

MINIATURE RTBP V1.0

RTBP = relay true bypass

OVERVIEW

This little helper is a relay true bypass in a miniature format with the following features:

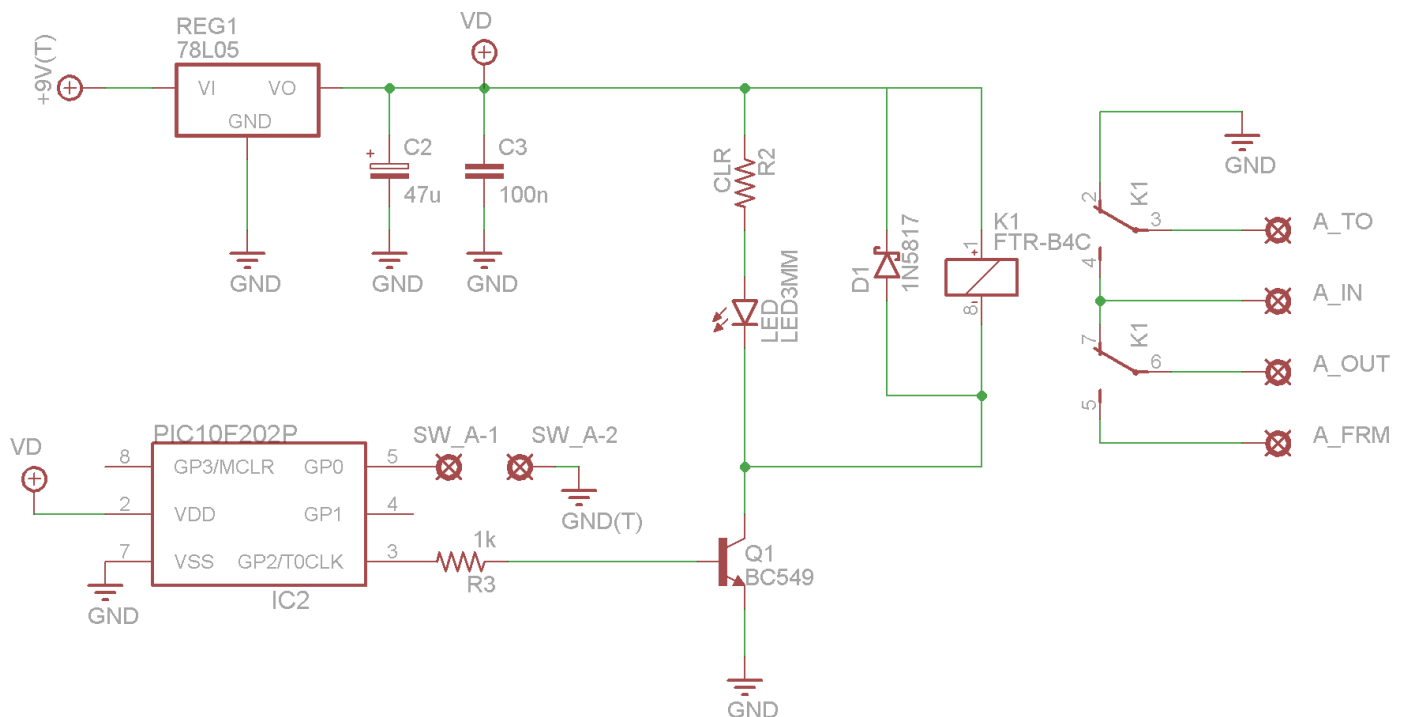
- relay switching (DPDT)
- LED indicator
- on-board voltage regulator
- fits a 1590A enclosure
- mounts directly onto the momentary switch using double sided tape

GENERAL

- This is a successor of the ultimate switch. It uses the same reliable and approved microcontroller and code while being even smaller to fit into the tiniest space.
- FEATURE: Power-On – Option: Ground pin 8 (GP3) to have it “On” when power is applied.

SCHEMATIC

Digital Bypass Switch - miniature
V1.0
(c) 03/2014 TH custom effects



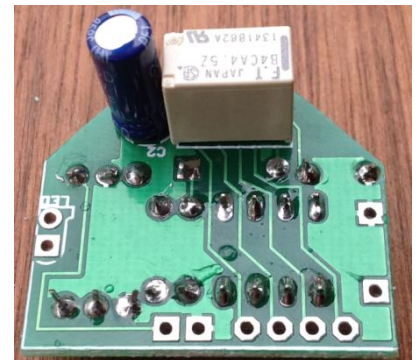
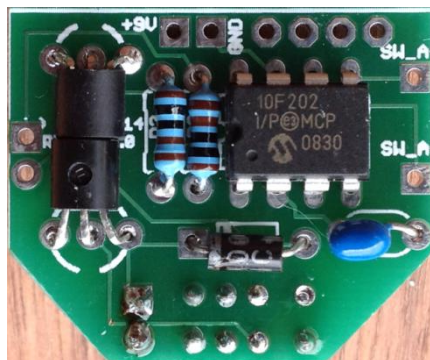
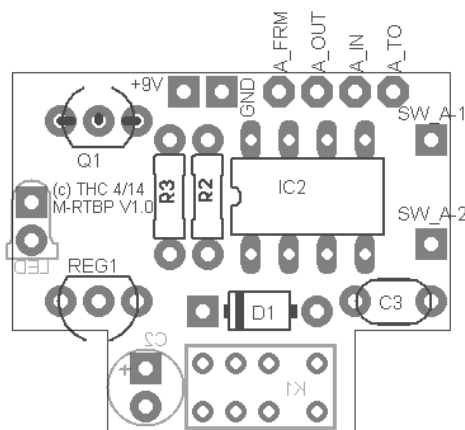
BILL OF MATERIALS

	Parts	Value	Qty	Description
Resistors	R2	1k	1	Test for brightness of LED first
	R3	1k	1	
	C2	100uF	1	polarized electro 5mm \varnothing
Capacitors	C3	100nF	1	MLCC
	D2	1N5817 / 1N4001	1	
Diodes	LED	LED 3mm	1	
	Q1	BC 549	1	alt. 2N5088 (turn 180deg)
Transistors	IC2	Programmed Microcontroller	1	
	REG1	78L05	1	
ICs	K1	Fujitsu FTR-B4C	1	4.5V
Other				

BUILDING

Start populating the diodes and resistors first. If you have space, socket your IC. If not, put in the IC now. Next is the MLCC cap then goes the transistor* and the voltage regulator. You will need the regulator and the transistor "bow" to each other, so bend their legs and test for alignment before you solder them! *Make sure your transistor has the right orientation. 2N5088 etc. need to be turned 180°.

Then turn the board and solder the relay and cap.



MOUNTING

Some detail for mounting the switch and the board in a 1590A enclosure.

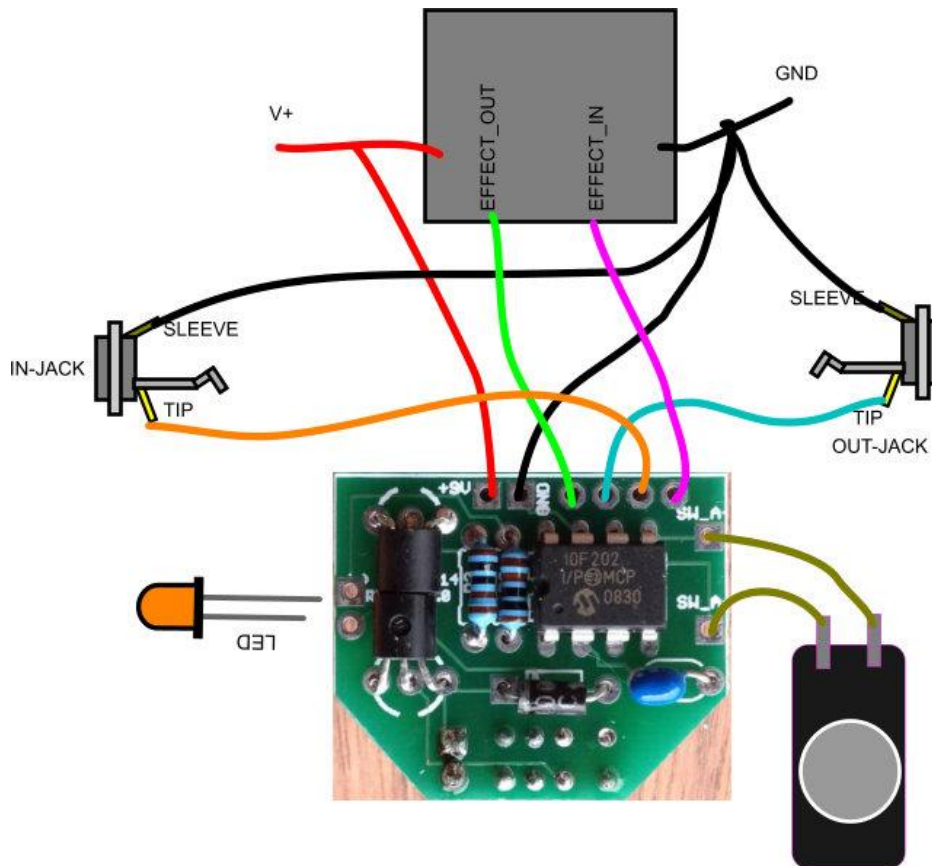
The switch hole is drilled in the center between the two sides appx. 18mm from the bottom. The switch contacts need to be clipped. The 3mm LED hole needs to be drilled 5mm from the right-hand side.

Put double sided tape on the switch and press the board onto it. When I wire this I connect the board and switch pins first, then mount it into the enclosure. The LEDs long leg goes into the square hole.



WIRING

This looks more complicated than it actually is ☺



FINALLY

You now have a relay bypass that fits almost any tiny space. So it's ideal to replace mechanical 3PDT switches and update them to a very reliable and easy to use relay switching system.

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