

RIDLEY WEBINAR SERIES: 7



Design a Flyback Transformer with Dr. Ridley - LIVE!!

Have a seat and tune in to our webinar on Thursday, September 10 at 10 am PDT. Let's make history. Can he complete a transformer in an hour? We'll see. It's never been done LIVE.

Webinar September 10, 2020 10:00 am PDT

Flyback Transformer – What's in a Name?

Is it a transformer?

A coupled inductor?

Something else?

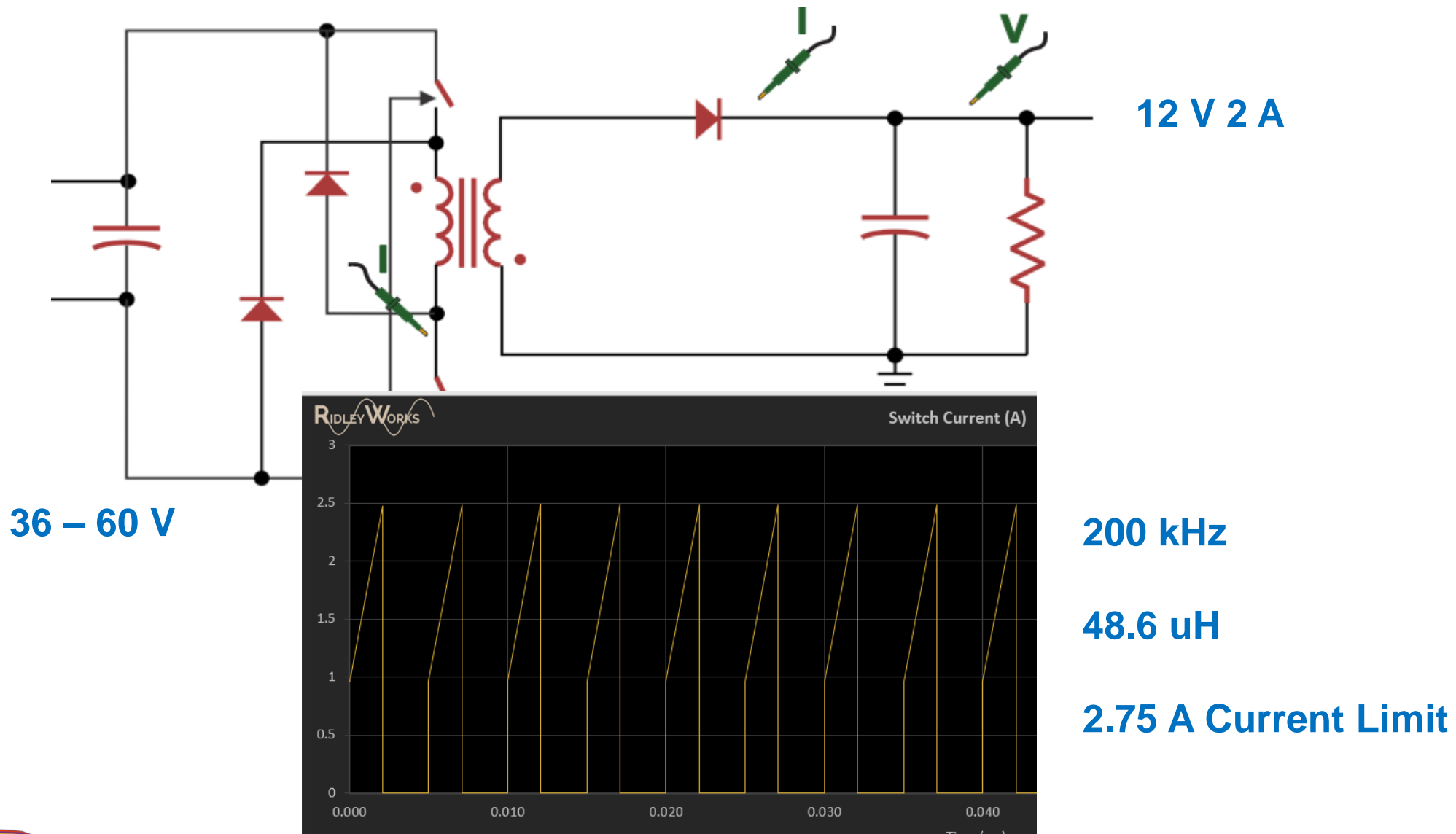
In reality, it is a combination of an ideal transformer, inductors, capacitors and resistors.

From the design point of view, there is no confusion:

It is an inductor, and it had better obey the one design equation for inductors.

$$B_s n A_e > L I_p$$

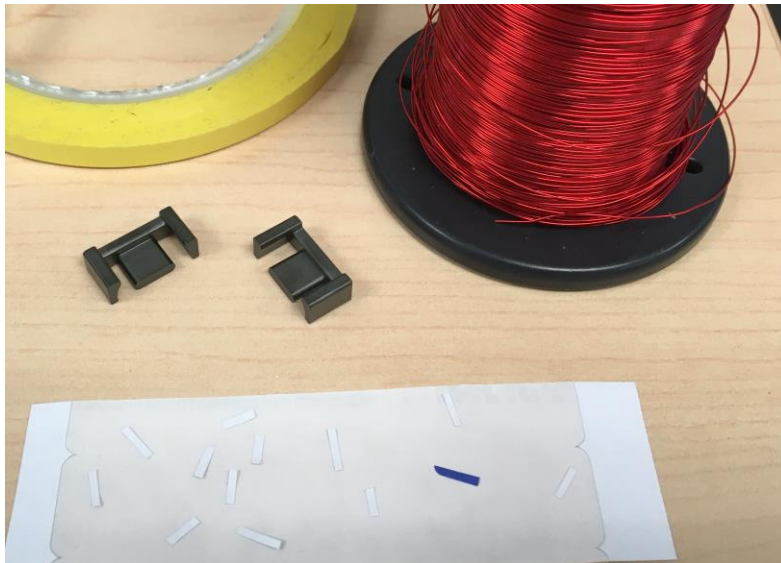
Two-Switch Flyback Converter



Transformer Components

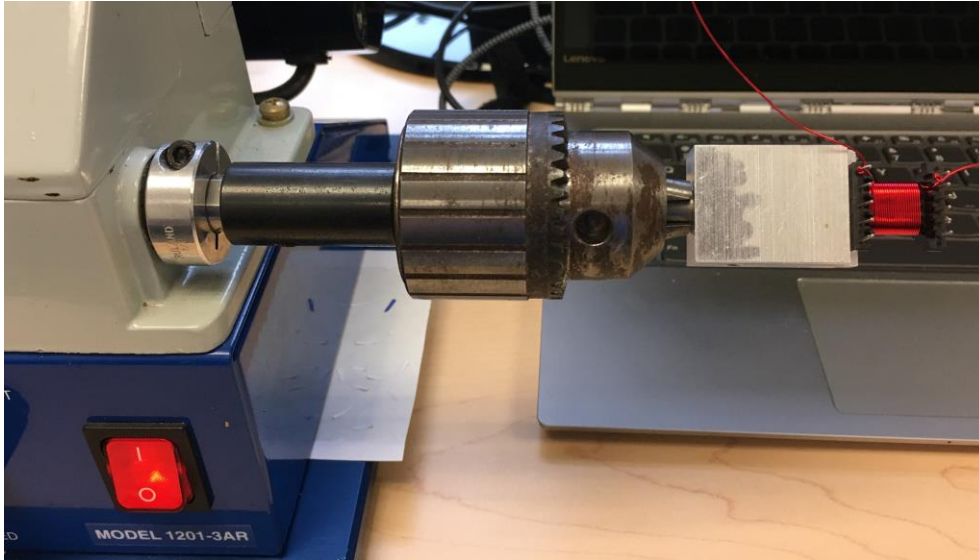


EPC 19 Core and Bobbin



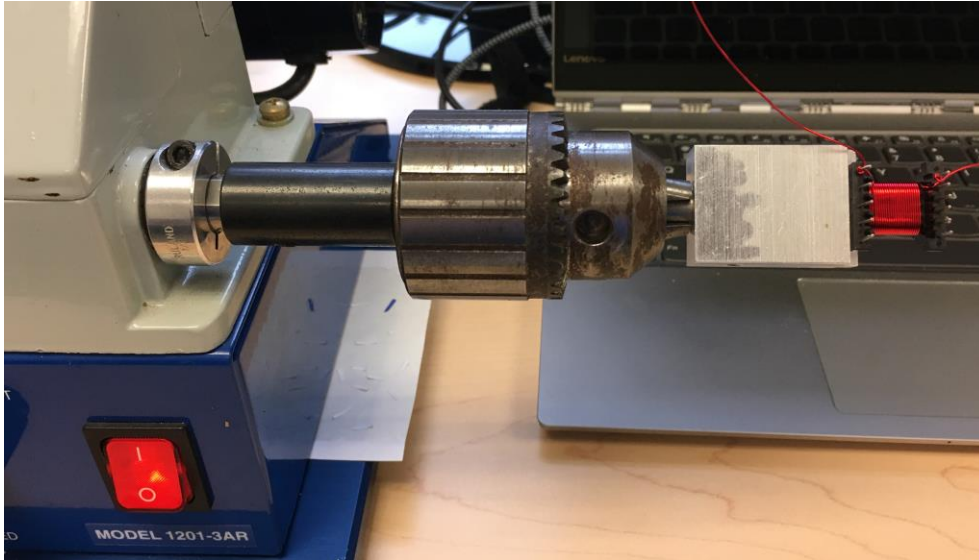
Wire Tape and Core Spacer

Transformer Components



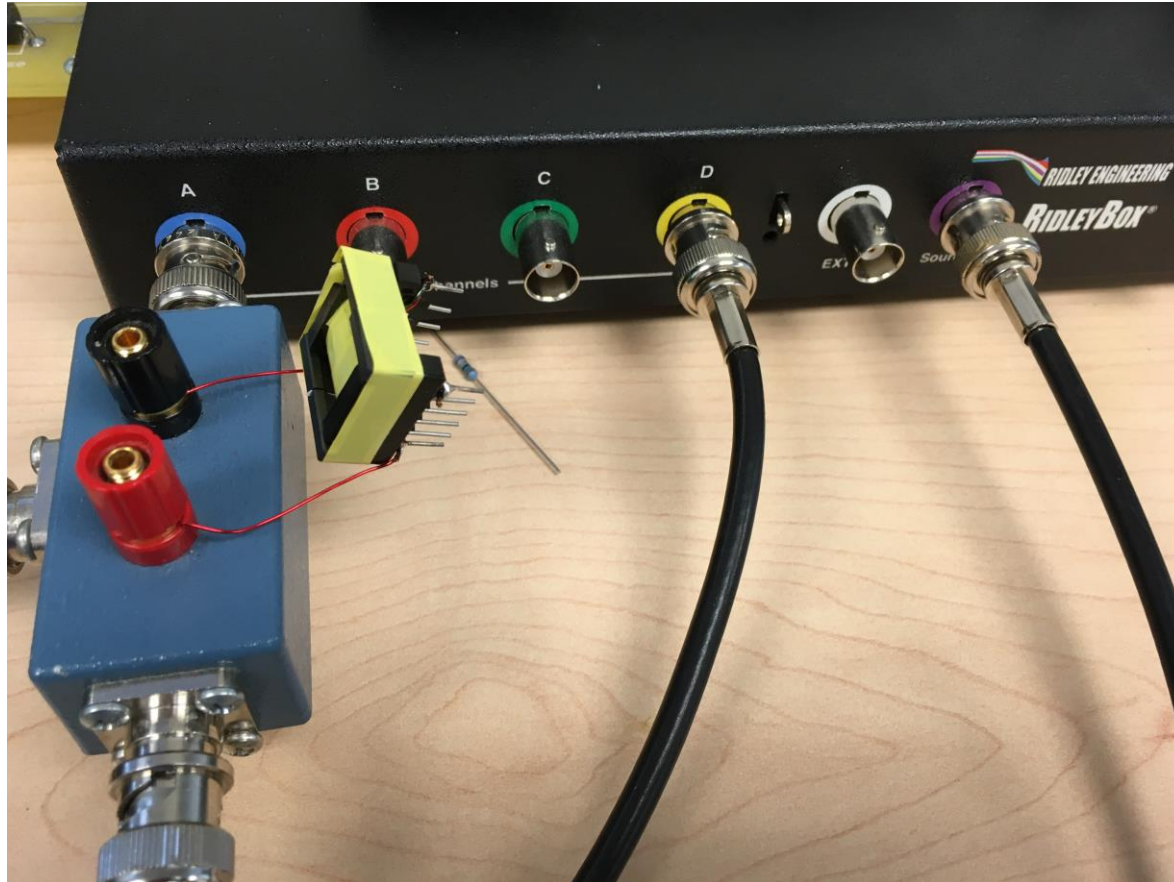
Winding Machine and Mandrel

Winding The Transformer



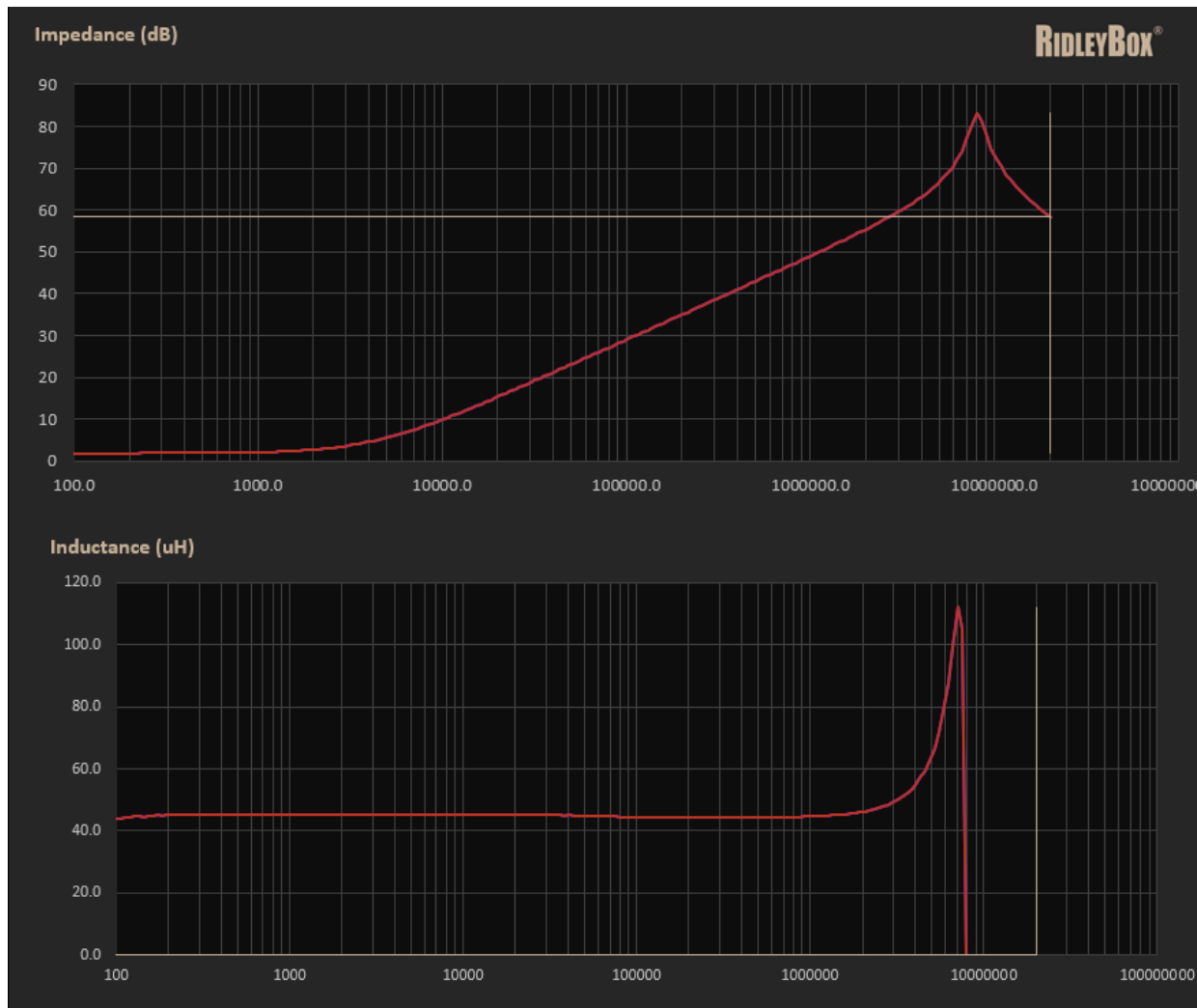
Winding Machine and Mandrel

Measuring The Transformer



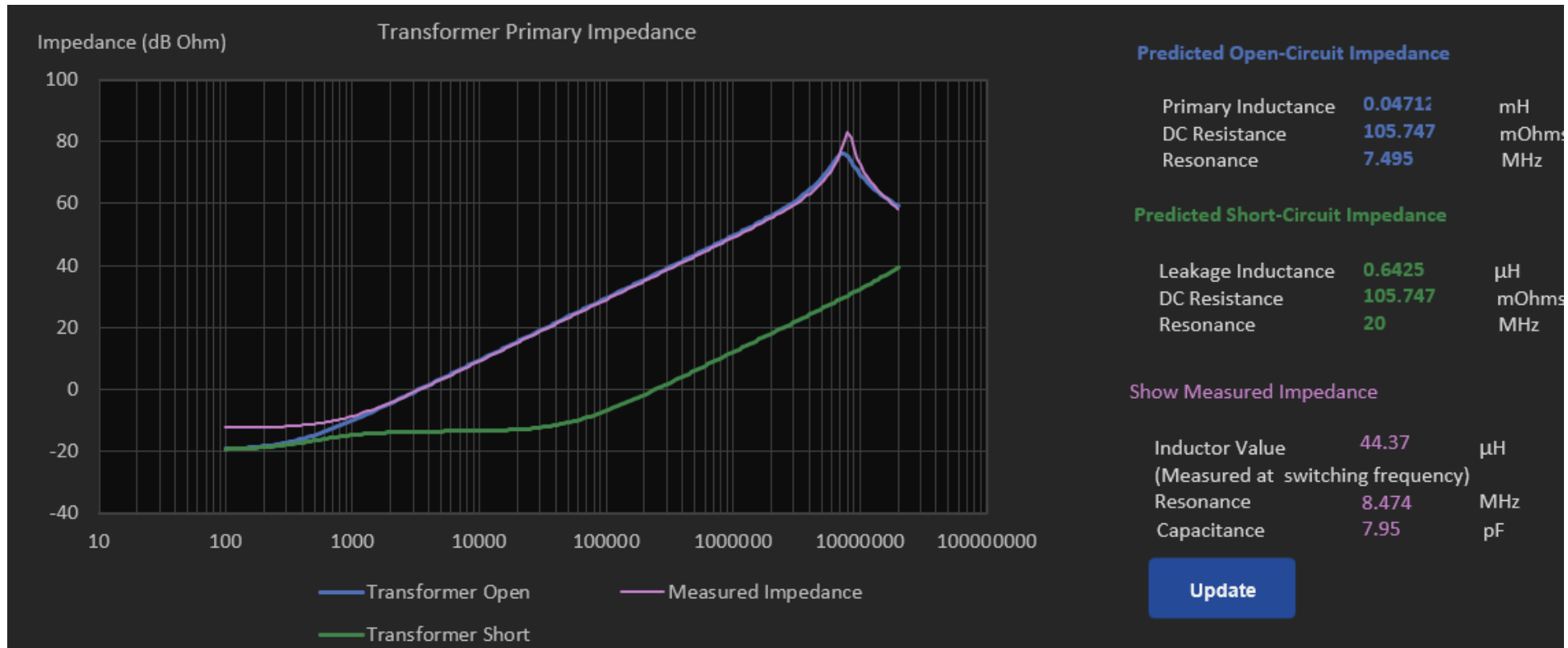
**Transformer Primary
Impedance Measurement**

Transformer Magnetizing Inductance

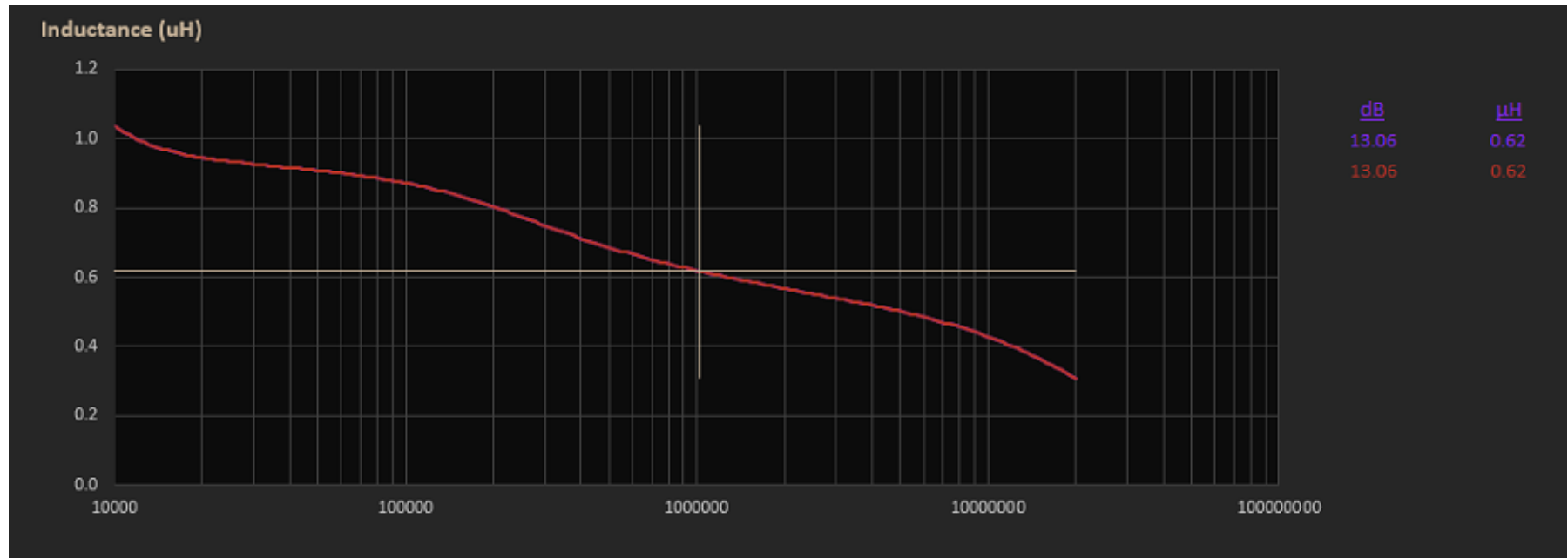


Measure Flat Region Before Resonance
Resonant Frequency give capacitance.

Transformer Magnetizing Inductance

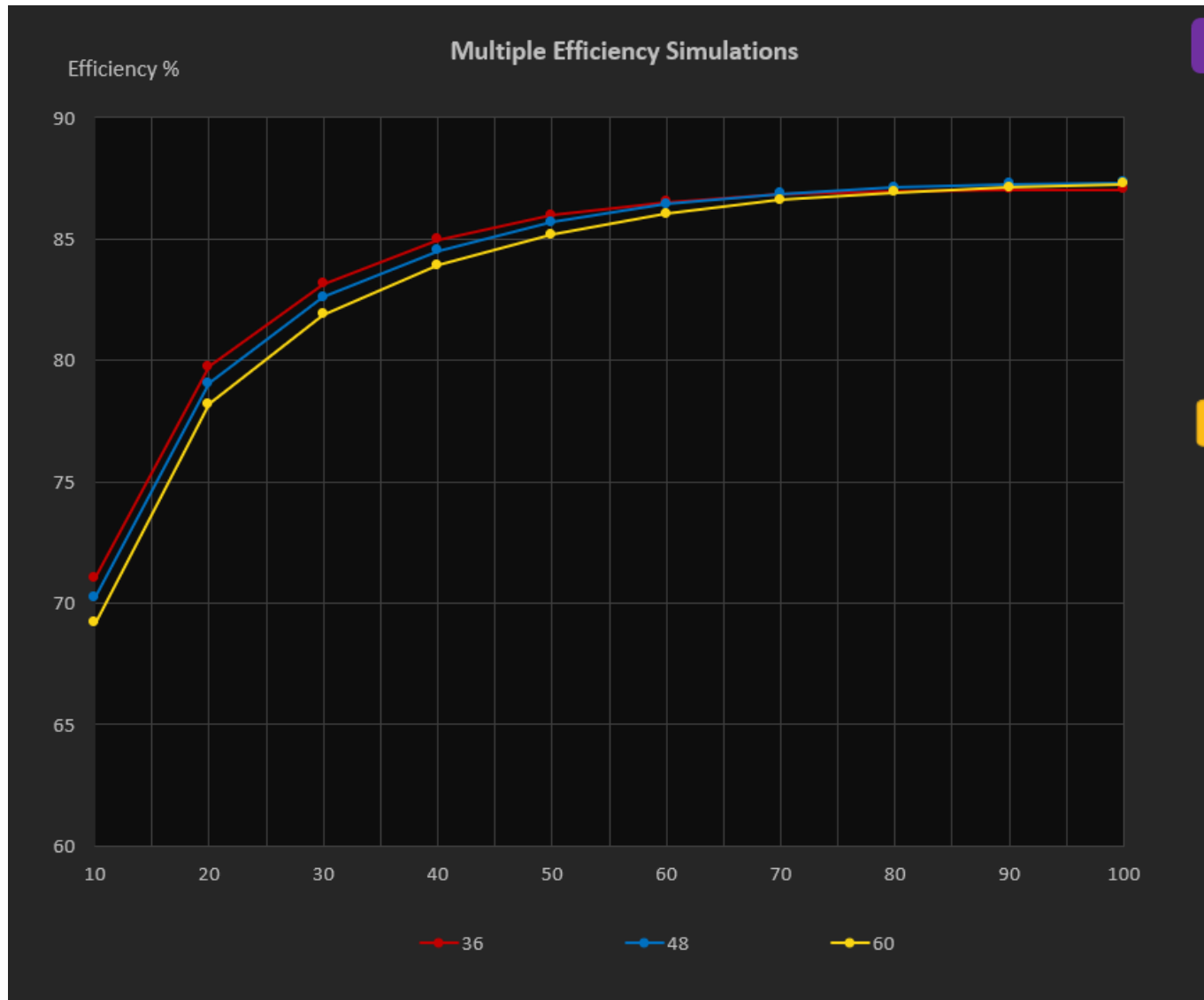


Transformer Leakage Inductance



Note value is changing with frequency
A single leakage value is of little use in qualifying transformers

Overall Converter Simulated Efficiency



How to Learn More



Email info@ridleyengineering.com
For full demo



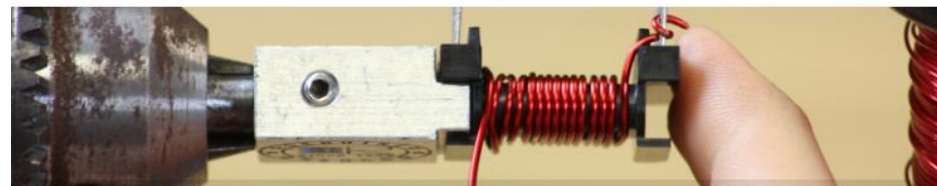
Frequency Response Analyzers



A New Small-Signal Model for Current-Mode Control

Raymond B. Ridley

Free
Book



> Education > Power Design Workshop > Intro

POWER SUPPLY DESIGN WORKSHOPS



Power Supply Design Center Facebook Group

Power Supply Design Center Articles

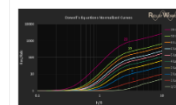
[113] THE ADVENTURES OF 'OHM

This custom-designed comic strip is for all the electrical engineers who are suddenly working from home.



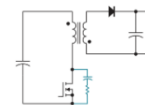
[112] THE POWER OF DOWELL'S EQUATIONS AND CURVES

The standardized curves of Dowell's equations are a superb tool for designing better high-frequency magnetics. A careful balance of layer count and wire or foil count is needed to reach an optimum design.



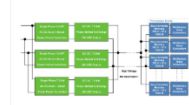
[A24] FLYBACK CONVERTER SNUBBER DESIGN

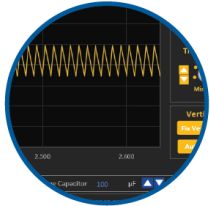
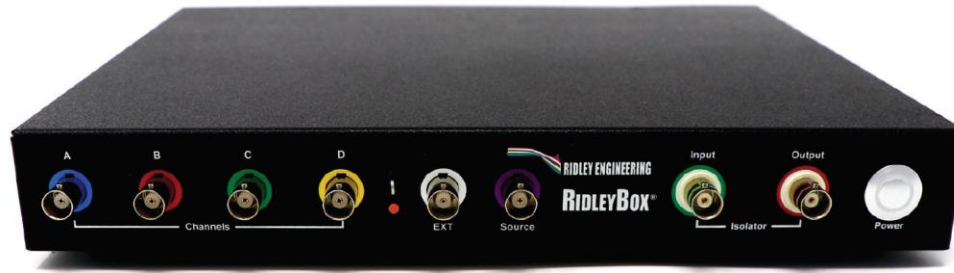
In this article, we will talk about practical design techniques for the most commonly used snubber and clamp circuits for the flyback converter.



[111] ZVS FULL-BRIDGE CONVERTER EMPLOYING AN ACTIVE SNUBBER

The ZVS full bridge converter can be enhanced greatly by implementing an active snubber on the secondary side of the transformer.

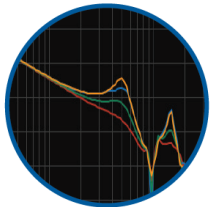




RidleyWorks® Lifetime License

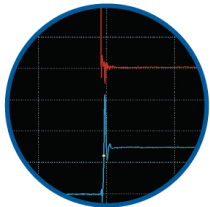
Power Stage Designer
Power Stage Waveforms
Magnetics Designer
Transfer Function Bode Plots

Closed Loop Design
Automated FRA Control
LTspice® Automated Link
PSIM® Automated Link



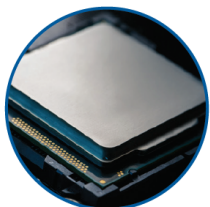
4-Channel Frequency Response Analyzer

Frequency Range 1 Hz - 20 MHz
Source Control from 1 mV - 4 V P-P
Built-In Injection Isolator
Bandwidth 1 Hz - 1 kHz
Automated Setup from RidleyWorks®
Direct Data Flow into RidleyWorks®



4-Channel 200 MHz Oscilloscope

Picoscope® 5444D 4-Channel Oscilloscope
200 MHz Bandwidth
1 GS/s at 8-bit res; 62.5 MS/s at 16-bit res
Signal Generator up to 20 MHz
Computer Controlled



Embedded Computer

Intel® Computer with 32 GB RAM, 256 GB SSD
Intel® HD Graphics 620
Integrated Dual Band Wireless, Bluetooth 4.2
Dual HDMI and USB Ports, Ethernet



Differential Probes



Line Injector



Accessories



Output Impedance



Impedance Test Kit