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* capacitance per unit length along W’:
* A1­ , A2 – capacitance per unit length of the fingers
* N- Number of fingers.
* l- Shown in the picture- expressed in microns.
* For infinite number substrate thickness (or no ground plane) –

A1= 4.409\*10-6 pF/µm.

A2= 9.92\*10-6 pF/µm.

* The total capacitance of an interdigital structure of length l is expressed as:
* For a finite substrate:

$$A\_{1}=4.409\*\tanh(\left[0.55\*\left(\frac{h}{w}\right)^{0.45}\right])\*10^{-6} [\frac{pF}{μm}]$$

$$A\_{2}=9.92\*\tanh(\left[0.52\*\left(\frac{h}{W}\right)^{0.5}\right])\*10^{-6} \left[\frac{pF}{μm}\right]$$

* Another general expression for the total series capacitance of an interdigital capacitor can also be written as:
	+ l is in micron
	+ N – number of fingers
	+ $ϵ\_{re}$- effective dielectric constant of the microstrip line of width W

where:



and: