

LED replacement, Energica Ribelle

The lens is fixed with a ring with four legs, and a screw in each leg

Here you can see the ring being taken off, then you can get in with a screwdriver below the "ridge" that keeps the lens in place rotation wise and push it out



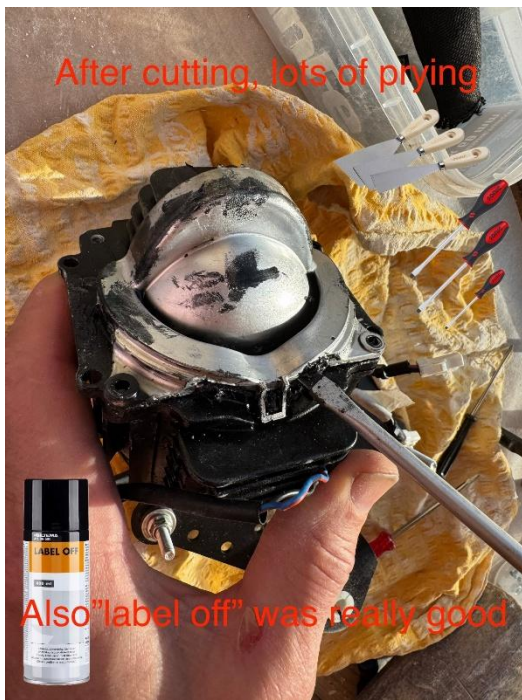
Here to the right you can see the ridge where you can get in under the lens with a screwdriver, and at the top there's the high-beam board



There are two chips. To get the high beam one out you just need above steps, but to extract the low beam board you need to remove the reflector on the back, let me send you some pictures for that too

Here's a guide on how to get to the low beam chip





"label off" is this one <https://www.biltema.se/kontor---teknik/kontor/kontorsmaterial/tejp/label-off-400-ml-2000029987> but I'm not sure of a US-equivalent. It's basically something you can get at hardware stores to soften adhesive

This is how it looks like when you finally get it open from the other side





These are the chips I used <https://www.aliexpress.com/item/1005005791050412.html>

The specs are identical, but unfortunately the pads on the back are rotated by 90°

This is the datasheet <https://lumileds.com/wp-content/uploads/files/PB175.pdf>

Here's the document with reflow profile on how you need to solder the chip

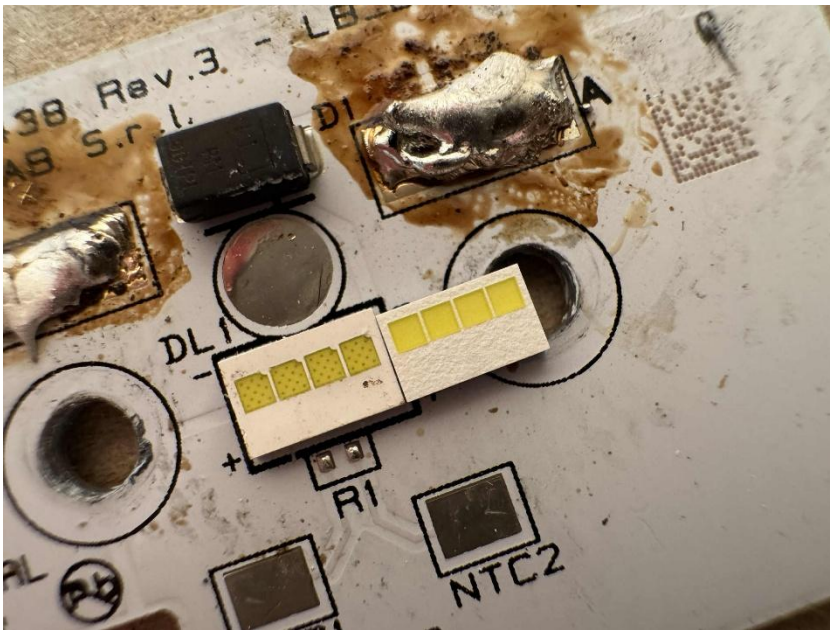
See PDF LUXEON Altilon.



you might need some thermal compound for putting back under here

We used this one, it's held up so far (since April, around 7000km)

<https://www.biltema.se/bilvard/bilunderhall/tatningsmedel/karosseritatning-svart-290-ml-2000050837>



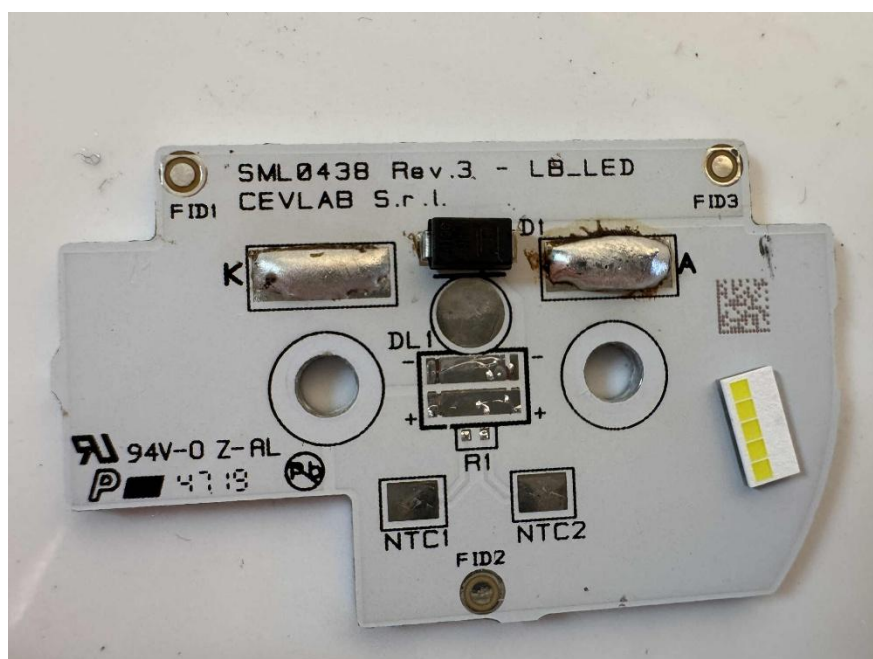
old vs new chip side by side (front)



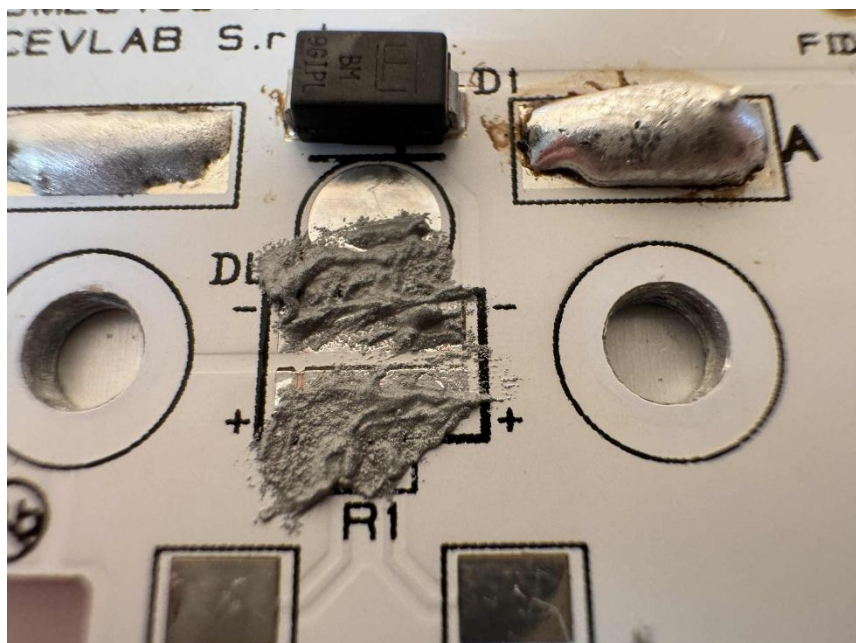
You will need a hot plate for soldering. You could try hot air gun but this is much simpler, the components won't blow away

Apart from the hotplate, this is pretty much everything I needed for SMD soldering

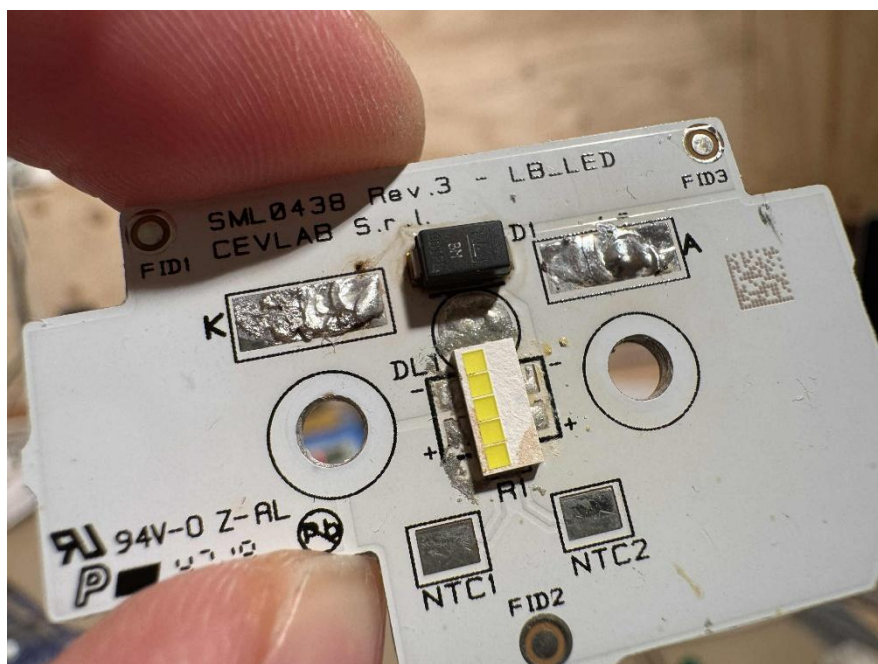
Produkt	Antal	Total
Flussmedel penna TK83 8ml Art nr: 41023882 Pris/st: 79.20 SEK	1	79.20 SEK
Isopropanol IPA 99.5% 1liter Art nr: 41021025 Pris/st: 95.20 SEK	1	95.20 SEK
Lödfäta 1.5mm Art nr: 41000512 Pris/st: 39.20 SEK	1	39.20 SEK
Lödpasta Sn/Cu/Ag 40g blyfritt Art nr: 41018910 Pris/st: 255.20 SEK	1	255.20 SEK
Pincetter set 4 st precision Art nr: 41012674 Pris/st: 119.20 SEK	1	119.20 SEK
		Frakt 23.20 SEK
		Moms 152.80 SEK
		Summa 764 SEK



Here you can see the orientation of the pads (contacts) on the board, it's in the middle where the old LED was. After removing the old chip and desoldering the PCB, I cleaned it with the 99% isopropyl alcohol and the solder wick, which you also should do so it's ready for soldering the new chip



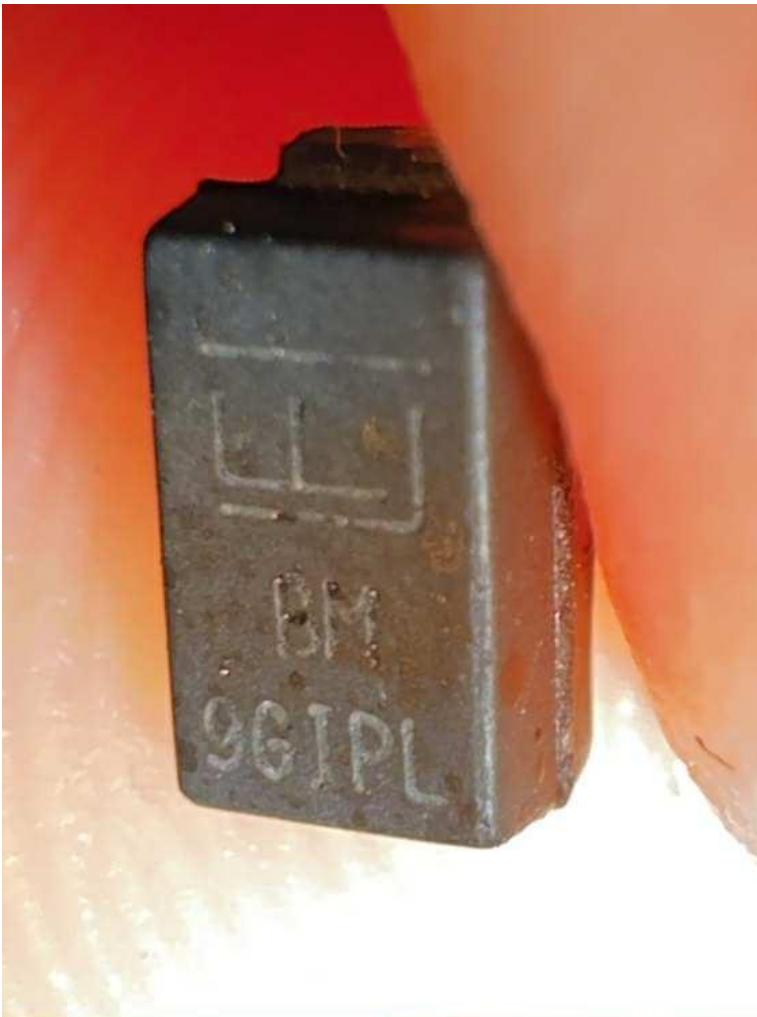
This is too much solder paste. Use less solder paste, but a lot of flux!!! I used too little flux and wasted a chip. You need lots of flux, the solder paste doesn't even melt if not full with flux



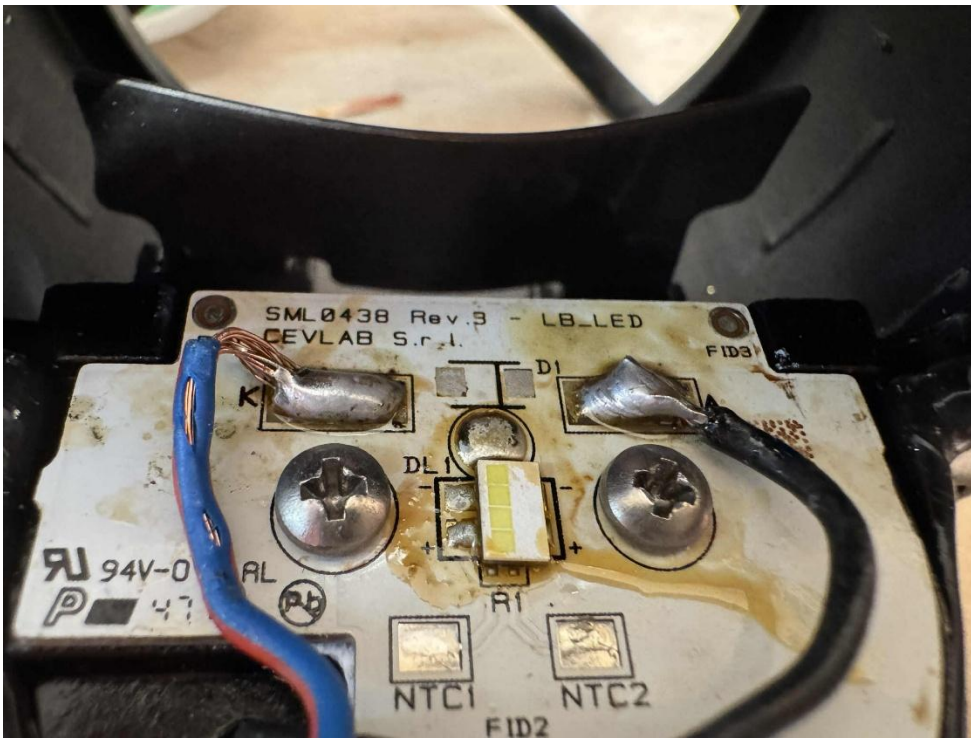
here you can see the problem with the chips - you have to rotate it 90° for the polarity to be correct 😊



because I used too much solder paste, the result looks like shit and the chip is tilted haha, but for some reason it still works and keeps working 😊 Just use more flux and less solder paste is my recommendation



I also had to remove this component, I think I made it too hot on the hotplate or something and it broke (I think it was a diode?). But according to chatgpt the SMD chips that I used already has this built in

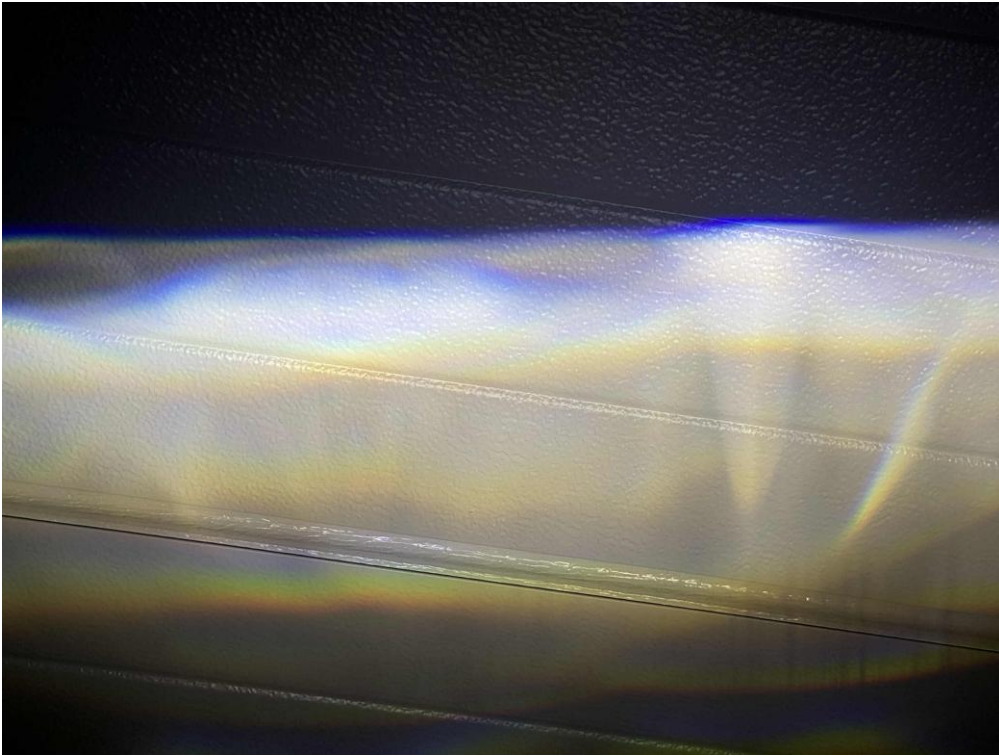


Very important to solder the wires on before you mount the PCB back as otherwise the PCB will dissipate all heat and you can't solder - final result



for assembly basically just do everything in reverse. Cleaned the stuff with IPA and applied new silicone here





align the lights after installation