

Re: Help! Coil design?

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- *From:* "john jardine" <zen177928@xxxxxxxxx>
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"Scott Newell" <newell@xxxxxxx> wrote in message
<news:4A29ADD4.D27@xxxxxxxxxxx>

I'm having a terrible time getting an air core coil wound for my RFID project. The big problem is that I simply don't know how to specify a coil, and the engineers at the magnetics company can't seem to help me fill in the blanks. Can anyone shed some light on how I should proceed?

I've told them I'd like a 750uH coil with a max OD of 40mm to fit our physical constraints. Exact DC resistance doesn't matter too much, but I suggested 10-12 ohms or so based on some coils I wound by hand. Exact wire gauge doesn't matter either, so I suggested 34 gauge or so, again, based on my hand wound samples. I told them the coil thickness didn't matter much either, but a max of 5 mm or so seemed reasonable. The coil is to be operated at about 125 kHz.

I'd like to maximize the OD without exceeding the 40 mm spec, as it is acting as an antenna.

(Sketchy specs, I know, but I had to start somewhere.)

So, what did I forget and what do I do wrong? For the last week I've had to take calls daily with question after question..."can the ID be 10mm?" Probably not, if you expect to make the OD ~40mm, but how would I know? "What is the series resonant frequency?" I don't know that I care? "What is the Q?" Isn't that set by the inductance, operating frequency, and the DCR? Why are you asking me?

I haven't felt this ignorant in at least a month. Should I have iterated through with the approximate coil formulas and just told them ID, thickness, gauge, and number of turns? Am I asking the impossible? Will I end up winding 500 coils my hand on a toilet paper tube form next week?

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ARGH!

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newell

Change your supplier. They're requesting far too much information. Which leads one to suspect they don't really know what they're doing. I "specified"! a custom transformer Thursday morning as (quote)

"Nominal 240Vac~ primary with two low voltage secondary windings.
Transformer is suggested at 30VA rating
Secondary #1 is Nominal 6.6V ac at 2Amp ac~
Secondary #2 is nominal 12.7V at 2amp ac~
(Yes. I know the VA things don't add up to "30" but sod it :)"

I receive the prototype on Monday morning and will expect it to work, having had zero technical questions from it's designer.
Suppliers should have the experience to fill in the basic stuff themselves.