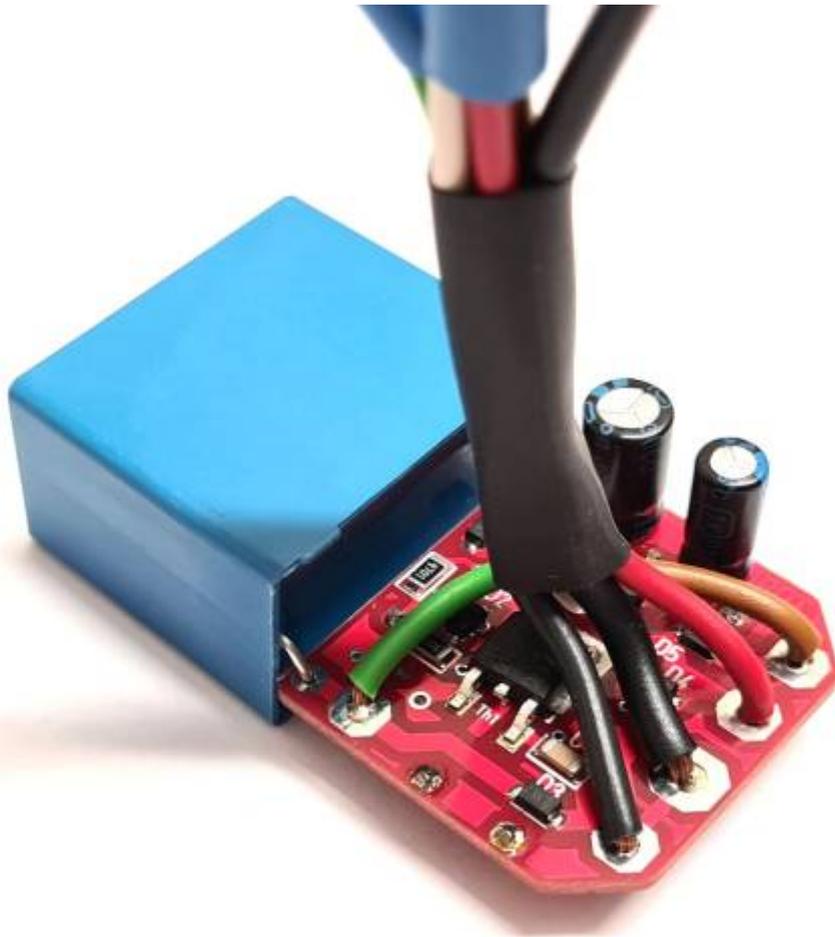


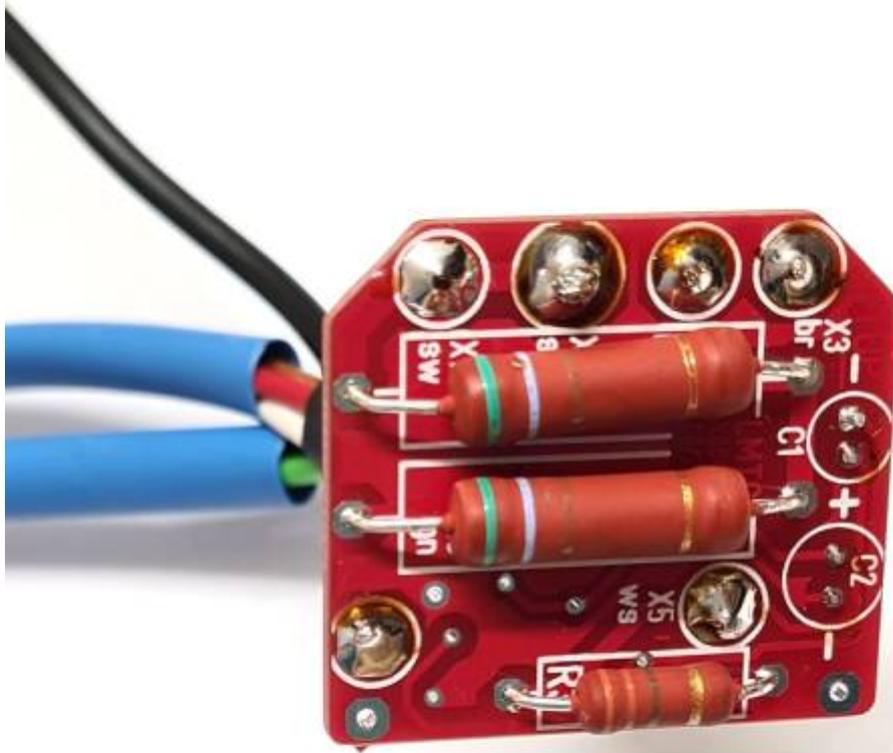
# VSCDI3

I want to introduce how a CDI can be developed. The following CDI was developed in 2016. But it's just a BETA-Version and has never reached a final status. So please read and enjoy. It is not recommended for recreation.

Its project name was VSCDI3.



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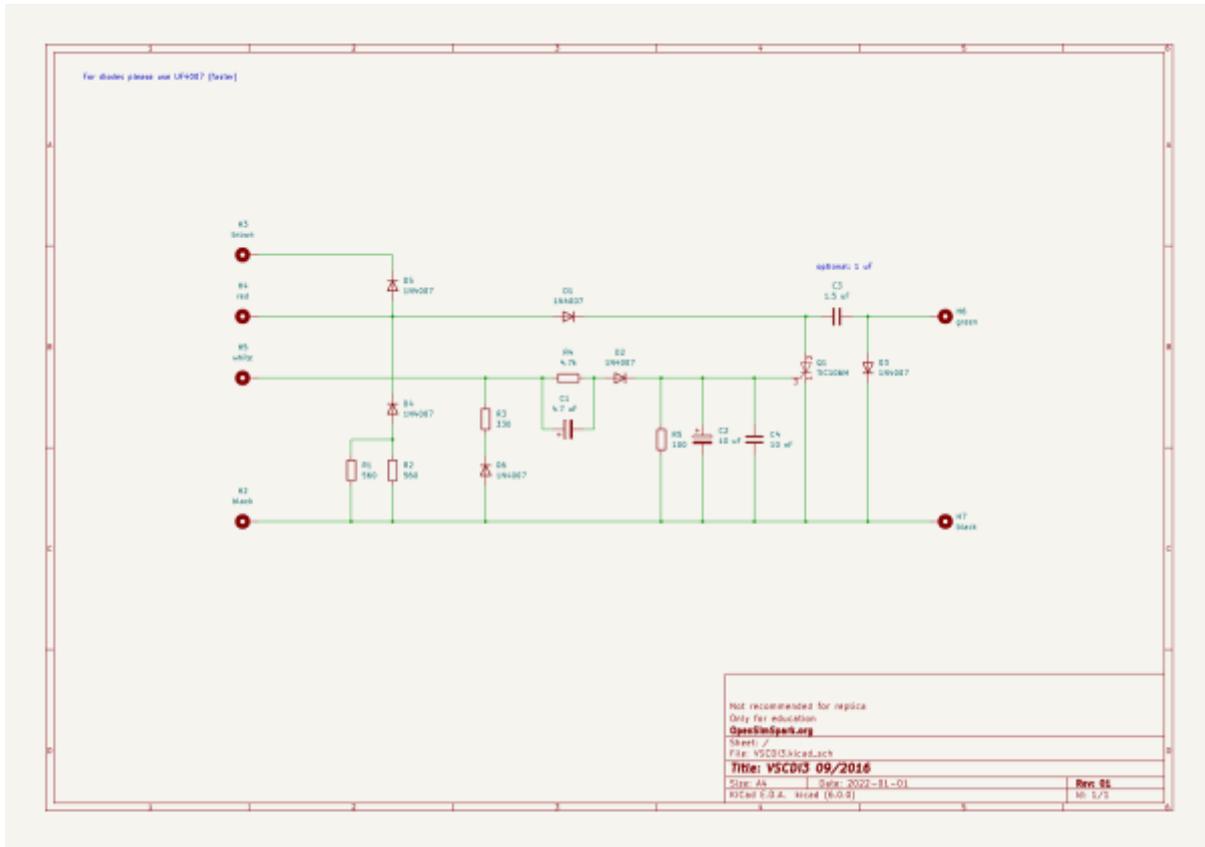
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## motivation

The VSCDI3 was created to work with Vape A70-3 and A70-5. It should have an easy structure with not to much components. The adjustment timing should be soft to work with nearly every engine with a moderate rev level.

## circuit diagram

The basic design is close to the [ST reference](#) design, but with an added negative wave handling and a modified signal shaping.



## Negative wave handling

The branch with R1, R2 and D4 is limiting the negative waves. A first Version had R1 = 10 k (and R2 empty), but this created to much heat dissipation and the SCR get out.

The following values were obtained after measurement:

- U<sub>Peak</sub> = 800 V
- I<sub>Peak</sub> = 0,08 A

A current of 0,08 A does not sounds much. But the Heat power loss is be calculated with:

$$P = I^2 \times R = (0,08 \text{ A})^2 \times 10\ 000 \ \Omega = 64 \text{ W}$$

And 64 W are a huge heat load! So next time do the math and the measurement first. After a few more test R1 and R2 was dimensioned to 560 W each.

## Signal shaping

Again a branch with D6 and R3 is handling the negative signal waves.

The positive signal waves are shaped with „the rest“ between H5/white and the SCR gate. With vary C1 and C2 the signal timing can be customized.

## Capazitor

A standard size of the Capazitor C3 is 1 uF. But to get more energy at low revs it was contemplated to use 1,5 uF. By the way this are just thoretical approaches, no driving test have been made.

## SMD elements

This elements were used for the SMD version with the pictures above.

Element	Value	Comment
R1	560	3 W
R2	560	2 W
R3	330	-
R4	4,7 k	-
R5	100	-
D1...6	SL1M	-
Q1	STM TS820	-
C1	4,7 uF	Elko
C2	10 uF	Elko
C3	1 / 1,5 uF	-
C4	10 nF	-

Note: The SCR ON CR708AG does not work with this scheme.

For a THT version the should be used UF4007 for the diodes and a TIC106M for the SCR

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