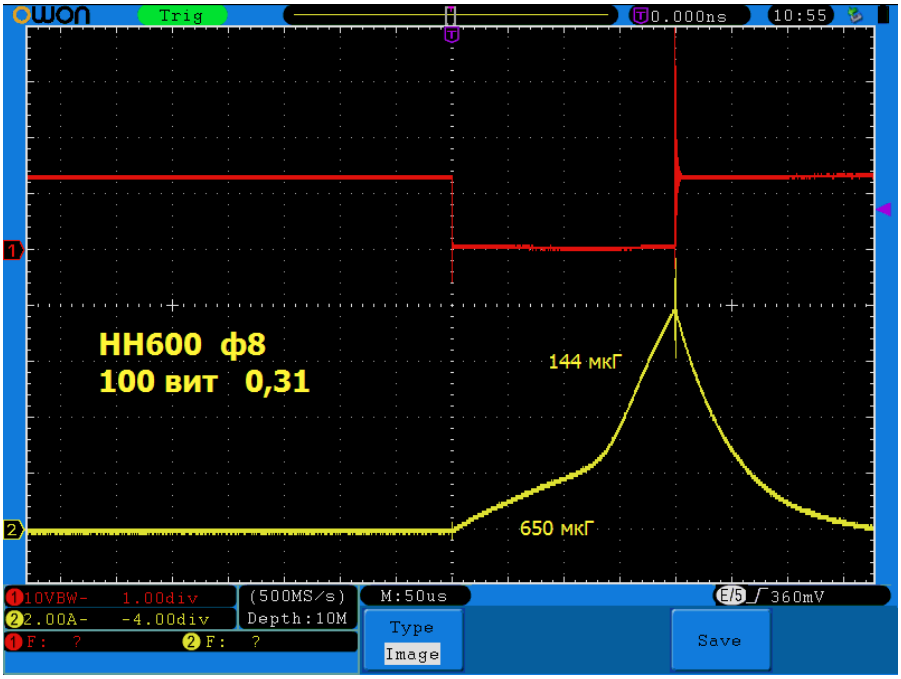
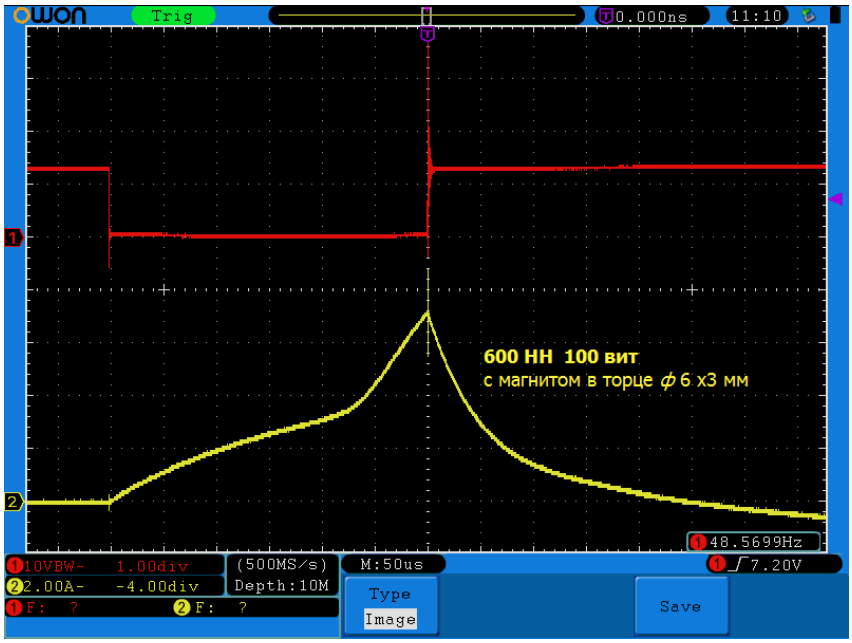
Source: https://www.skif.biz/index.php?name=Forums&file=viewtopic&p=689735#689735
(some swearing removed or replaced by translator)

Let's see how regular ferrite works. I made measurements especially for this.
As a core, a piece from a magnetic antenna 600HH (ferrite rod, mu=600). This is the most common ferrite of the consumer electronics with small losses and quite easily saturable. At the 2 ampere level, a break in the magnetization curve is visible. This is from zero to the beginning of saturation, that is half of the magnetization curve.



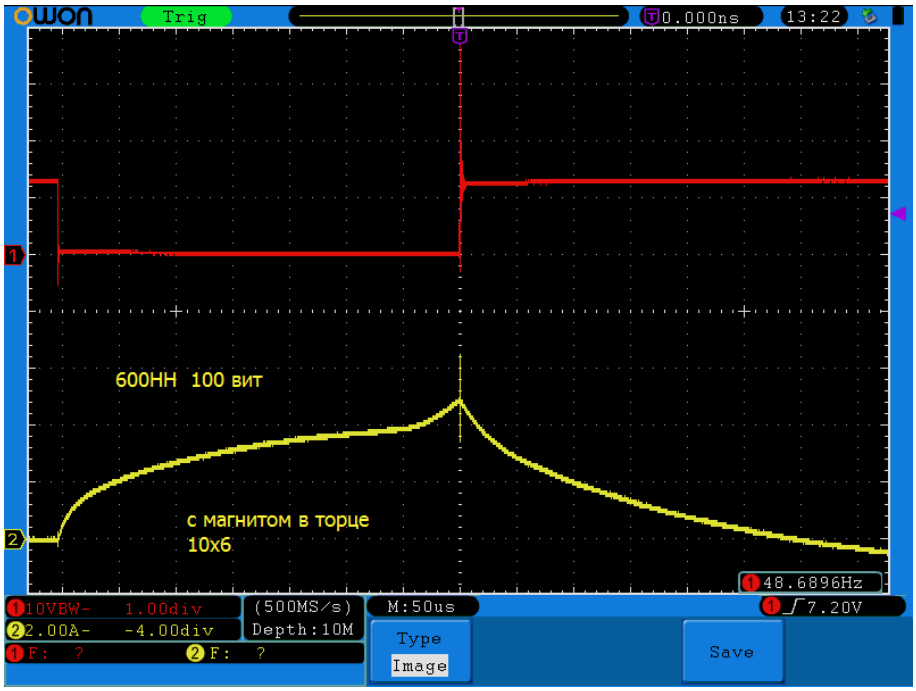
yellow text left: ferrite rod diameter 8мм mu=600 100 turns wire 0.31mm
right: 650uH 144 uH

dedivan | Post: 689736 - Date: 31.08.20 (14:58)
The full curve will be twice as large. We shift the starting point with a magnet, but do not climb into saturation - already 4 amperes are needed to pass it.



yellow text: ferrite rod diameter mu=600 100 turns magnet 6mm x 3mm attached to the rod edge

dedivan | Post: 689737 - Date: 31.08.20 (15:00)
But if you climb into saturation and start demagnetizing with a current pulse from there, you can see that exactly the same linear magnetization reversal section is passed in just 2 amperes.



tesxt: magnet 10x6

dedivan | Post: 689738 - Date: 31.08.20 (15:04)
In total, we won almost almost 2x times.
If we do not demagnetize before reaching the upper saturation, then the magnet will pull the curve back as in the second picture - equivalent to a current of 4 amperes.
If you can calculate the energy of the impulse and how much profit we will get.

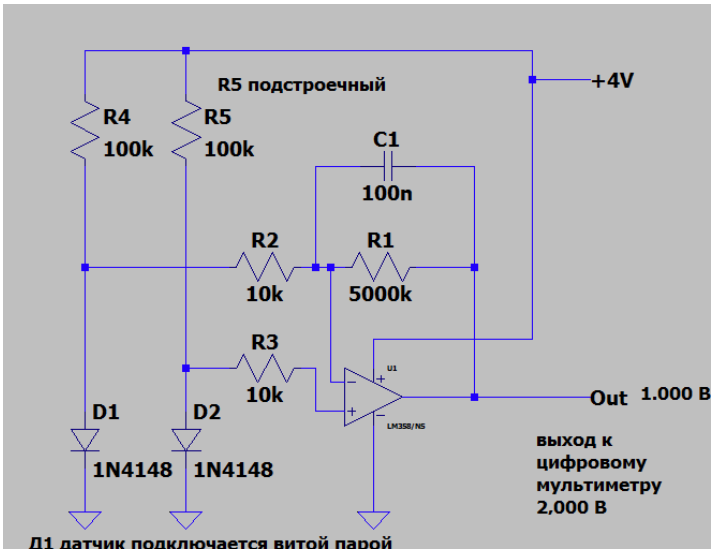
dedivan | Post: 689837 - Date: 01.09.20 (05:06)

But this does not mean that with strong magnets it will drive the cores into saturation. Iron is not easy to drive there. In the previous video, the person understood correctly and made a core from thin wires. They can really be driven into saturation.

It must be remembered as our father, ***the magnetic field itself does not give energy, and a separate phase transition does not give extra energy, but a phase transition in a field is already an opportunity to get a overunity.***
But again, only a possibility, it still needs to be realized.
This extra energy appears in the emission of emf, and it must be caught, and not let sparks from the collector.

dedivan | Post: 695239 - Date: 16.10.20 (17:35)

Diode as temperature sensor -2 mV per degree.
Plus, a conventional opamp with K = 500 gives a resolution of 1 mV per 1/1000 degree. To appreciate what it is, a simple example-
The bottom of the retina is permeated with blood vessels with blood with T = 36.6 degrees, and there is a lens lens in front of the retina, so if you look closely at the diode, the IR radiation from the retina will focus on the diode and he will notice that someone is looking at it.

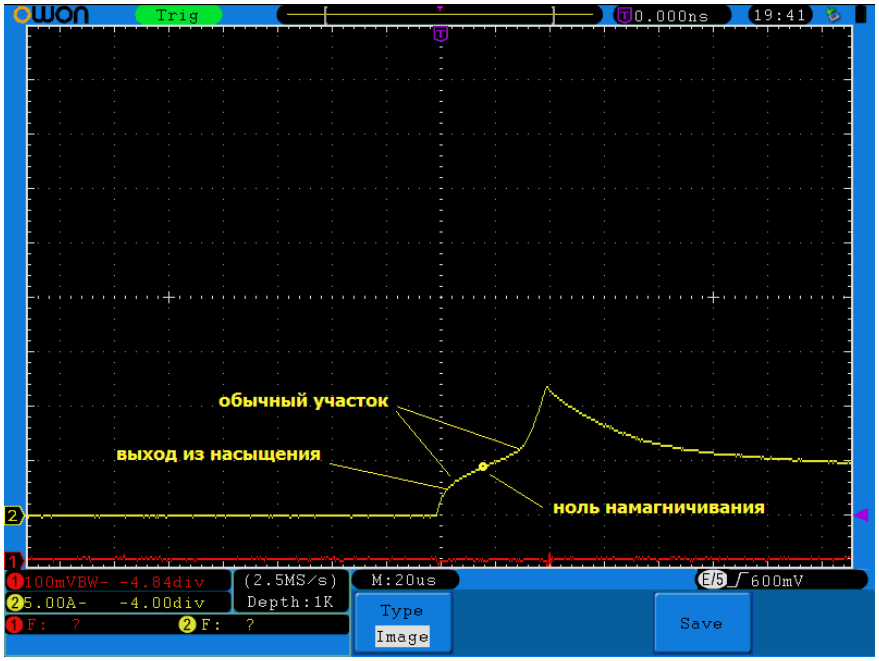


text: R5 is trimer, D1 thermal sensor, connected with twisted pair, output to digital multimeter 2V

dedivan | Post: 695262 - Date: 16.10.20 (19:03)
The most common diodes in glass are 1N4148
The opamp is also the most popular - LM358
Battery powered from old mobile phone
Connects to the input of a cheap Chinese multimeter
Resistor R5 is a trimmer, we set it to 1,000 volts at the output at rest.
multimeter scale 2 volts - will show +/- 1 degree with 1/1000 resolution

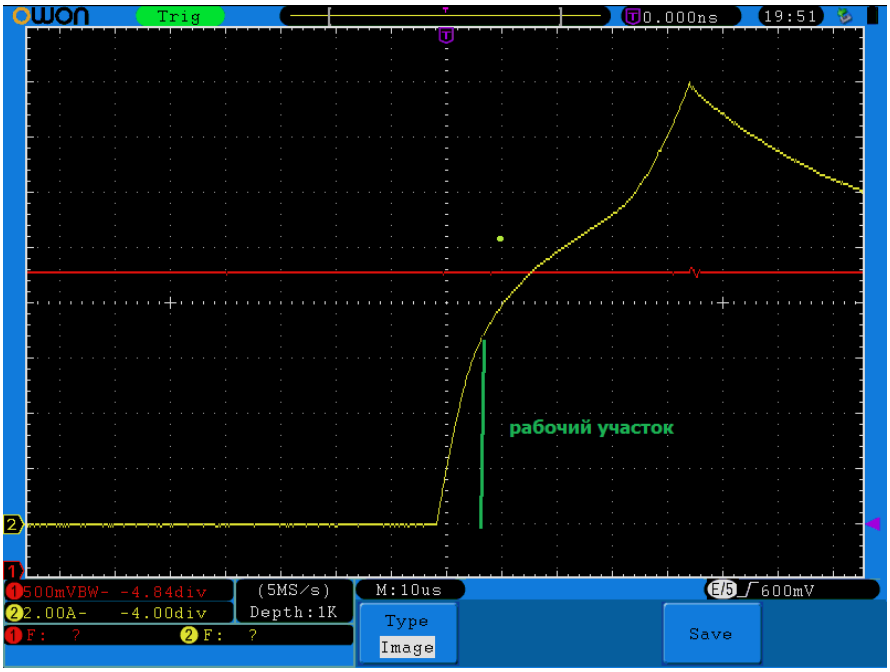
dedivan | Post: 695264 - Date: 16.10.20 (19:04)
And note - diodes are open.
In the optimal mode 40 µA.
In general, currents from 10 to 100 µA are recommended for linearization.

dedivan | Post: 695467 - Date: 19.10.20 (15:25)
About ferrits?
Look at the pictures from the scope and consider them carfully.
The first picture is the current through the magnetized ferrite.
Ferrite from the magnet is in saturation. We supply a demagnetizing current to the coil.
and look - ferrite goes out of saturation, then follows its usual magnetization curve and enters a new saturation.



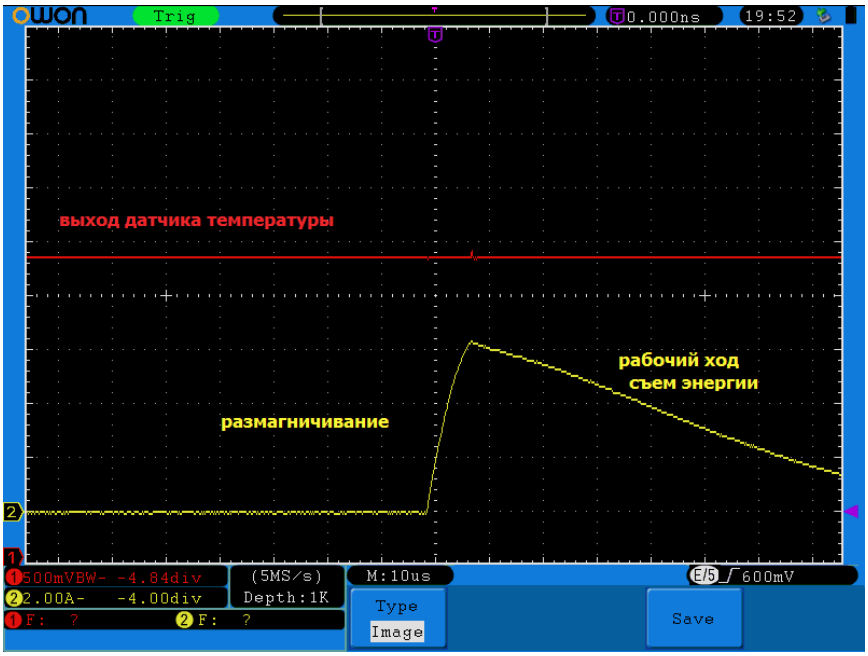
text: exit from saturation, normal region, zero magnetization

dedivan | Post: 695468 - Date: 19.10.20 (15:28)
The second picture is scaled up
on it we mark the section of the exit from saturation - to the usual section of magnetization - so we will work on it. Here the ferrite is cooled.



text: working region

dedivan | Post: 695469 - Date: 19.10.20 (15:33)
And the third picture is how the working cycle looks like.
We demagnetize it with an impulse and then the magnet starts to drag the core back to saturation, and at this time we connect the load. the emf in the load is already created by the magnet.
And the energy is a little more than spent on demagnetization.
Thermal energy from the environment is added.



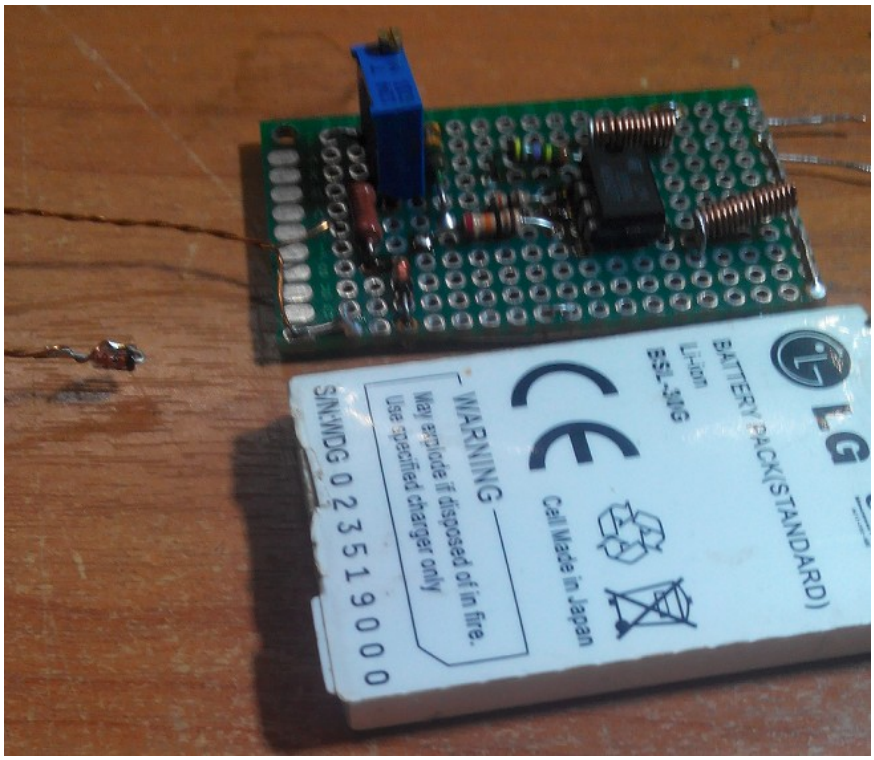
text: temperature sensor output (red), demagnetization (yellow), working region, energy pickup

dedivan | Post: 695473 - Date: 19.10.20 (16:13)

> oleg-jan Post: 695471 From 19.Oct.2020 (08:54)
> What is the temperature sensor and why is the signal from it a bipolar surge?

The sensor described above. But the sensors themselves are ordinary penny 1N4148, though matched in pairs with an accuracy of +/- 1 mV.
A splash is the usual interference at the time of switching.
There is no temperature change visible here - the scale on the scope is too large. Temperature changes are visible on a digital voltmeter.

dedivan | Post: 695474 - Date: 19.10.20 (16:19)
An amplifier, a twisted pair to diode sensor is connected.
Springs at the exit - for connecting the stubs from the whale of the Thai string bag.
A semi-dead battery lasts for a month without turning off.

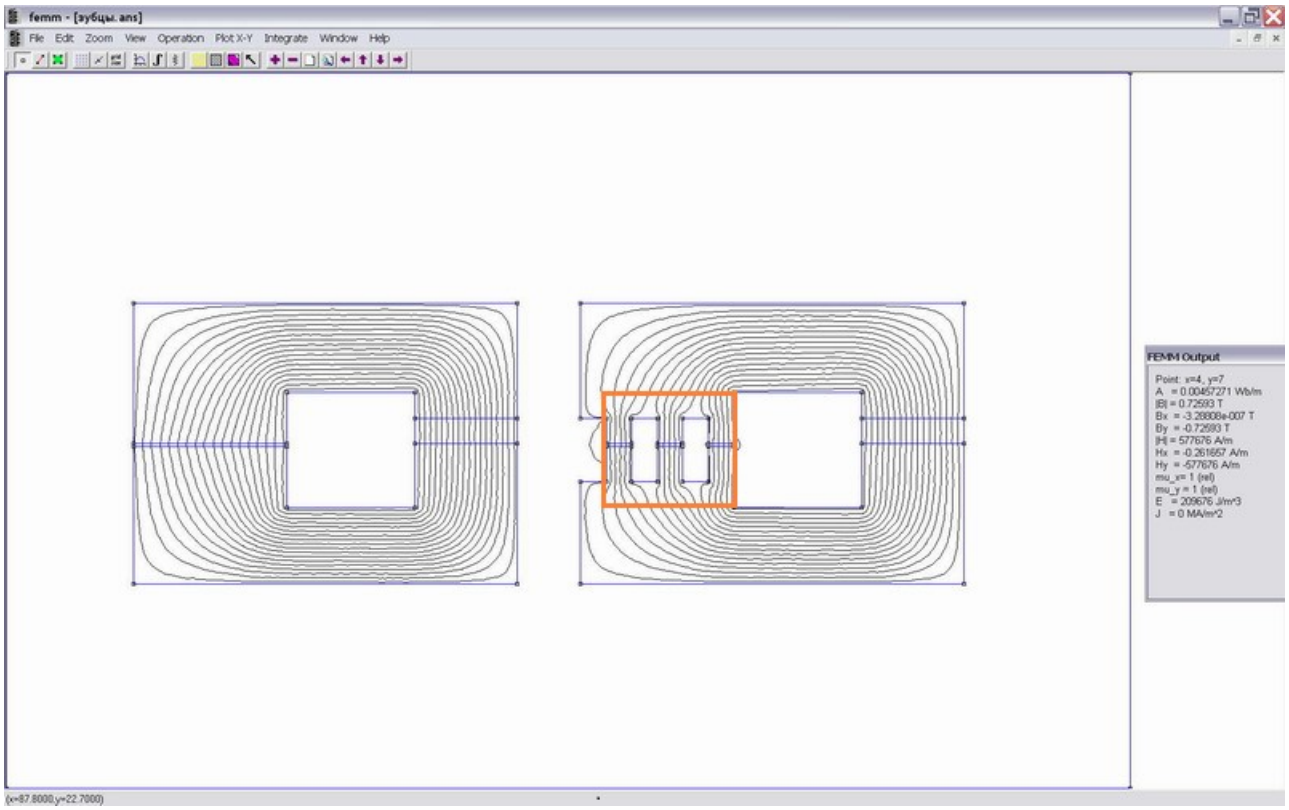


dedivan | Post: 695505 - Date: 19.10.20 (19:12)

> oleg-jan Post: 695499 From 19.Oct.2020 (11:04)
> Something I forgot to write, the mu core is still changing ...

Not mu is changing. but the orderliness of the structure.
This is a second order phase transition - a change in order.
And mu in the saturation zone is about one.
Phase transition of the first kind - solid-liquid-gaseous.
And ordering-disordering is of the second kind.
And when the external environment contributes to the disorder, we get a free addition (of energy).

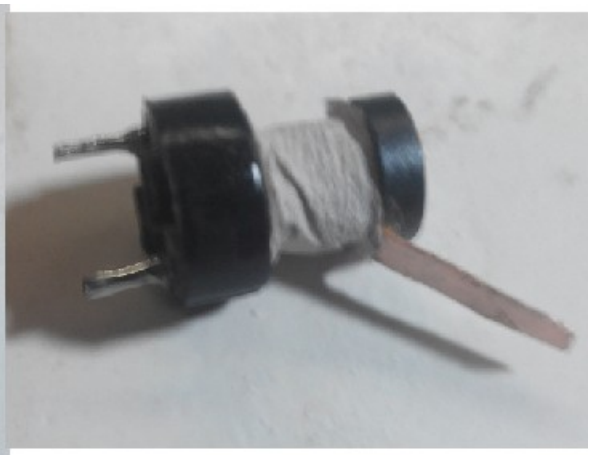
dedivan | Post: 695947 - Date: 23.10.20 (22:19)
Someone asked how magneto-thermal converters should look like.
Approximately such - a lattice of magnetic material should be with magnetic saturation zones. At the same time, there is heat exchange with the environment.



dedivan | Post: 695950 - Date: 23.10.20 (22:34)
So this thing must solve two problems - good contact with the medium and a small cross-section of the magnetic circuit in the working part. So that the saturation is good. The decrease in temperature depends on this.

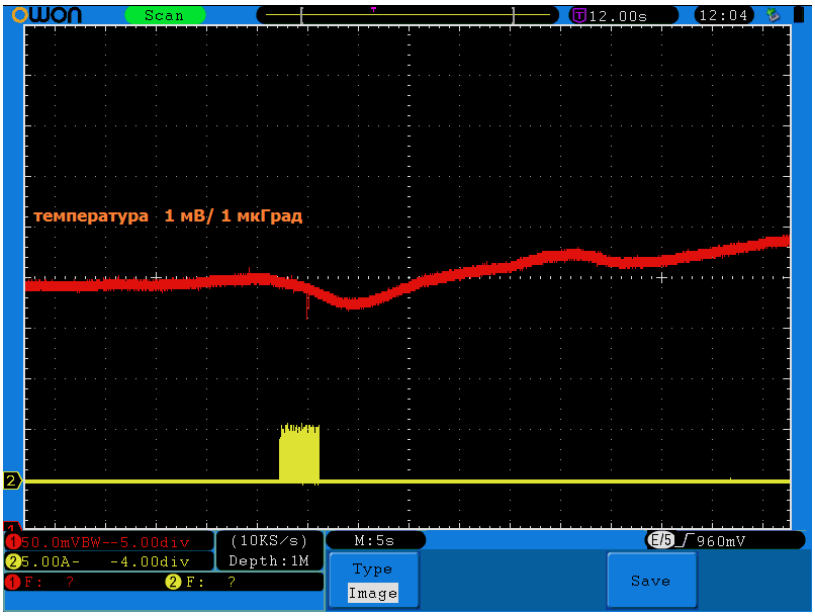
I use such cores for experiments - a magnet is applied to the ends
and the working part is a thin rod.

dedivan | Post: 695952 - Date: 23.10.20 (22:46)
Here are photos of the secret setup - a copper strip is glued to the rod and all this is wrapped in a secret heat insulator of the PIPIFAX type.
The tip of the copper strip is wrapped around a heat sensor diode with thermal paste.



dedivan | Post: 695955 - Date: 23.10.20 (23:07)

Here is a picture of the temperature. 5 seconds a burst of demagnetization pulses, the temperature drops, drops and after the end of the burst, this equalizes the temperature of the core and the copper strip. And then the heat from the winding breaks through and the temperature rises.
The resulting cooling is about 20-30 milli-degrees. But this is normal ferrite. Cooling on “tricky” ferrites is stronger.



text: temperature 1mV/1milliC