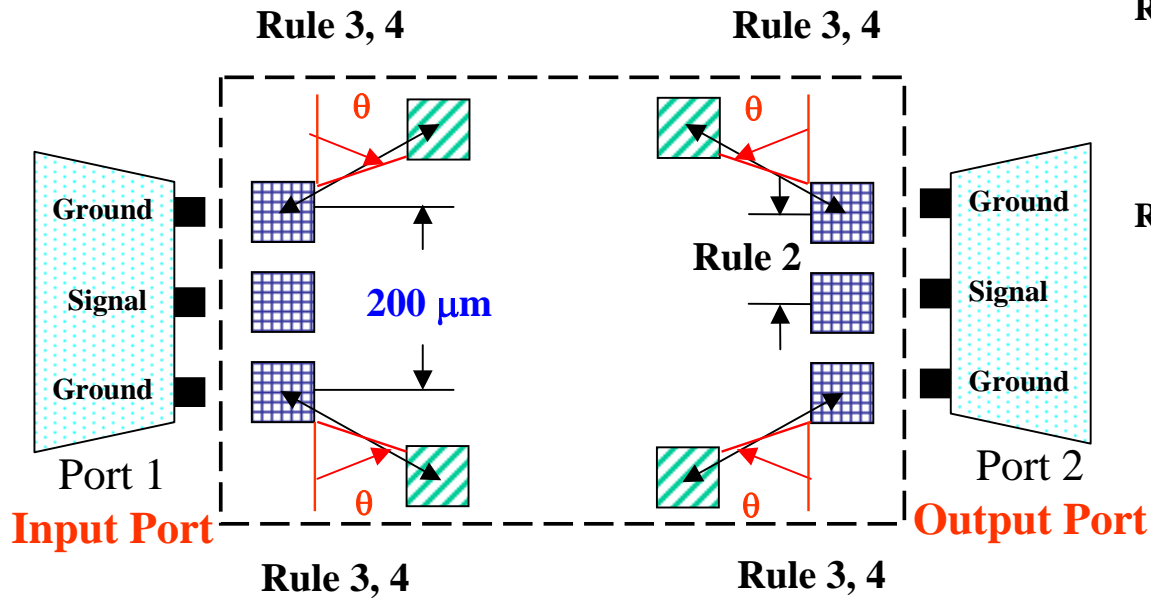


Layout Rules for the On-Wafer 110 GHz *S* Parameters Measurement System

110GHz Layout Rules

Configuration 1: Two face-to-face RF ports with at most four DC pads



Rule 1 \Rightarrow Minimum pad size :

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

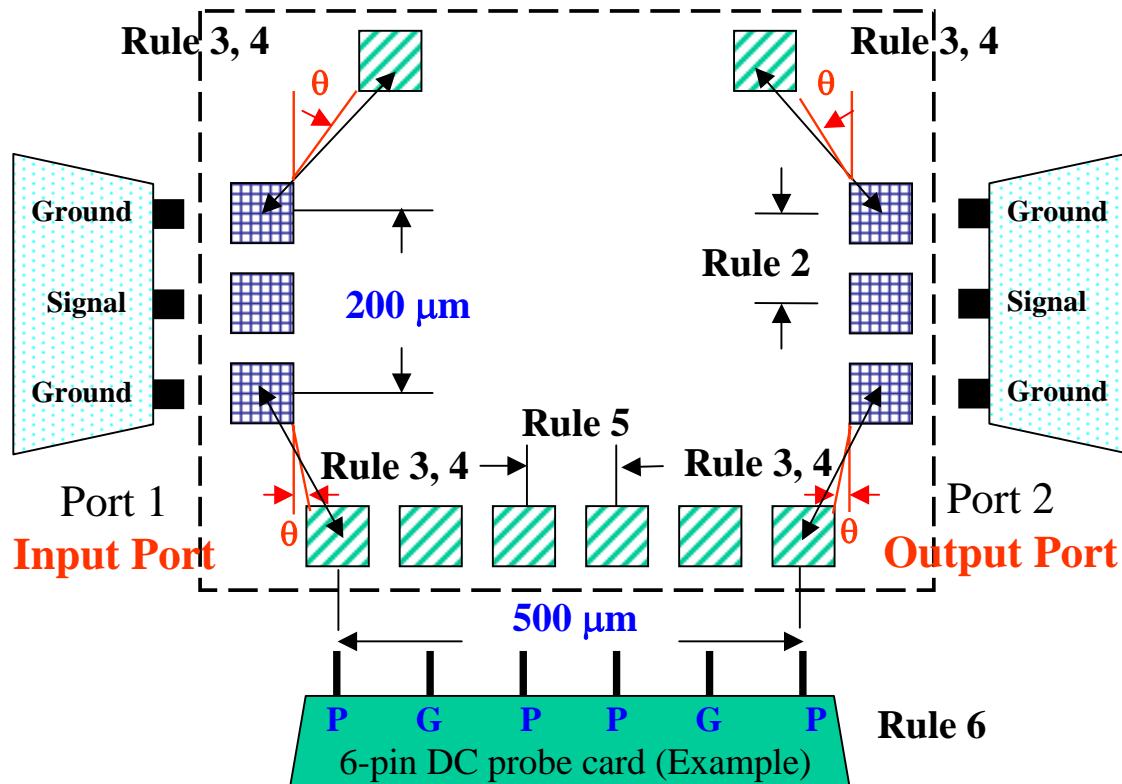
Rule 2 \Rightarrow $100\mu\text{m}$ pitch **only** for RF pads (center-to-center)

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 .)

110GHz Layout Rules

Configuration 2: Two face-to-face RF ports with one 3-pin/ 6-pin/ 9-pin DC pad set at one side and at most two DC pads at the other side



Rule 1 ⇒ Minimum pad size :
50μm×50μm

Rule 2 ⇒ **100μm** pitch **only** for RF pads
(center-to-center)

Rule 3 ⇒ Minimum safety distance
between the RF ground pad
and its nearby DC pad (if
exists): **200μm center-to-**
center

Rule 4 ⇒ 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.)

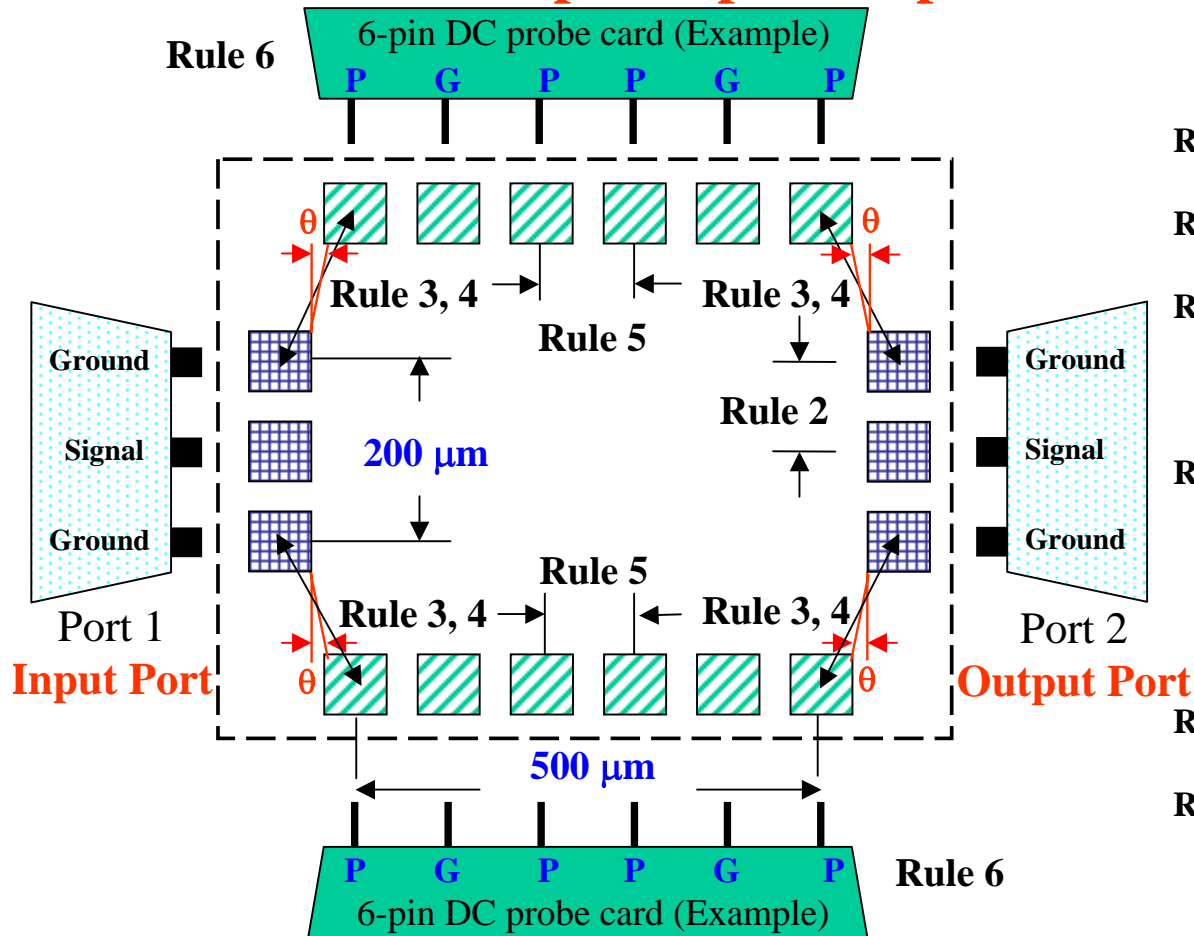
Rule 5 ⇒ **100 μ m** pitch **only** for the DC
pad set (center-to-center)

Rule 6 ⇒ **PGP/PGPPGP/PGPPGPPGP**
configuration **only** for DC
probe card (**P: power,**
G:Ground)

Rule 7⇒ The probe arrangements for
TOP and BOTTOM sides can
be interchangeable with each
other.

110GHz Layout Rules

Configuration 3: Two face-to-face RF ports with two 3-pin/ 6-pin/ 9-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 RF ground pad and its nearby DC pad: $200\mu\text{m}$ 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 PGP/PGPPGP/PGPPGPPGP configuration only for DC probe card (P: power, G:Ground)