CPD v2 Gold Pads

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Gold Pad Size

We want the gold pad(s) to have an area of ¼ to ½ of the effective TES area

$$A_{gold} = \frac{A_{TES_{eff}}}{2}$$

$$A_{TES_{eff}} = N_{TES}(\ell_{TES} w_{TES} + n_{fin} A_{fin})$$

where

$$A_{fin} = (4\mu m) \times w_{TES} \times (0.85) + \frac{\pi\left(\ell_{AlWoverlap}\right)^2}{2} \times (0.45)$$

Effective volume factor for fin connector

Effective volume factor for overlap region

To get more even power dissipation we want to place 2 equal sized gold pads.

So for two gold pads, each should be a circle of radius

$$R_{gold} = \sqrt{\frac{\pi A_{TES_{eff}}}{4}}$$

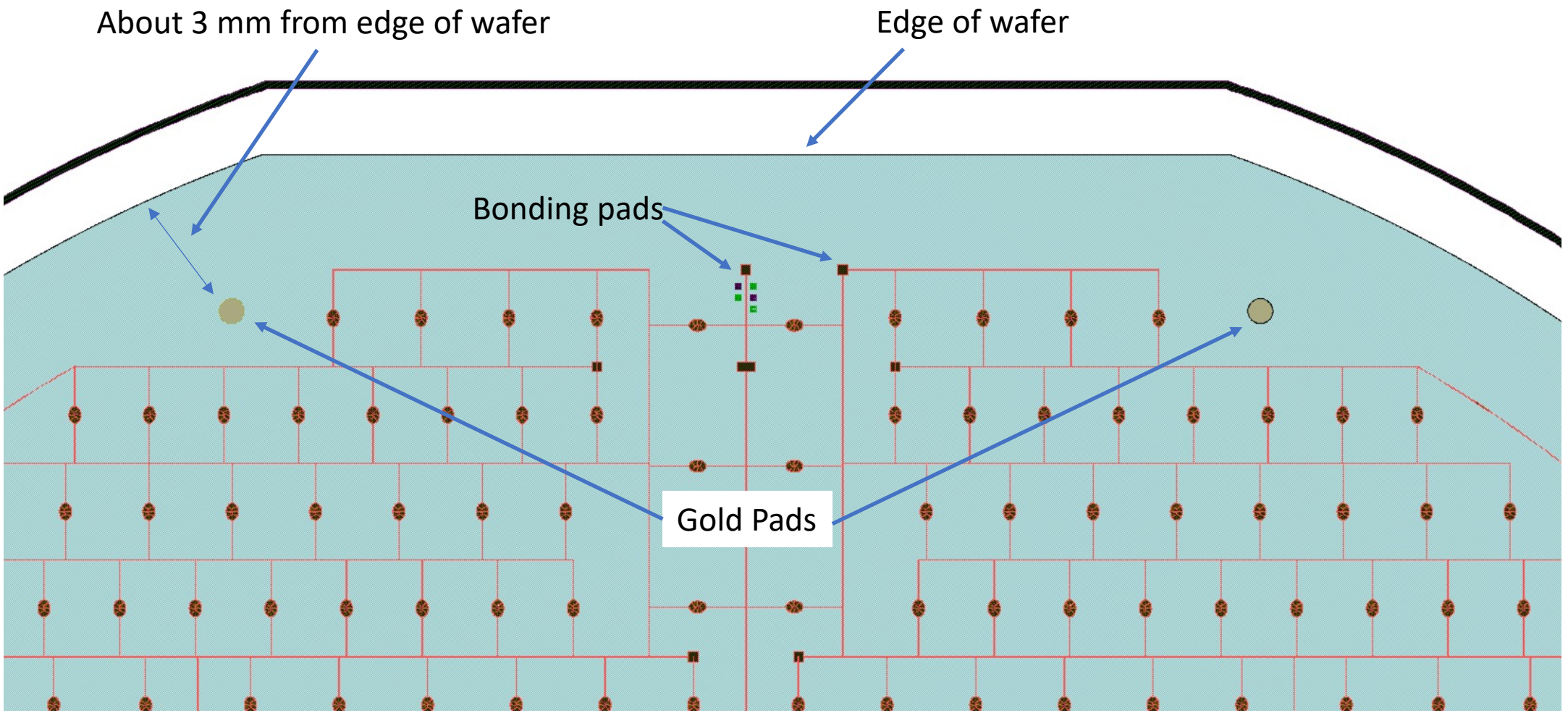
(Per pad, 2 total)

For CPDv2:

$$A_{TES_{eff}} \approx 1.3e^{-6}\ m^2$$
$$R_{gold} = 326\ \mu m$$

TES length	140 µm
TES Thickness	40 nm
TES width	**2.5 µm**
n_{fin}	6
Fin Length	**150 µm**
Fin Thickness	600 nm
Al/W Overlap	**20 µm**
N_{qet}	673
Active Surface Area	**0.68%**
Passive Surface Area	0.18%
R_n	200 mΩ
QP Abs Efficiency	52%
Tot Efficiency	18% (Simulated)
Baseline Resolution	**0.95 eV (Simulated) → 2.8 eV Actual?**

Placement


About 3 mm from edge of wafer
Edge of wafer
Bonding pads
Gold Pads