2a.1 (1/4) • Fundamental theory • id:xBH0y2JT

What difference does a component's tolerance make?

2a.1 (2/4) • Fundamental theory • id:RzYcCfgi

What does a 10MHz crystal with 10ppm tolerance mean?

2a.1 (3/4) • Fundamental theory • id:PoFykgkR

What do the colours brown, red, gold and silver mean on a resistor as the last band, in terms of tolerance?

2a.1 (4/4) • Fundamental theory • id:Bb7MwMw9

Think about some of the ways that the effects of tolerance can be adjusted.

2d.1 (1/4) • Reactive components • id:kEyJnElw

What factors influence the capacitance of a capacitor, and what is the formula?

2d.1 (2/4) • Reactive components • id:WUxQUz1C

What happens to capacitance if distance between plates doubles?

2d.1 (3/4) • Reactive components • id:iOXUtAs9

What happens to capacitance if plate area doubles?

2d.1 (4/4) • Reactive components • id:snGJZdyD

Is the formula for Capacitance on the EX309 sheet, and do you know how to decode its incorrect printing?

2d.1 (1/2) • Reactive components • id:erA72lhb

What is the unit for the quantity of electricity called, and how is it defined?

2d.1 (2/2) • Reactive components • id:PzSmDiD6

What is the formula for stored charge on a capacitor?

2d.2 (1/2) • Reactive components • id:jP8liNpC

What sort of materials are used to make dielectrics, which ones tend to be lossy, and what causes losses to increase?

2d.2 (2/2) • Reactive components • id:8t67KqZJ

Which capacitors are low-loss, stable and good for RF, normally around the low pf range?

2d.3 (1/2) • Reactive components • id:E2bs6Pl2

What happens to a capacitor when its safe working voltage, or breakdown voltage, is exceeded?

2d.3 (2/2) • Reactive components • id:xLlq4u_V

How do you identify the safe working voltage of a capacitor?

2d.4 (1/3) • Reactive components • id:FOUzLyD4

Revision mode: the inductor. Give a brief summary of what it does, what affects its value and the unit. Check formulas for inductors in series and in parallel.

2d.4 (2/3) • Reactive components • id:OZVRnz0L

what does self inductance mean and what is back EMF?

2d.4 (3/3) • Reactive components • id:Djmqkm8X

In what direction are the magnetic force when current flows through a wire?

2d.7 (1/2) • Reactive components • id:PDGB_68f

Why is there a time constant for inductors and capacitors

2d.7 (2/2) • Reactive components • id:DGnw4qzj

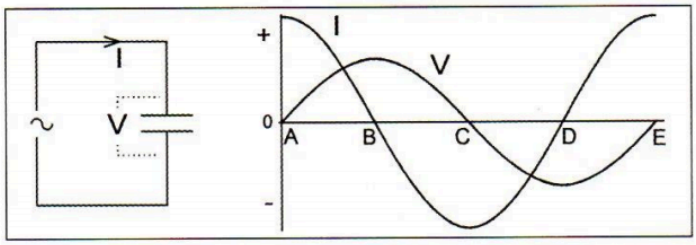
What happens after one time constant has elapsed in an RL circuit, and also 5 time constants?

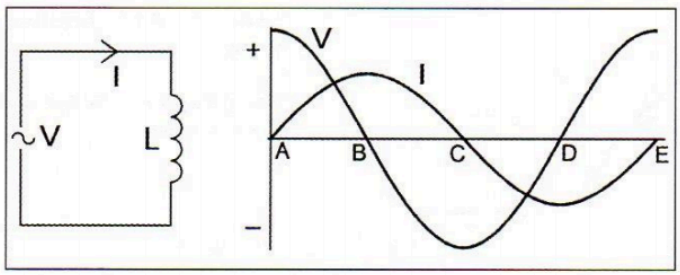
2d.7 • Reactive components • id:jJL0xDVW

What happens after one time constant has elapsed in an RC circuit, and also 5 time constants?

2e.3 (1/2) • AC theory • id:K3f1UiBo

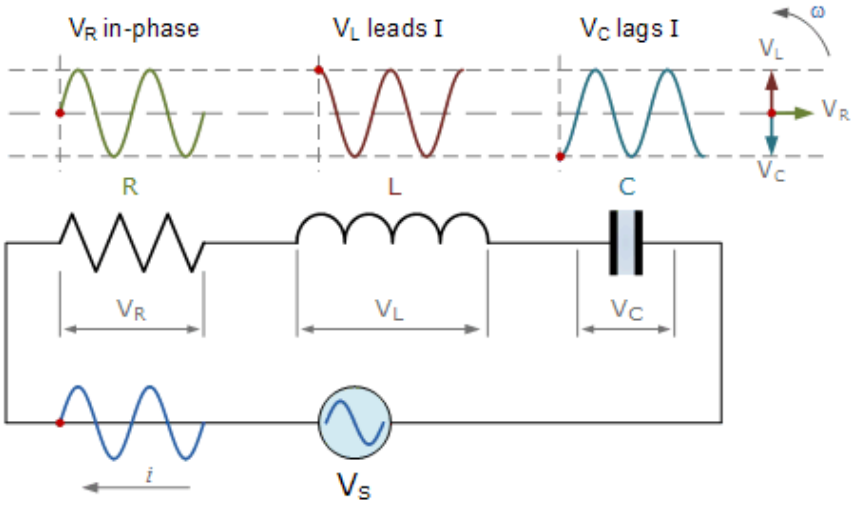
From the intermediate course, we know that in circuits with pure Capacitance or pure Inductance, there is a 90 degree phase difference between voltage and current. Now we need to know which leads which...





2e.3 (2/2) • AC theory • id:UHcSkdol

What is the phasor diagram for voltage in an AC series circuit consisting of a resistor, an inductor and a capacitor?



2e.3 (1/5) • AC theory • id:OB47yhKe

What is the formula for the reactance of a capacitor, what does the graph of Capacitive Reactance vs frequency look like, and can you find it in EX309?

2e.3 (2/5) • AC theory • id:cFx7kOmd

What is the formula for the reactance of an inductor, what does the graph of Reactive Reactance vs frequency look like, and can you find it in EX309?

2e.3 (3/5) • AC theory • id:BCHjk6FS

How do you get 'pi' to appear on your calculator?

2e.3 (4/5) • AC theory • id:5lC4HSSk

Calculator practice: calculate the INDUCTIVE REACTANCE of a $10\mu H$ inductor at 7MHz. Hint: use the REPLAY button and its arrows to check the numbers have been entered properly.

2e.3 (5/5) • AC theory • id:t7V6D5iL

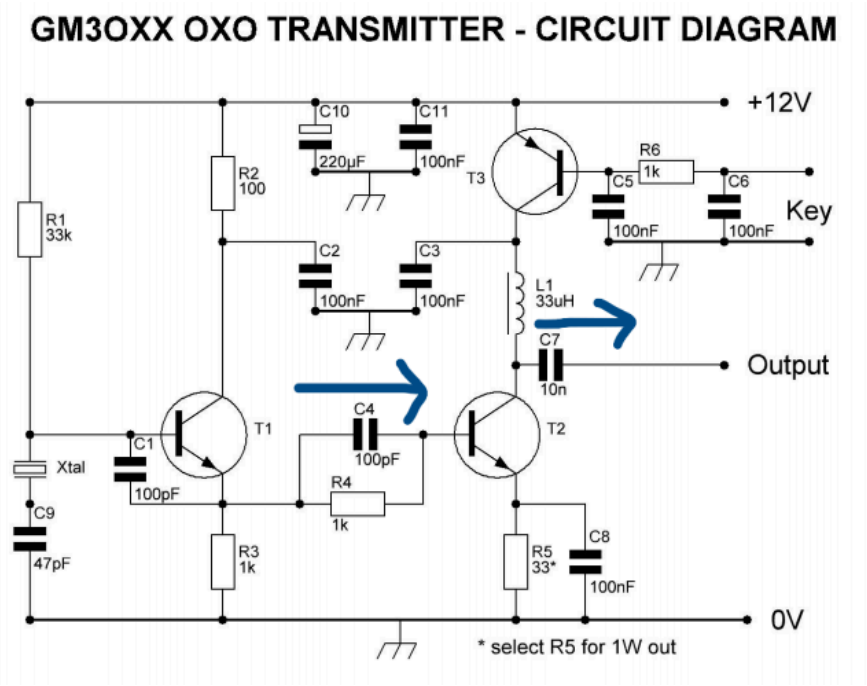
Calculator practice: calculate the CAPACITIVE REACTANCE of a 22pF capacitor at 10MHz. Hint: use the brackets!

2e.3 • AC theory • id:MIZ9XKFh

If the CAPACITIVE REACTANCE of a 22pF capacitor is x, what is the frequency?

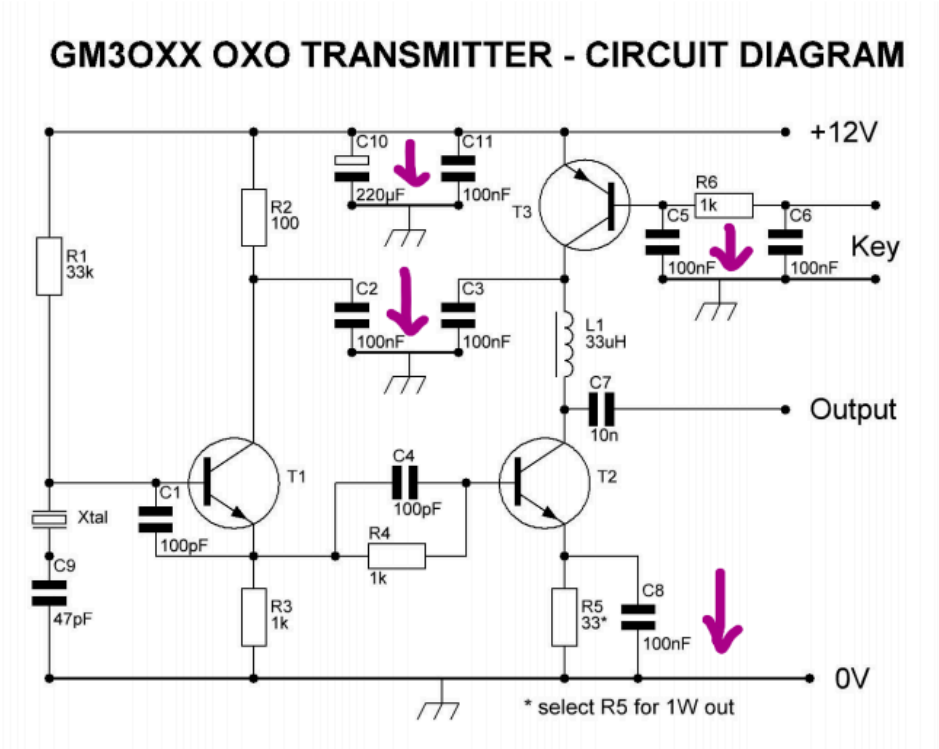
2e.4 (1/5) • AC theory • id:XHrZd8SU

How are capacitors being used in this diagram? Hint: look at the arrows. It won't have the description or the arrows on the real thing.



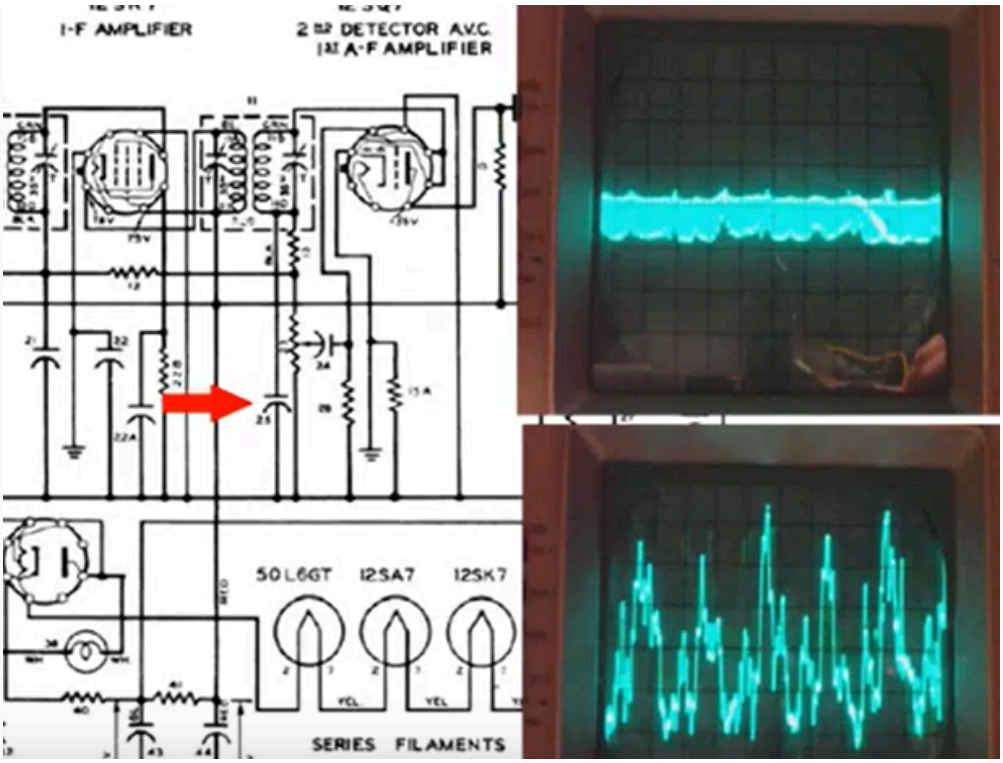
2e.4 (2/5) • AC theory • id:GBtkMjhk

What is happening in this diagram?



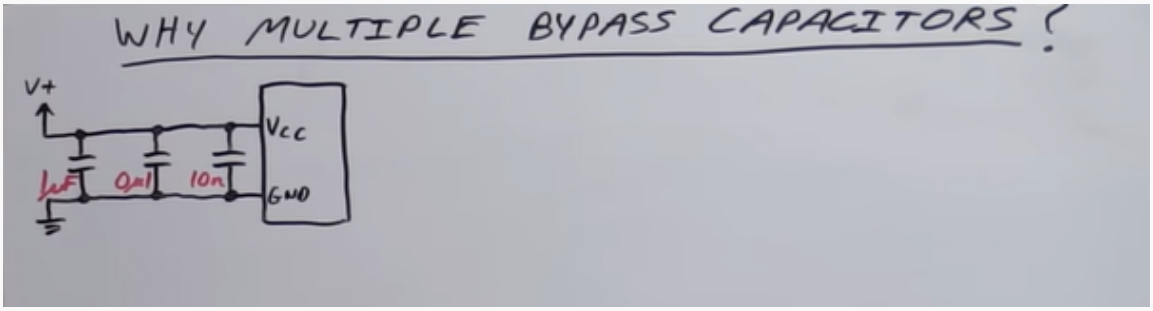
2e.4 (3/5) • AC theory • id:UOpfSJqm

What is RF bypass?



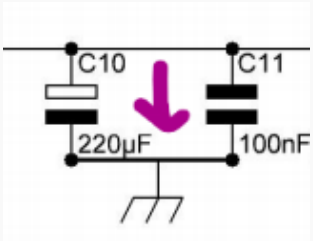
2e.4 (4/5) • AC theory • id:V3fn3Qol

Why do we use multiple bypass capacitors on a power supply? Values like $1\mu F$, 100nF, 10nF and 1nF are common and actually 3-4 may be used to take signals down to earth.



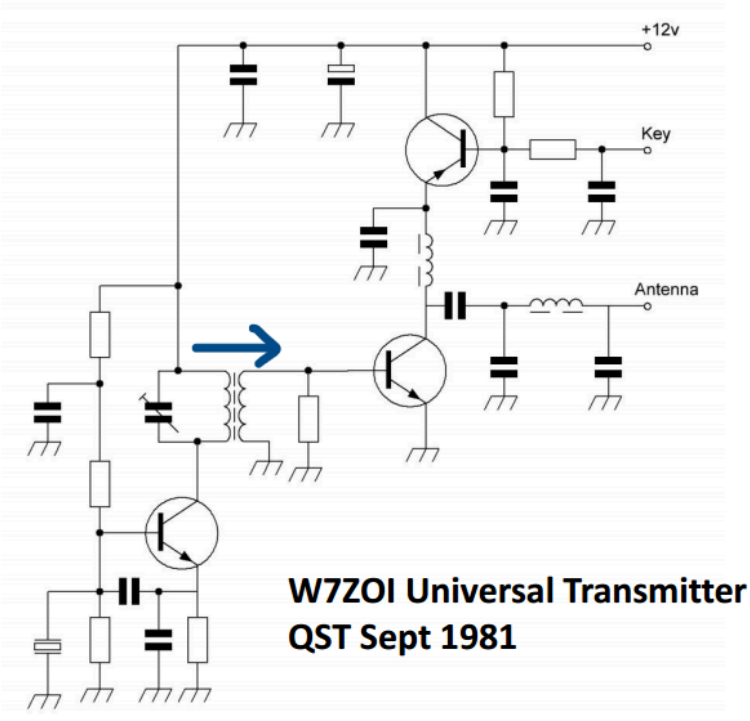
2e.4 (5/5) • AC theory • id:a52zD3NT

Here is a small piece of circuit with the capacitor connected between a 12V DC power supply and earth. Why would it be here?



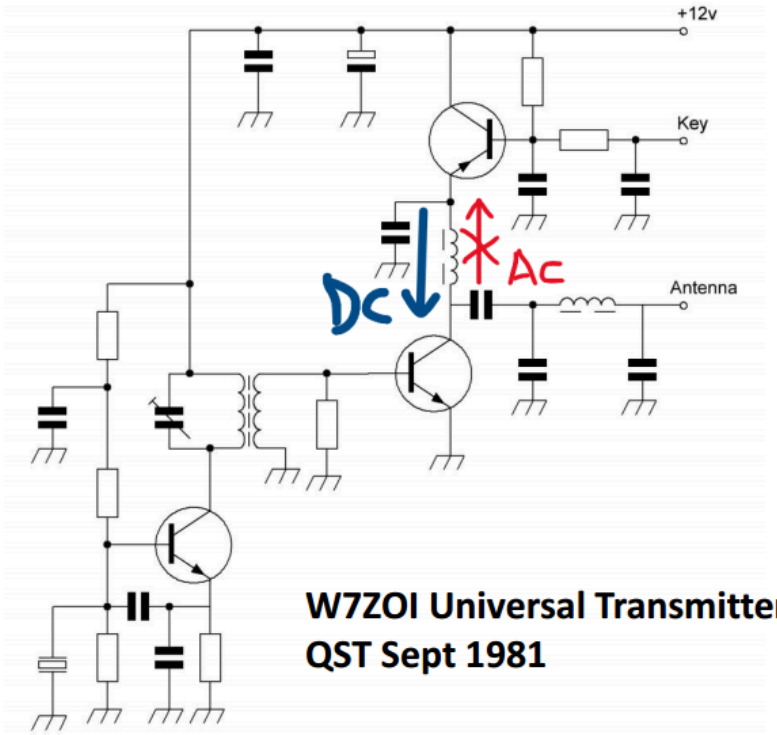
2e.5 (1/2) • AC theory • id:x8Fj1aqF

How are inductors used in this diagram?



2e.5 (2/2) • AC theory • id:-ybShg7h

How are inductors used in this diagram?



2e.6 (1/5) • AC theory • id:7YKuHqny

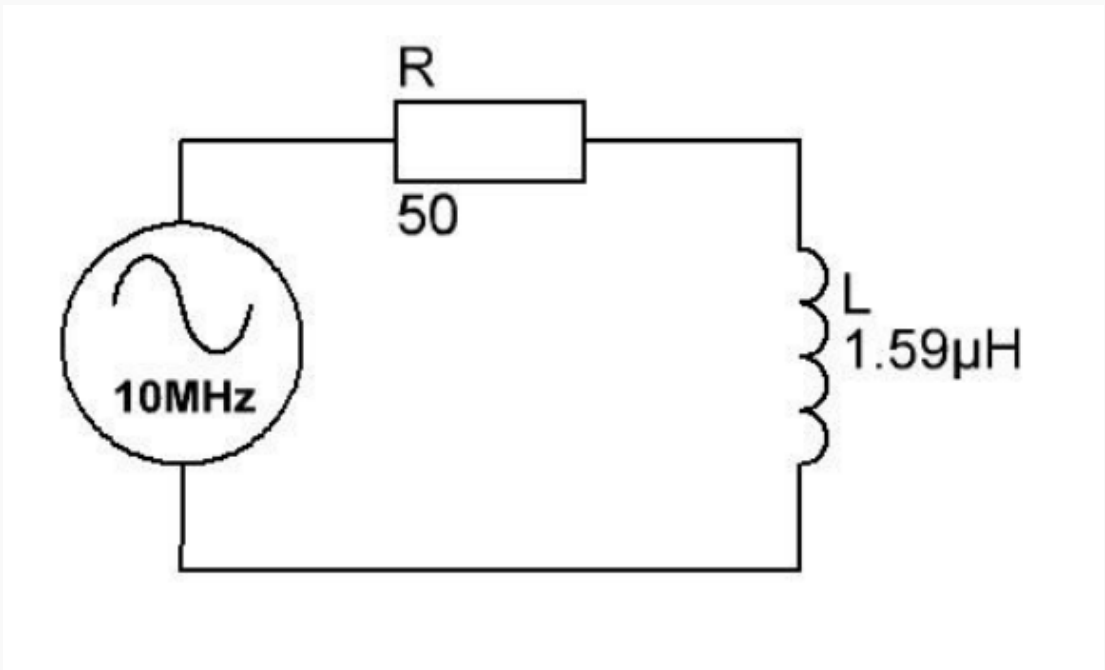
How is Impedance calculated in an RC or RL circuit?

2e.6 (2/5) • AC theory • id:Kd_v9eaD

What is the visual representation of Impedance calculated in an RC or RL circuit?

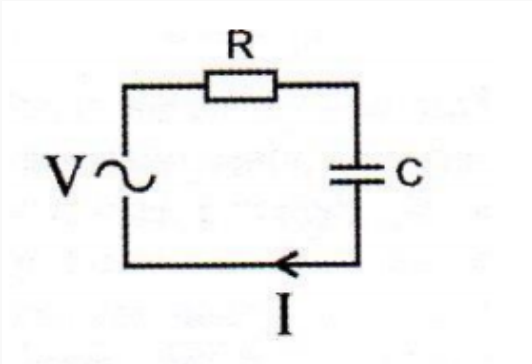
2e.6 (3/5) • AC theory • id:WM6LX6G-

What is the impedance of the circuit in the diagram?



2e.6 (4/5) • AC theory • id:D_qymJnT

What is the impedance of the circuit in the diagram?



2e.6 (5/5) • AC theory • id:nODdsBIO

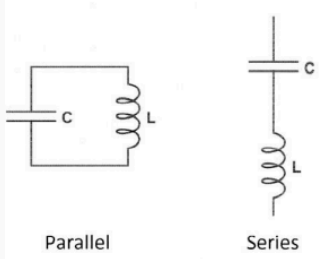
Really nasty question

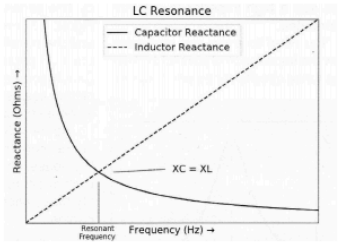
Really nasty question gives you component values and supply voltage – what is V across C

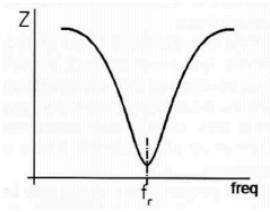
- Need to work out X
- Use X and R to work out Z
- Use Z to work out I
- Use I and X to work out V
- *Worked example in Weekly Instructions*

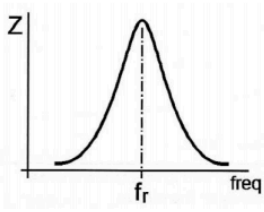
2h.1 (1/4) • Tuned circuits and resonance • id:-cve6QhE

Recap on tuned circuits. What do you remember? Which is the acceptor circuit, and which is the rejector circuit? I always remember PARALLEL for PEAK Z.



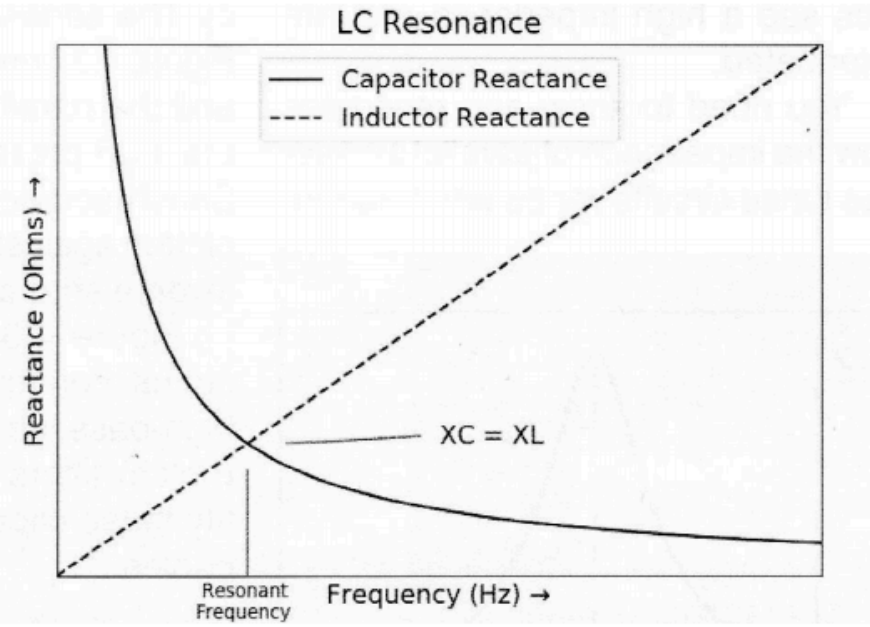






2h.1 (2/4) • Tuned circuits and resonance • id:80kswhtQ

What is the resonant frequency formula that applies to both series and parallel tuned circuits?



2h.1 (3/4) • Tuned circuits and resonance • id:Icrs9YHB

How do you transpose the resonant frequency formula to solve for C or L?

2h.1 (4/4) • Tuned circuits and resonance • id:YIWQ4xfJ

Calculate resonant freqency of 22pf capacitor with $10\mu H$ inductor

2h.2 (1/3) • Tuned circuits and resonance • id:s7y_uZJc

Summarise what you know about crystals and how they're used.

2h.2 (2/3) • Tuned circuits and resonance • id:0S0usOAm

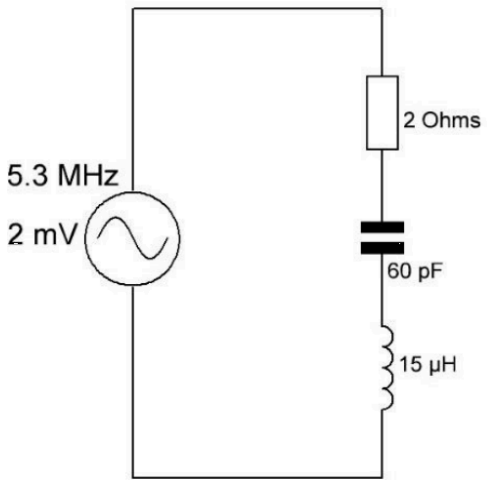
Identify a circuit with crystals in it

2h.2 (3/3) • Tuned circuits and resonance • id:knldQzuu

What does the specification of a crystal's performance look like?

2h.4 • Tuned circuits and resonance • id:hQ5vWwHT

In this circuit the resonant frequency is 5.3MHz and there is an RF supply of just 2mV across the series circuit. Q MAGNIFICATION hinges on the fact that when a series tuned circuit is at resonance, the reactances X_L and X_C are equal and opposite, so they cancel each other.



2h.4 • Tuned circuits and resonance • id:TuDkF5TC

voltages and circulating currents in tuned circuits can be very high...

2h.4 • Tuned circuits and resonance • id:bSZoHasf

Apply the formula for Q factor given circuit component values...

2h.4 • Tuned circuits and resonance • id:ck-ql2VL

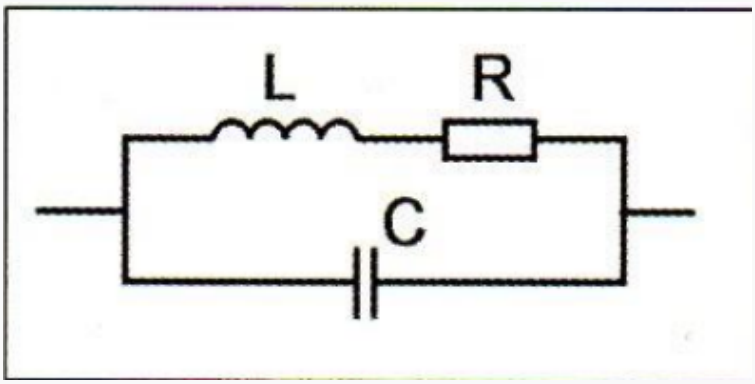
Recall the definition of the half power point of resonance curves...

2h.4 • Tuned circuits and resonance • id:pnYosChc

Apply the equation for Q given the resonant frequency and the half power points on the resonance curve...

2h.5 • Tuned circuits and resonance • id:gsL6QJgR

Understand the meaning of dynamic resistance, R_D...



7a.1 • Good operating practices and procedures • id:undefined

What is working split?

7a.8 • Good operating practices and procedures • id:undefined

What does the Licence say about testing your radio equipment?

7b.1 (1/7) • Band plans • id:undefined

Which band plans do you need to be familiar with for the Full exam?

7b.1 (2/7) • Band plans • id:undefined

Are you familiar with the 5MHz (60m) band plan?

7b.1 (3/7) • Band plans • id:undefined

Are you familiar with the 5MHz (60m) notes to the band plan?

7b.1 (4/7) • Band plans • id:undefined

Are you familiar with the 472kHz (600m) band plan?

7b.1 (5/7) • Band plans • id:undefined

Are you familiar with the 472kHz (600m) notes to the band plan?

7b.1 (6/7) • Band plans • id:undefined

Are you familiar with part one of the notes to the band plans?

7b.1 (7/7) • Band plans • id:undefined

Are you familiar with part two of the notes to the band plans?