

## Reflektor-D Mini



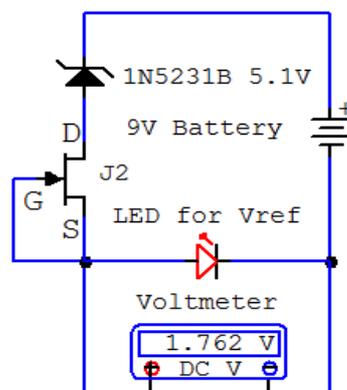
This is a smaller size and simpler version of the Reflektor-D shunt regulator. Meant for where the installation space is restrictive. It does not have own rectification and filtering section and it does not have on board space for sinks. It only accepts DC as input. Has two wire output only. It measures 76mm by 33mm.

It is the same circuit as the original bigger regulator. Though the Mini has J2 JFET instead of resistor bias option. There are bottom layer alternative pads for 2SK117GR SMD compatible parts. The original build guide applies and should be followed by just ignoring the AC section and the four wire output arrangement. The part numbers are the same. The test dummy load will be connected across the two wire output to same effect. You must read the original guide before assembly. [Its in the GB for Reflektor-D at the first post's end](#) The film capacitors are also smaller for the Mini. Up to 14mm x 6mm size 5-7.5-10mm pitch C1 and 5mm pitch 8mm x 6mm size CD.

Practical concerns when building the Mini are:

1. It takes to insulate the Mini's MOSFETS to whatever surface you choose to cool them
2. Output voltage must be expected as little higher than in the big Reflektor with same LEDs because of J2 in the Mini. Its IDSS also plays a role in how much the Vout will be.
3. You should use 9-12VDC DC input line. With mA capability higher than the CCS setting.

About (2) put the J2 & likely LEDs in this test jig first so to predict voltage contributions to Vout better. Test possible Rx or diode in the same place of the LED to know their expected voltage too. The 5.1V Zener is for bringing the test levels nearer to true circuit voltage and current conditions.

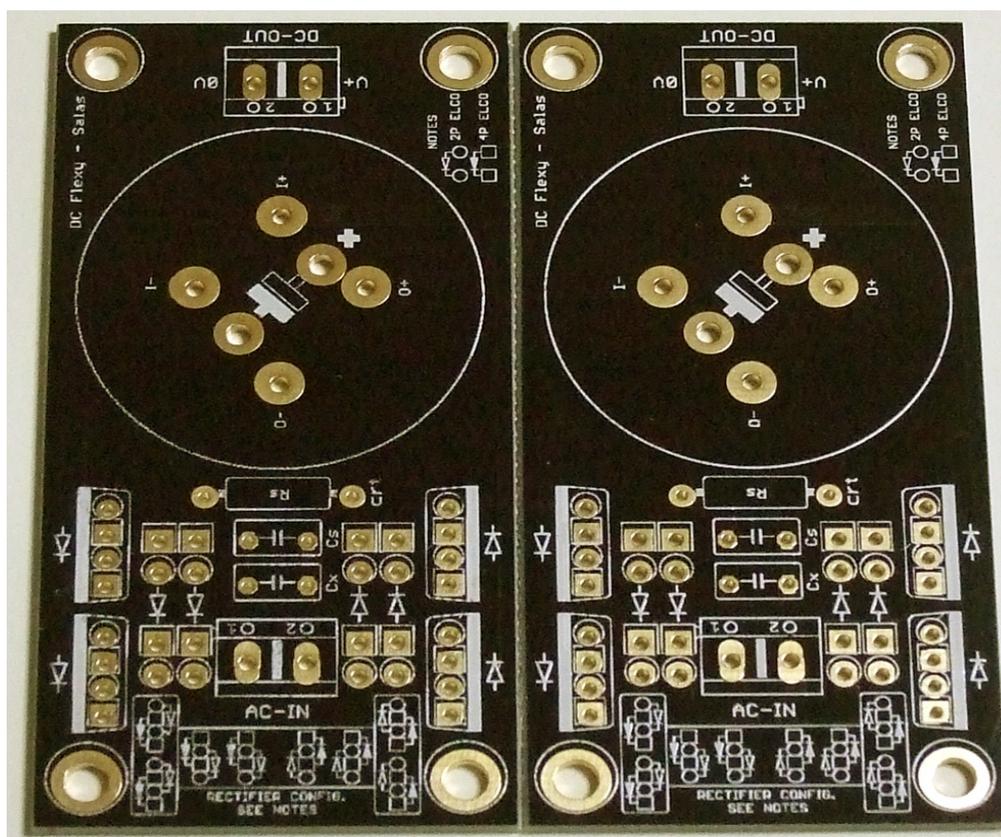


When (3) DC line is not readily available from some power source in a build, install a Raw DC rectification and filtering board in the same box if the space allows, or externally in a PSU box. If without any, the DC Flexy companion raw DC board is one recommended solution. Read below.

## DC Flexy

This is a rectification and smoothing board with flexibility in accepting two pin normal or four pin/four pole special reservoir capacitors without using jumpers or other modifications. It can deliver DC power to one or more Ref-D Mini or to various other projects that are having alike raw DC input demands.

By choosing on which pads to put the bridge diodes it can work with snap-in standard two pin reservoir capacitor or Mundorf M-Lytic AG+ four pole type. Or other 4pin cap with same pitch. Soldering the diodes to the round pads auto-configures two pin capacitor. Soldering them to the square pads auto-configures four pin capacitor. No need to remember from the manual, its also graphically shown on the board's silkscreen.



Accepts standard axial or TO-220 diodes. One or the other type may be used. Don't populate both together. Located at the board's sides the TO-220s can be bolted to chassis used as a sink if their temperature gets high. Their backs if conductive must be isolated with Silpads for allowing that.

As an extra feature the Flexy has Cx Cs Rs transformer anti-ringing snubber parts positions. Cx is parallel to AC in, Cs, Rs are in series between them and parallel to Cx as a branch.

Those parts are for folks who have Mr. Mark Johnson's "Quasimodo" or other ring test capability. Don't use any generally hinted values. Its shooting in the dark. When one finds the exact values for specific diodes and transformer in some project by lab test, the others may copy. Otherwise those snubber parts should be skipped. No other PCB manipulation is needed to allow using them or not.

The mid-line breakable PCB design carries two DC Flexy sections. Each section measures 82.5 mm by 41mm. The capacitor's area diameter allows up to 35mm types. The AC-IN & DC-OUT Molex connectors pitch is 5mm, same for Cx & Cs. Rs pitch is 12.5mm. 0.5W-1W.

Those two sections or more may be useful for powering various sub-circuits or channels in better isolation. Or to be configured like stacked batteries for creating a bipolar supply. It takes a separate AC secondary to each section diode bridge for doing that. If no need for two sections simply keep the spare section for another project. Can be used anywhere.

For powering the Ref-D Mini a 9VAC/30VA transformer, four soft recovery diodes of choice, and a 6800uF capacitor will suffice. Use higher uF if sharing a Flexy between a couple or more Minis. Especially if their CCS is set high.

When building it for powering other projects you should already know the spec regarding transformer voltage and VA power, the dissipation in the diodes, the voltage and ripple current spec for the capacitor. Always protect the AC primary with the specific fuse recommended by the transformer's manufacturer.

Here are two pole conventional capacitor and four pole special capacitor example build pictures.

