How to charge the capacitor in an oscillating circuit

What is the maximum charge on a capacitor in an oscillating LC circuit?
In an oscillating LC circuit,the maximum charge on the capacitor is qm q m. Determine the charge on the capacitor and the current through the inductor when energy is shared equally between the electric and magnetic fields. Express your answer in terms of qm q m,L,and C.

How many Ma does a capacitor have in an oscillating LC circuit?
In an oscillating LC circuit,the maximum charge on the capacitor is 2.0 × 10-6 C 2.0 × 10 - 6 C and the maximum current through the inductor is 8.0 mA. (a) What is the period of the oscillations? (b) How much time elapses between an instant when the capacitor is uncharged and the next instant when it is fully charged?

How do LC oscillators work?
The inductor and capacitor are connected in parallel or series,and the oscillations are maintained by the energy exchange between the inductor's magnetic field and the capacitor's electric field. The frequency of the oscillations is determined by the values of the inductor and capacitor. The main components of an LC oscillator are:

What happens when a capacitor re-acquires a charge?
The electric field of the capacitor increases while the magnetic field of the inductor diminishes,and the overall effect is a transfer of energyfrom the inductor back to the capacitor. From the law of energy conservation,the maximum charge that the capacitor re-acquires is q0 q 0.

What happens when a capacitor is fully charged?
When fully charged,the capacitor once again transfers its energy to the inductoruntil it is again completely discharged,as shown in Figure 11.5.1 (d). Then,in the last part of this cyclic process,energy flows back to the capacitor,and the initial state of the circuit is restored. We have followed the circuit through one complete cycle.

Why does a capacitor charge with opposite polarity?
This continued currentcauses the capacitor to charge with opposite polarity. The electric field of the capacitor increases while the magnetic field of the inductor diminishes,and the overall effect is a transfer of energy from the inductor back to the capacitor.

(17%) Problem 6: In an oscillating LC circuit the maximum charge on the capacitor is 2.1 uC and the maximum current through the inductor is 8.3 mA. 50% Part (a) What is the period of the circuit"s oscillation, in seconds? T= 1 = 1 Grade Summary Deductions 0% Potential 100% HOME sin() cos() tan() cotan() asin() acos() atan() acotan() sinh() cosh ...

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In an oscillating LC circuit, the maximum charge on the capacitor is 6×10-6C and the maximum current through the inductor is 7.5 mA. (a) What is the period of the oscillations? (b) How much time elapses between an instant when the capacitor is uncharged and the next instant when it is fully charged? The period of the oscillation is ms. The ...

ÎBelow are shown 3 LC circuits. Which one takes the least time to fully discharge the capacitors during the oscillations? (1) A (2) B (3) C A B C C C C C C ?=1/ LC C has smallest capacitance, therefore highest frequency, therefore shortest period

In an oscillating LC circuit, the maximum charge on the capacitor is [latex]{q}_{m}[/latex]. Determine the charge on the capacitor and the current through the inductor when energy is shared equally between the electric and ...

Describe the relationship between the charge and current oscillating between a capacitor and inductor wired in series; It is worth noting that both capacitors and inductors store energy, in their electric and magnetic fields, respectively. A ...

Explain why charge or current oscillates between a capacitor and inductor, respectively, when wired in series; Describe the relationship between the charge and current oscillating between a capacitor and inductor wired in series

In an oscillating LC circuit, the maximum charge on the capacitor is [latex]{q}_{m}[/latex]. Determine the charge on the capacitor and the current through the inductor when energy is shared equally between the electric and magnetic fields. Express your answer in terms of [latex]{q}_{m}[/latex], L, and C.

When the switch is closed, the capacitor begins to discharge, producing a current in the circuit. The current, in turn, creates a magnetic field in the inductor. The net effect of this process is a ...

In an oscillating LCcircuit, energy is shuttled periodically between the electric field of the capacitor and the magnetic field of the inductor; instantaneous values of the two forms of energy are given by equations 31-1 and 31-2. By solving these equations and by substituting the values, we can calculate the inductance. From the relation ...

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The capacitor stores energy in the form of an electrostatic field and which produces a potential (static voltage) across its plates, while the inductive coil stores its energy in the form of an electromagnetic field. The capacitor is charged up to the DC supply voltage, V by putting the switch in position A.

In an oscillating LC circuit, the maximum charge on the capacitor is 2.0×10-6C and the maximum current through the inductor is 8.0 mA. (a) What is the period of the oscillations? (b) How much time elapses between an instant when the capacitor is uncharged and the next instant when it is fully charged?

When a charged capacitor is allowed to discharge through a non-resistance, electrical oscillations of constant amplitude and frequency are produced. These oscillations are called LC oscillations. The moment the circuit is completed, the charge on the capacitor starts decreasing, giving rise to the current in the circuit.

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