6/16/19

Kidmon Dev Board Crystal Caps Calc.

$$C_L = \frac{C_1 \cdot C_2}{C_1 + C_2} + C_S$$

Givens:

$C_L = 9pF$

$C_S = 5pF$

$C_1 = C_2$

C_L = Load Capacitance (crystal data)

C_S = stray Capacitance of PCB

↳ guesstimated between 2-5pF

C_1, C_2 = External parallel caps.

$$9 = \frac{C_1 C_2}{C_1 + C_2} + 5$$

$$9 = \frac{C_1^2}{2C_1} + 5$$

$$4 = \frac{C_1^2}{2C_1}$$

$$8C_1 = C_1^2$$

$$C_1 = 8pF$$

$$C_2 = 8pF$$