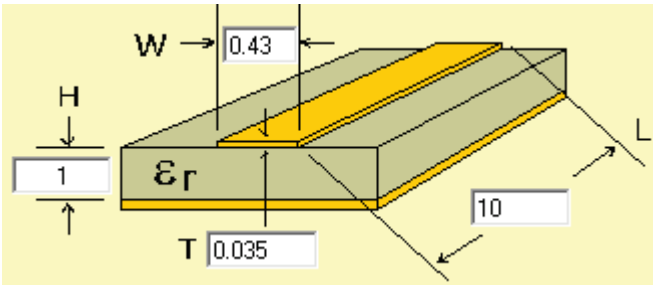

Length Units: mm $K_r = 4.16$

For the microstrip design in above diagram:

$$\left(\frac{W}{H}\right) = \frac{0.43}{1} = 0.43 < 1$$

therefore,

$$K_{eff} = \frac{K_r+1}{2} + \frac{K_r-1}{2} * \left(\frac{1}{\sqrt{1+12\left(\frac{H}{W}\right)}} + 0.04(1-(\frac{W}{H}))^2\right) = \frac{4.16+1}{2} + \frac{4.16-1}{2} *$$

$$\left(\frac{1}{\sqrt{1+12\left(\frac{1}{0.43}\right)}} + 0.04(1-(\frac{0.43}{1}))^2\right) = 2.89$$

A RF design may use microstrips with different W in a real word design. The effective dielectric constant is plotted in the following chart when W is selected between 0.1mm and 0.99mm.

$$plot\left(\frac{4.16+1}{2} + \frac{4.16-1}{2} \cdot \left(\frac{1}{\sqrt{1+12\left(\frac{1}{W}\right)}} + 0.04\left(1-\frac{W}{1}\right)^2\right), W = 0.1..0.99\right)$$