

92. (a) From Eq. 33-4, with $\omega = 2\pi f$, we have

$$f = \frac{1}{2\pi\sqrt{LC}} = 7.08 \times 10^{-3} \text{ H} .$$

(b) The maximum current in the oscillator is

$$i_{\max} = I_C = \frac{V_C}{X_C} = \omega C v_{\max} = 4.00 \times 10^{-3} \text{ A} .$$

(c) Using Eq. 31-51, we find the maximum magnetic energy:

$$U_{B,\max} = \frac{1}{2} L i_{\max}^2 = 1.6 \times 10^{-8} \text{ J} .$$

(d) Adapting Eq. 31-37 to the notation of this chapter,

$$v_{\max} = L \left| \frac{di}{dt} \right|_{\max}$$

which yields a (maximum) time rate of change (for i) equal to 2000 A/s.