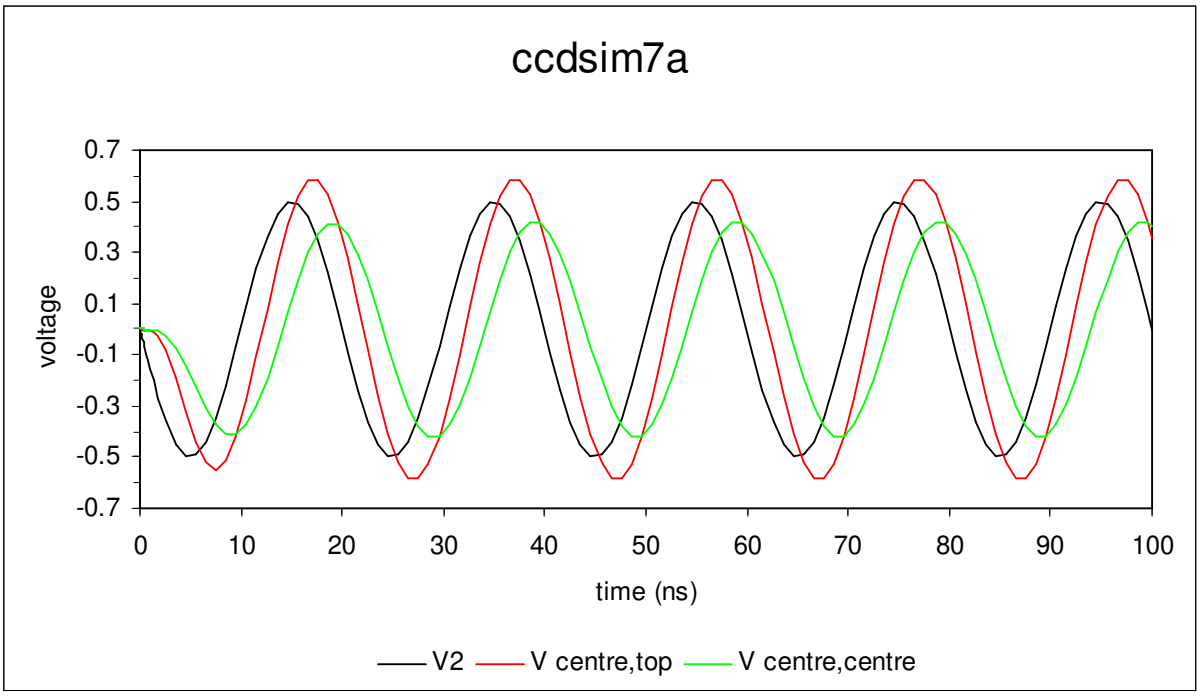
PSpice simulation of two phase CCD array.

Layer 1:

The following parameters are used. (They refer to a 1mm by 10mm section of CCD)

Ld: 200 pH
Rg: 0.4 Ohms.
Cs: 50 pF
Ci: 25 pF
Rb: 0.27 Ohms (This is assuming a 60 um wide bus line)

Results: CCDsim7.xls



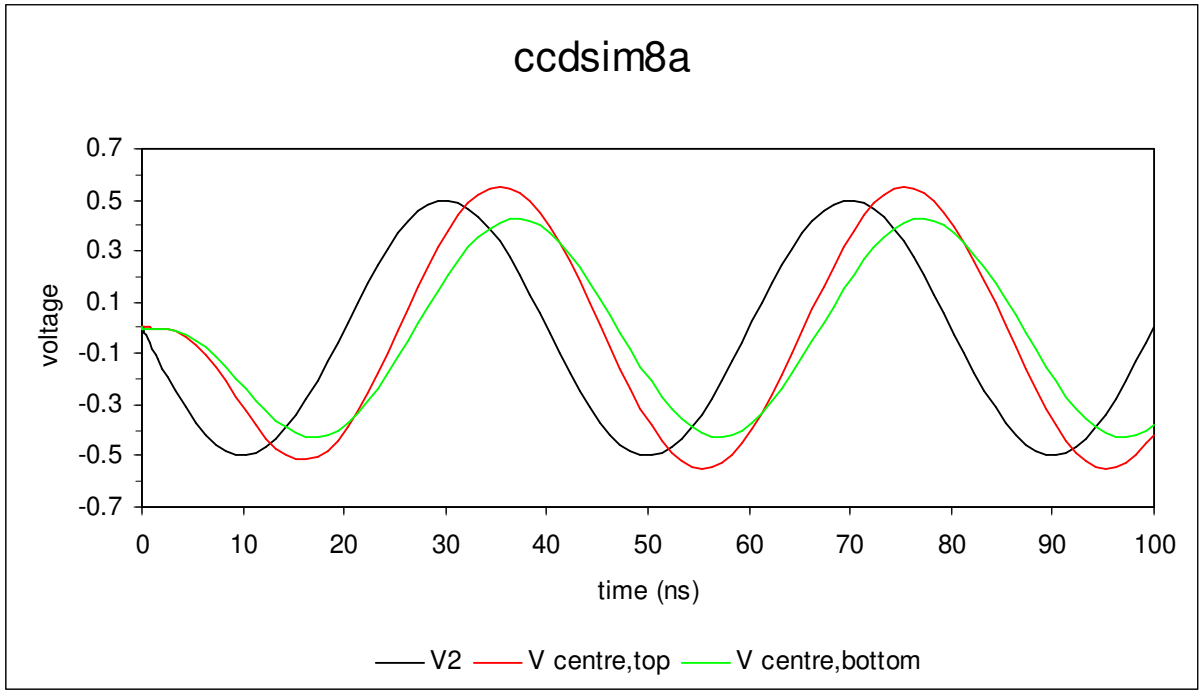
The total power consumption during operation for both phases is 1.05 W. As the duty cycle is 1:200, the mean power consumption is 50 mW.

Layer 2:

A layer 2 CCD has a number of changes over a Layer 1 CCD: Firstly, the dimensions of the CCD are larger. (22mm by 125mm instead of 13mm by 100mm for the layer 1 CCD) Secondly, the power lines are supplied to only the top two corners instead of in all four.

The parameters used are:

Ld: 400 pH
Rg: 0.544Ohms.
Cs: 106.25 pF
Ci: 53.125 pF
Rb: 0.5 Ohms (This is assuming a 400 um wide bus line)



The total power consumption during operation for both phases is 1.6 W. As the duty cycle is 1:200, the mean power consumption is 80 mW.

Justin Edward Theed
RAL R63 G22
Ext 5369