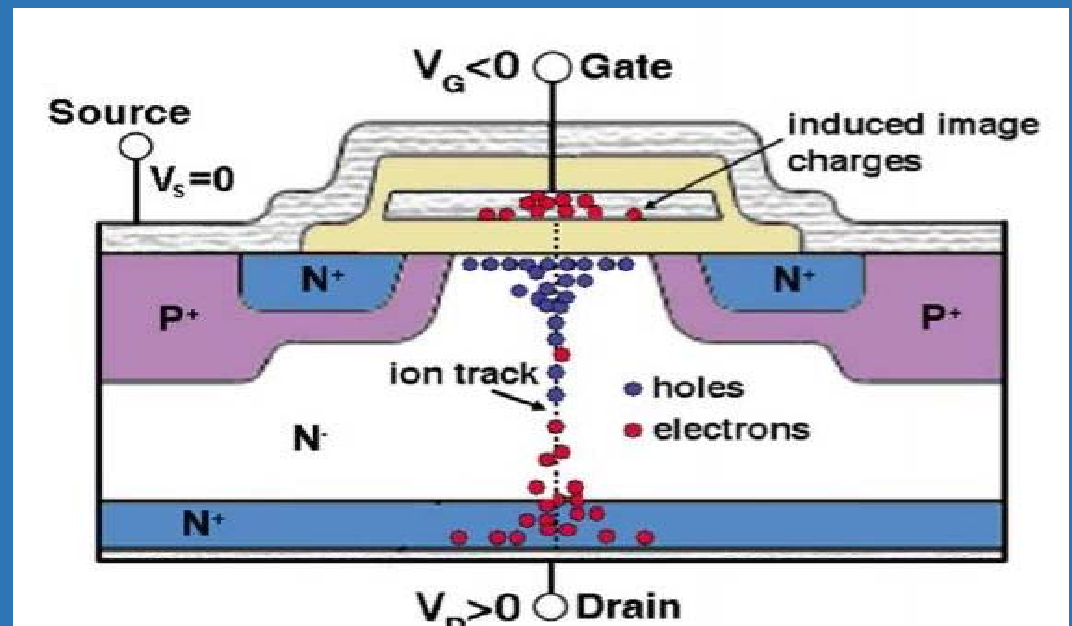




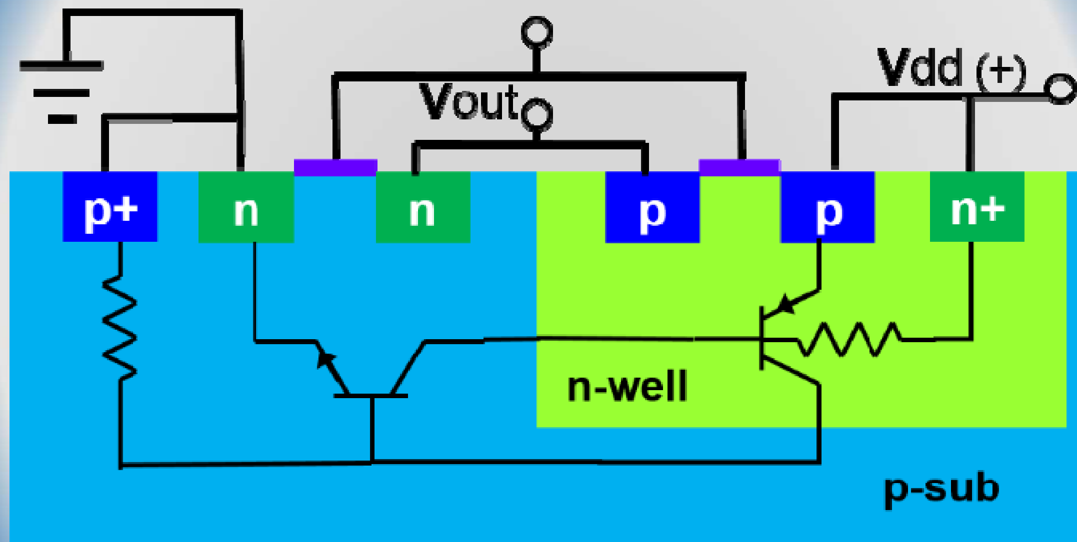
https://www.nasa.gov/sites/default/files/thumbnails/image/faq4.jpg
McLean, IEEE NSREC 1982

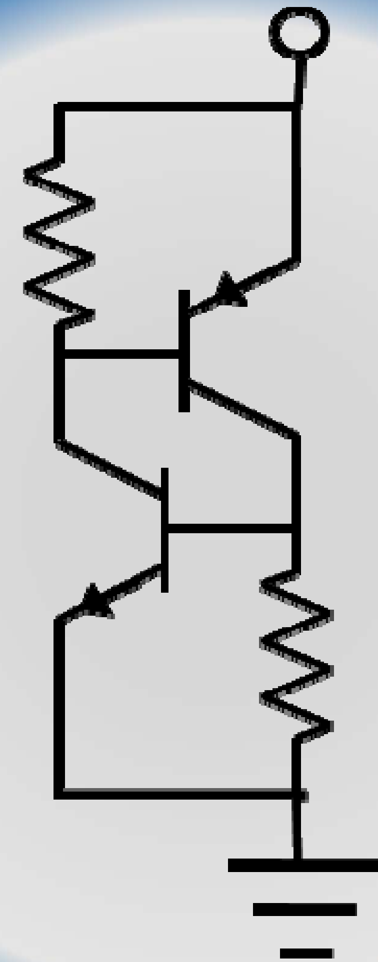
Destructive SEE



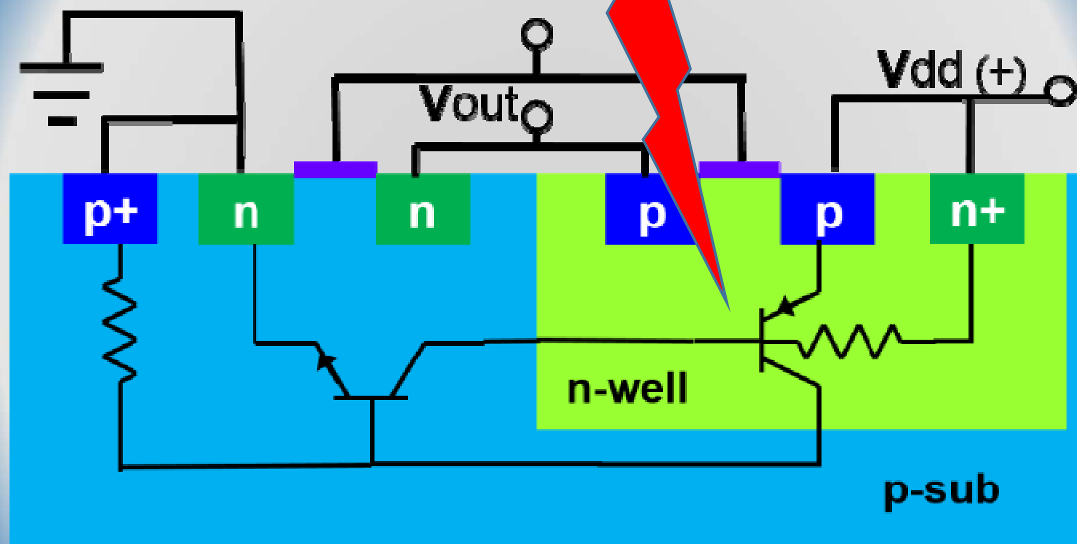


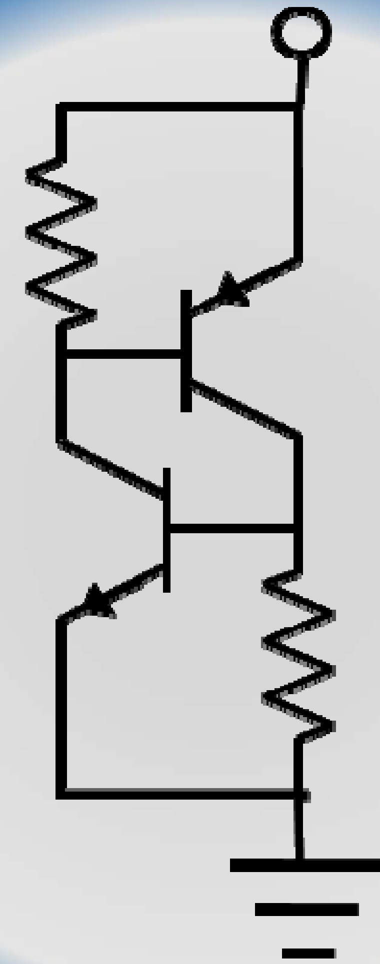
Single-Event Latchup



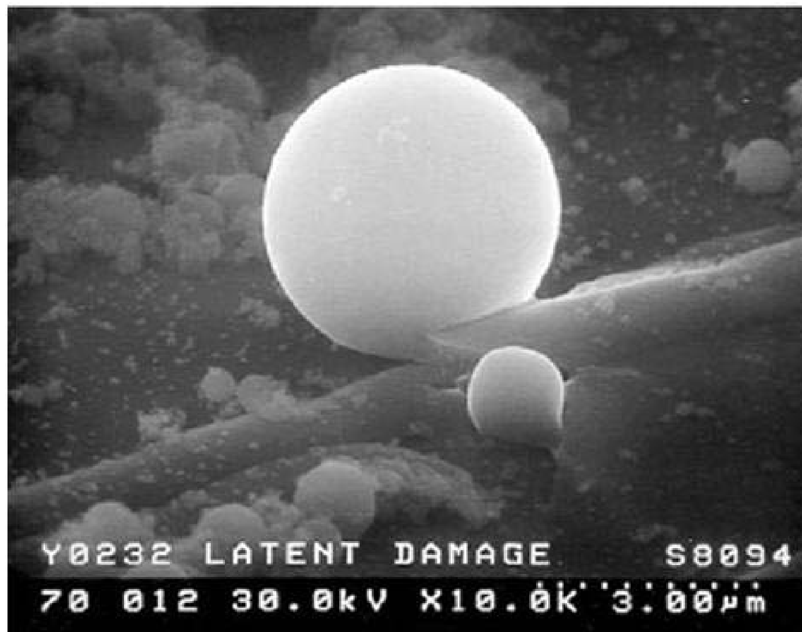


Single-Event Latchup

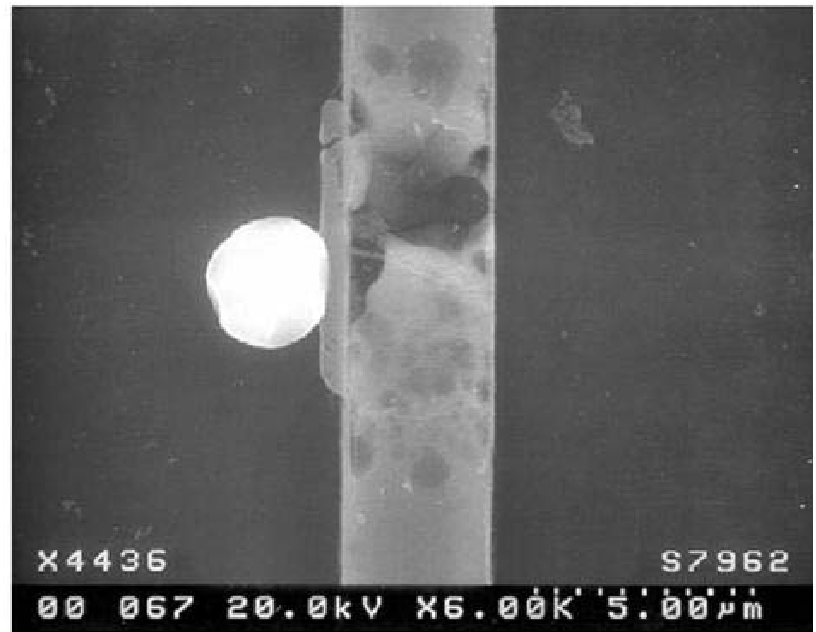




On-Chip Damage



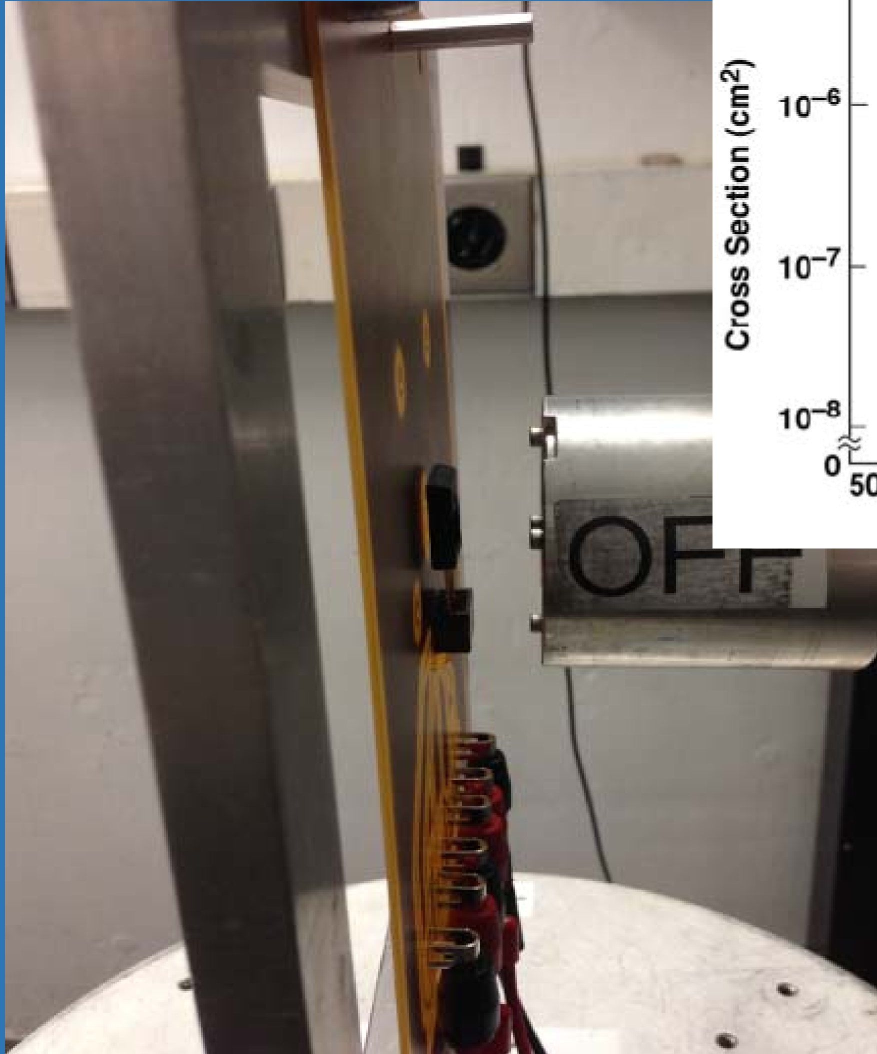
(a)

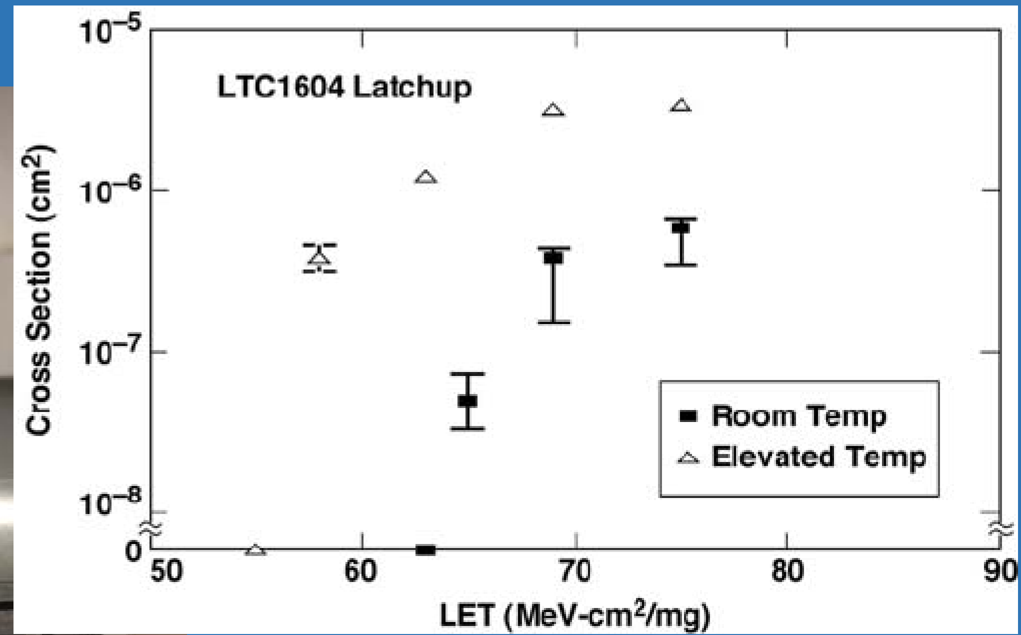


(b)

Becker, 2002

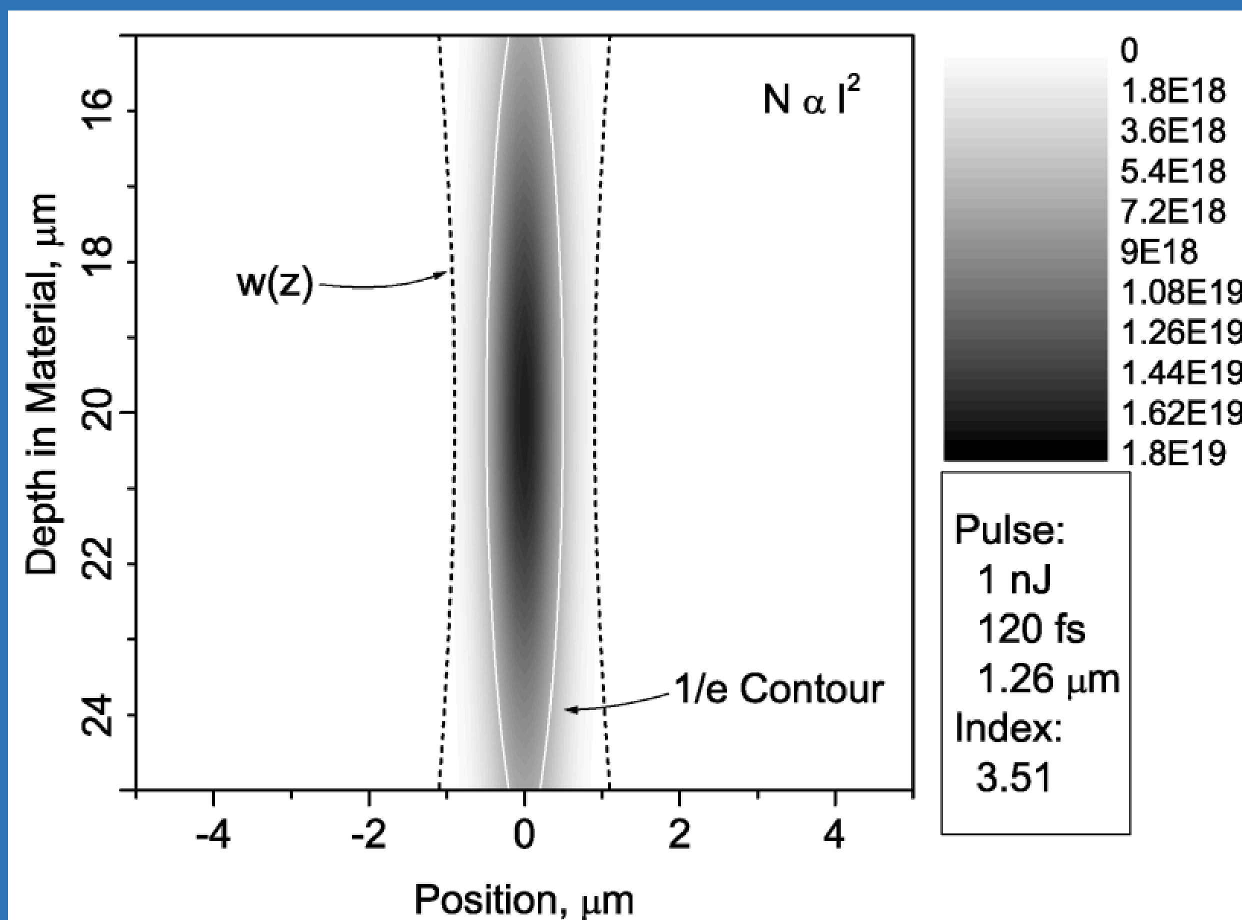
SEL Testing





Irom, REDW 2006

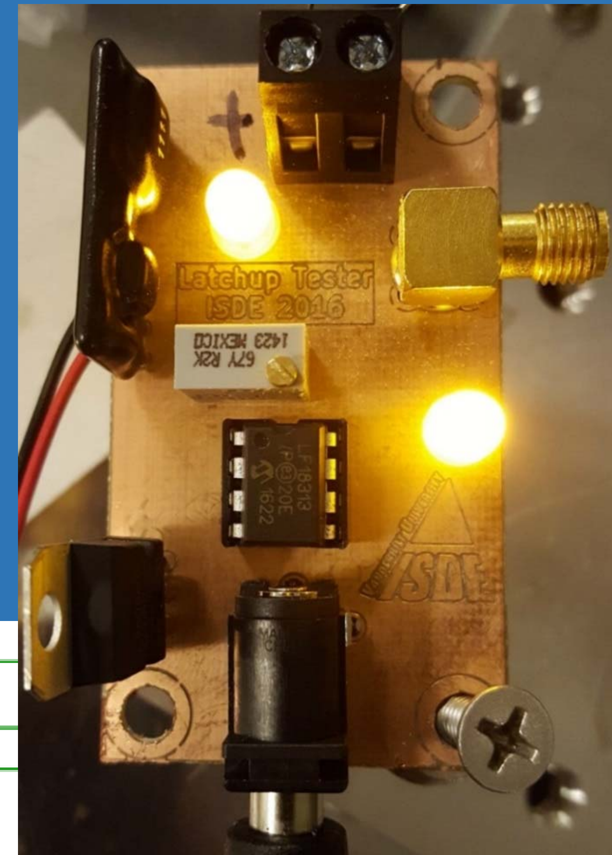
SEL

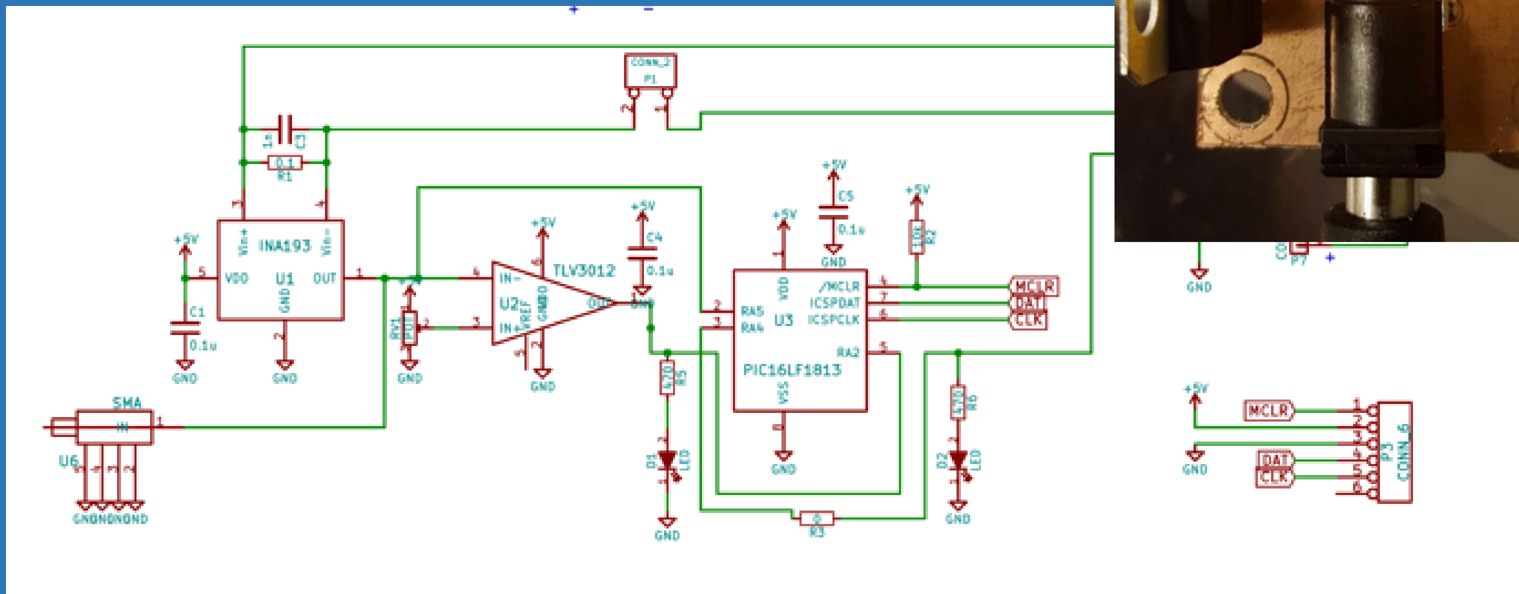


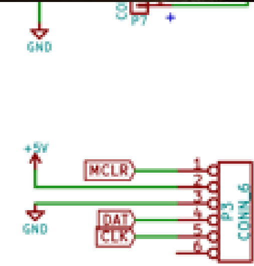
McMorrow, 2002

Our Laser

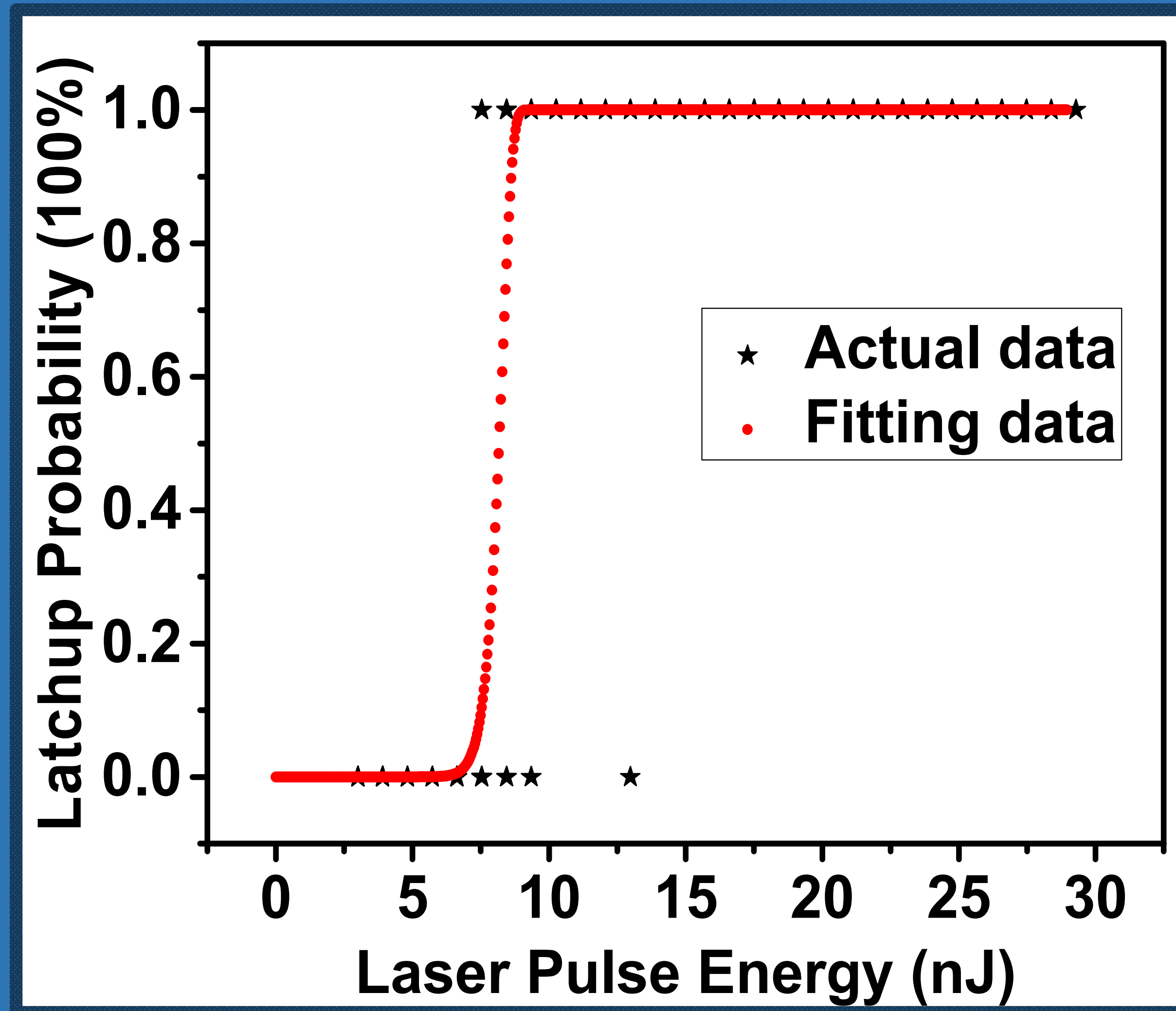
Latchup circuit



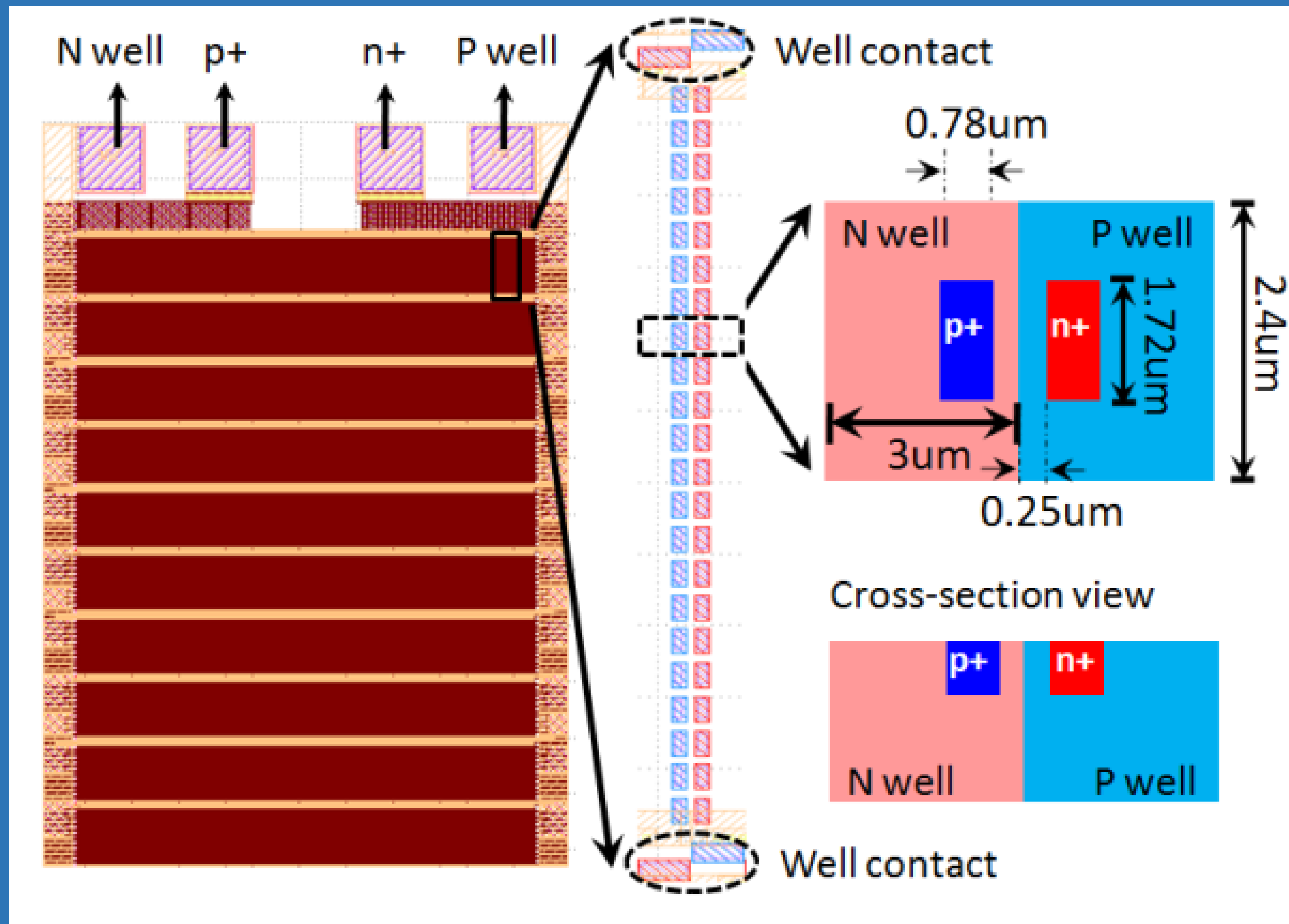




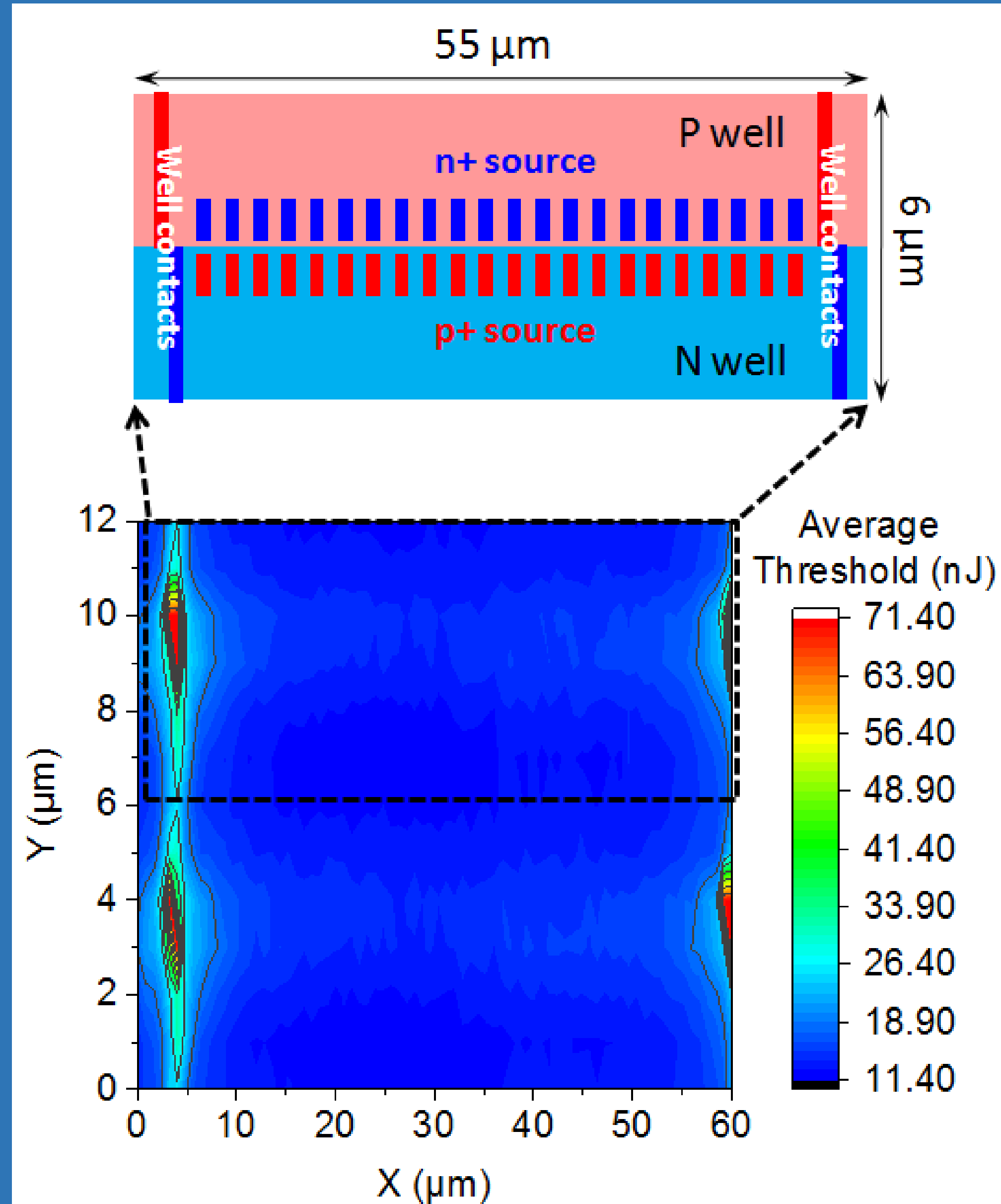
Latchup circuit



Test Circuit



Test Results



Sample Prep

- Package preparation
  - Chemical
  - Mechanical
  - Repackage
- PCB prep

Conclusion

- Diagnostic technique
- Quickly eliminate sensitive parts
- Reduce cost of heavy-ion testing