$$P(R,i,C) = \frac{R^2 i^2}{C+R} \quad [W]$$

$C = 1{,}1 \text{ mF} \pm 5\%$

$R = 1 \text{ k}\Omega \pm 2\%$

$i = 1{,}2 \text{ mA} \pm 1\%$

$\Delta C = 0{,}055 \text{ mF}$

$\Delta R = 0{,}02 \text{ k}\Omega$

$\Delta i = 0{,}012 \text{ mA}$

$$\Delta P = \left|\frac{dP}{dR}\right| \cdot \Delta R + \left|\frac{dP}{di}\right| \cdot \Delta i + \left|\frac{dP}{dC}\right| \cdot \Delta C$$

$f(R) = R^2 i^2 \qquad f'(R) = 2Ri^2$

$g(R) = C+R \qquad g'(R) = 1$

$$\frac{d}{dR}\left(\frac{R^2 i^2}{C+R}\right) = \frac{f'(R)\cdot g(R) - f(R)\cdot g'(R)}{[g(R)]^2} = \frac{2Ri^2(C+R) - R^2 i^2}{(C+R)^2} = \frac{2Ri^2 \cdot C + 2R^2 i^2 - R^2 i^2}{(C+R)^2}$$

$$= \frac{2Ri^2 C + R^2 i^2}{(C+R)^2} = \frac{Ri^2(2C+R)}{(C+R)^2}$$

$$\frac{d}{di}\left(\frac{R^2 i^2}{C+R}\right) = \frac{2R^2 i}{C+R}$$

$$\frac{d}{dC}\left(\frac{R^2 i^2}{C+R}\right) = \frac{0\cdot(C+R) - R^2 i^2 \cdot 1}{(C+R)^2} =$$

$$\frac{d}{dC}(R^2 i^2) = 0$$

$$= \frac{-R^2 i^2}{(C+R)^2}$$

$$\frac{d}{dC}(C+R) = 1$$

$$\Delta P = \left|\frac{Ri^2(2C+R)}{(C+R)^2}\right| \Delta R + \left|\frac{2R^2 i}{C+R}\right| \Delta i + \left|\frac{-R^2 i^2}{(C+R)^2}\right| \Delta C$$

$$[\Delta P] = \left[\frac{dP(R)}{dR}\right] \cdot [\Delta R] + \left[\frac{dP(i)}{di}\right] \cdot [\Delta i] + \left[\frac{dP(C)}{dC}\right] \cdot [\Delta C] =$$

$$= \frac{[P(R)]}{[R]} \cdot [\Delta R] + \frac{[P(i)]}{[i]} \cdot [\Delta i] + \frac{[P(C)]}{[C]} \cdot [\Delta C] =$$

$$= [P(R)] + [P(i)] + [P(C)] = [W]$$