

58. For maximum capacitance the two groups of plates must face each other with maximum area. In this case the whole capacitor consists of $(n - 1)$ identical single capacitors connected in parallel. Each capacitor has surface area A and plate separation d so its capacitance is given by $C_0 = \varepsilon_0 A/d$. Thus, the total capacitance of the combination is

$$C = (n - 1)C_0 = \frac{(n - 1)\varepsilon_0 A}{d} .$$