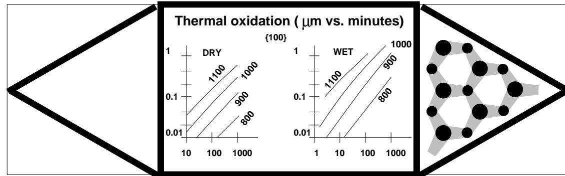
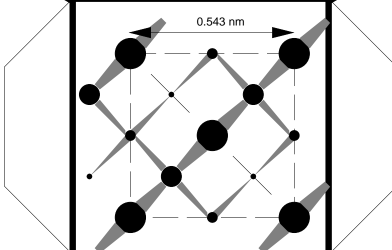
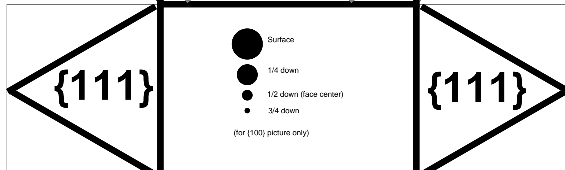




{111}



{111}

(001)

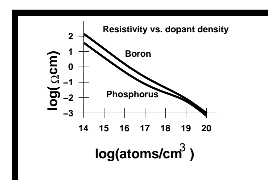
Etch rate in KOH

44 gm in 100ml H_2O @ 85 C
{100} 1.4
{111} 0.0035 μ/min
SiO_2 0.0014
Si_3N_4 not etched

$(\bar{1}\bar{1}1)$

(101)

(111)



Etching Si+Boron

Presence of boron reduces etch rate in KOH and EDP.
No dependence below 10^{19}/cm^3. At 10^{20}/cm^3 reduced by 100 (EDP) reduced by 10–100 (KOH).

$(0\bar{1}0)$

$(1\bar{1}0)$

Available via anonymous ftp
from synergy.icsl.ucla.edu
in pub/crystal.i – ksjp

(100)

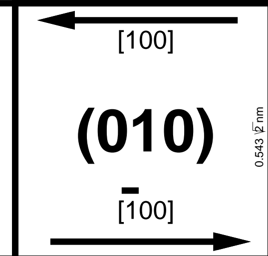
pister@ee.ucla.edu, 1/26/93

(110)

[100]

(010)

$[\bar{1}00]$



Etch rate in EDP

750 ml Ethylene Diamine
120 gm Pyrocatechol
100 ml water @115C
{100} 0.75
{111} 0.021 μ/min
SiO_2 0.0002
Si_3N_4 0.0001

110

<100>

(abc) specific plane
{abc} equivalent planes
[abc] specific direction
<abc> equivalent directions

0.543 √2 nm

Single crystal silicon

$_{14}Si^{28.1}$

density: 2.33 gm/cm^3
melting point: 1415 °C
band gap: 1.12 eV
electron mobility: 1350 cm^2/Vs
hole mobility: 480 cm^2/Vs
resistivity: 2.5 x 10^5 Ω-cm (intr.)
relative permitivity: 11.8
Young's modulus: 1.9x10^{11}Pa
thermal conductivity: 1.57 W/cm C
yield strength: 7.0x10^{9}Pa

The idea for the shape came from a similar paper model that I saw once. I don't know who made that one. Perhaps Monsanto?
Most of the data comes from "Silicon as a mechanical Material", by Peterson (Proc.IEEE, v70n5, 1982, pp.420–457).
Other data from "VLSI Technology", edited by Sze (McGraw–Hill) and "Solid State Electronic Devices", by Streetman (Prentice–Hall).

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