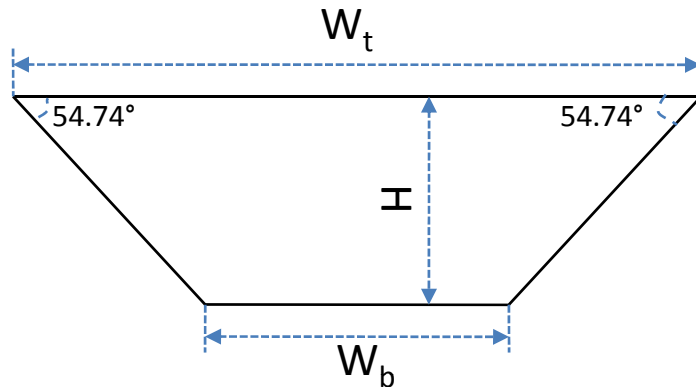


Silicon Etching: Channel Cross Section & Mask Design

1. Wet Etching: W_t is the feature size on the mask and H is the etched depth.

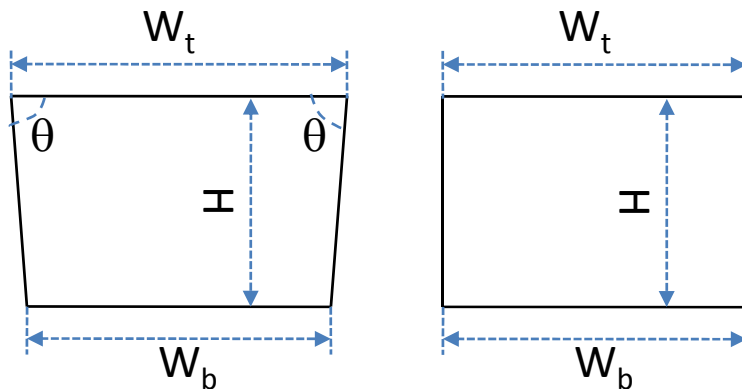


Channel cross section: trapezoid.

Cross section area: $(W_t + W_b)H/2$

Hydraulic diameter: $\frac{2(W_t + W_b)H}{W_t + W_b + 2.45H}$

2. Dry Etching: W_b is the feature size on the mask and H is the etched depth.



Channel cross section: rectangle ($W_t = W_b = W$).

Cross section area: WH

Hydraulic diameter: $\frac{2WH}{W+H}$

For DRIE dry etching, usually $\theta = 90^\circ$.
if needed, we may achieve a trapezoid.

$85^\circ < \theta < 90^\circ$.