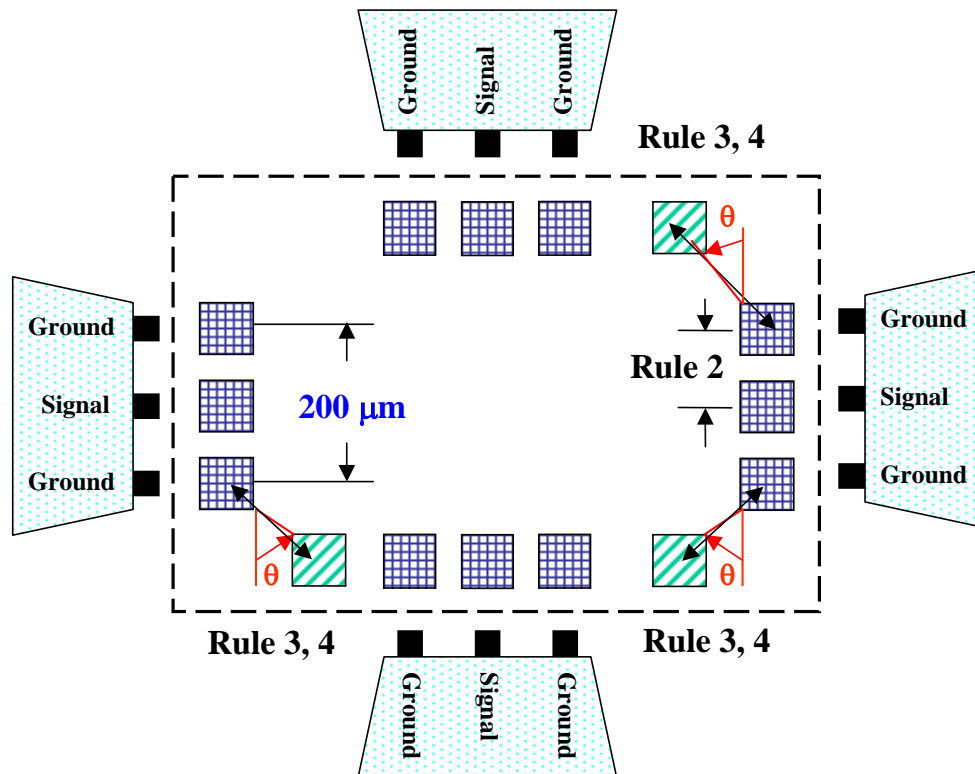


Layout Rules for On-Wafer 4-Port *S*-Parameters Measurements

4-Port S-parameters Measurements

Configuration 1: Four GSG RF ports at different sides with at most three DC pads



Rule 1 \Rightarrow Minimum pad size :

$50\mu\text{m} \times 50\mu\text{m}$

Rule 2 \Rightarrow $100\mu\text{m}$ pitch **only** for RF pads (center-to-center)

Rule 3 \Rightarrow Minimum safety distance between the outmost RF pad and its nearby DC pad (if exists): $200\mu\text{m}$ center-to-center

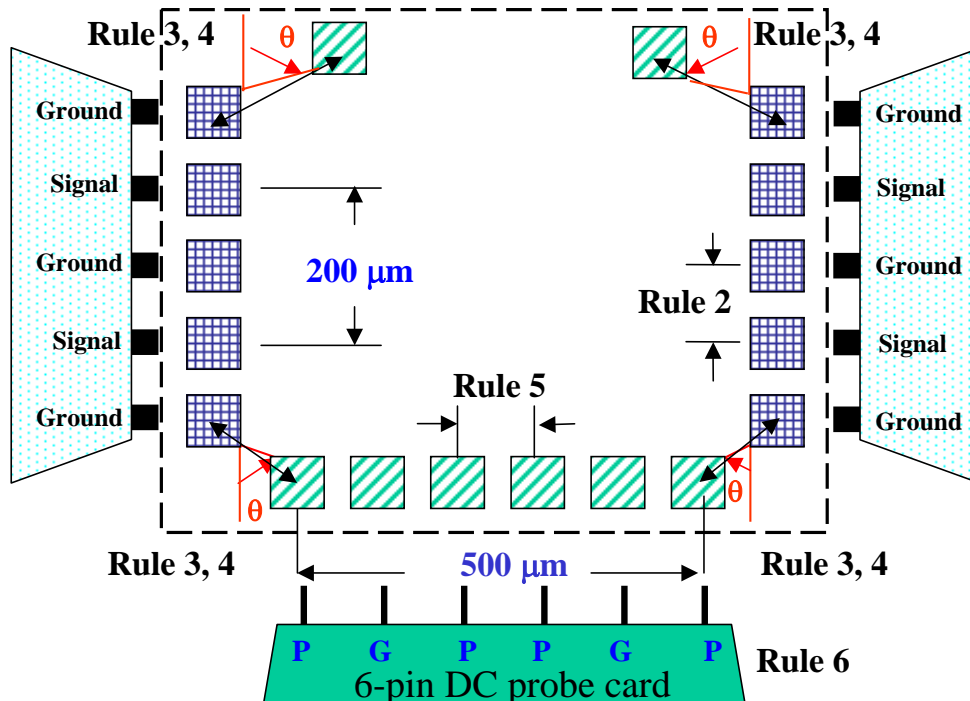
Rule 4 \Rightarrow The Fan Angle between the RF ground pad and its nearby DC pad (if exists) : 0 to 90°

(The Fan Angle is defined in the left figure as symbol θ .)

Rule 5 \Rightarrow The probe arrangements for TOP and BOTTOM sides can **NOT** be interchangeable with each other

4-Port S-parameters Measurements

Configuration 2: Two face-to-face GSGSG RF ports with one 6-pin DC pad set and at most two DC pads



Rule 1 \Rightarrow Minimum pad size :

$50\mu\text{m} \times 50\mu\text{m}$

Rule 2 \Rightarrow $100\mu\text{m}$ pitch **only** for RF pads (center-to-center)

Rule 3 \Rightarrow Minimum safety distance between the outmost RF pad and its nearby DC pad (if exists): $200\mu\text{m}$ center-to-center

Rule 4 \Rightarrow The Fan Angle between the RF ground pad and its nearby DC pad (if exists) : 0 to 90°

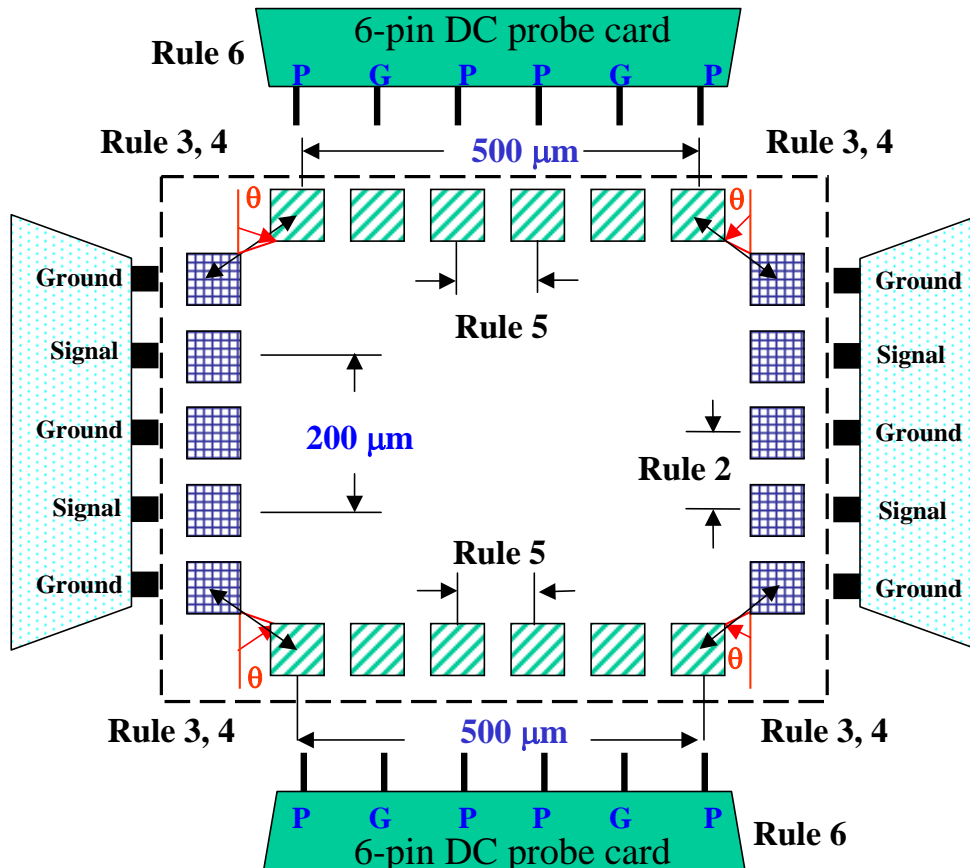
(The Fan Angle is defined in the left figure as symbol θ .)

Rule 5 \Rightarrow $100\mu\text{m}$ pitch **only** for the DC pad set (center-to-center)

Rule 6 \Rightarrow PGPPGP configuration only for DC probe card (P: power, G:Ground)

4-Port S-parameters Measurements

Configuration 3: Two face-to-face GSGSG RF ports with at most two 6-pin DC pad sets



Rule 1 \Rightarrow Minimum pad size :

$50\mu\text{m} \times 50\mu\text{m}$

Rule 2 \Rightarrow $100\mu\text{m}$ pitch **only** for RF pads (center-to-center)

Rule 3 \Rightarrow Minimum safety distance between the outmost RF pad and its nearby DC pad (if exists): $200\mu\text{m}$ center-to-center

Rule 4 \Rightarrow The Fan Angle between the RF ground pad and its nearby DC pad (if exists) : 0 to 90°

(The Fan Angle is defined in the left figure as symbol θ .)

Rule 5 \Rightarrow $100\mu\text{m}$ pitch **only** for the DC pad set (center-to-center)

Rule 6 \Rightarrow PGPPGP configuration only for DC probe card (P: power, G: Ground)