

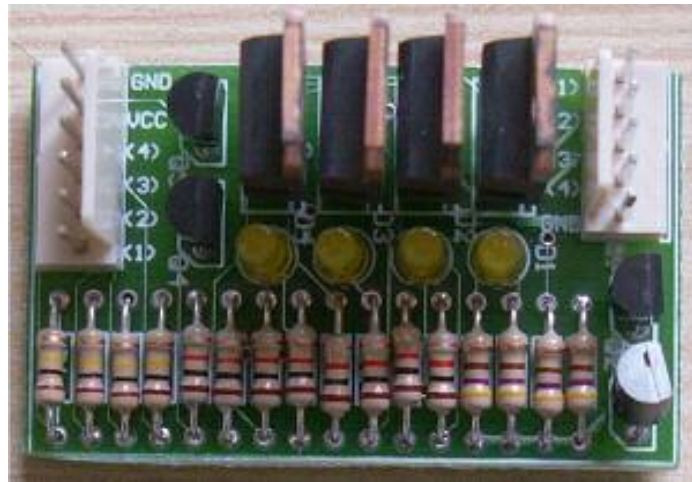
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# Digital Switch

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# BV404

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## BV404 Digital Switch

Product specification and build instructions

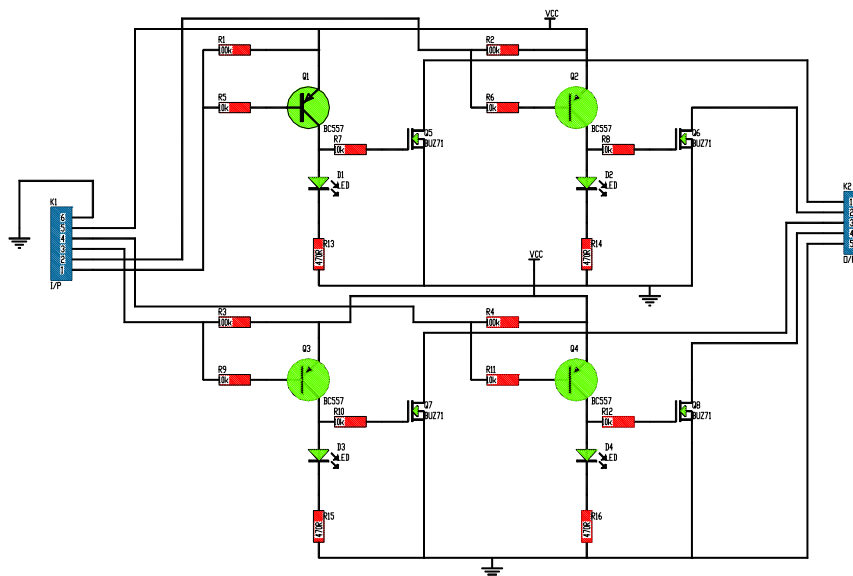
Jan 2006 v0.a

# Digital Switch

# BV404

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## 1. Introduction

This circuit is designed to switch low voltage high current loads at high speed, stepper motors, lamps, solenoids etc.

A special feature is that with the board inputs disconnected the outputs will be off. A logic 0 is required to activate the outputs, this increases noise immunity and most microcontrollers reset with the bus lines high, thus this will be in the off condition.

The BV404 is very good for testing because of the LED indicators.

## 2. Specification

- 4 digital outputs

- LED output indication
- Active low inputs
- MOSFET switch outputs BUZ71
- Up to 14A at 50V, see specification for BUZ71 on the data sheet

## 3. Build Instructions

There are eight transistors on this board, four power transistors and four PNP low power transistors. It is important that they are orientated correctly.

The PCB overlay indicates which way round the devices go. See also the photograph on page 1.

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## Digital Switch

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**BV404**

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Appendix A contains construction hints and tips that will help in getting the LED's the correct way round.

### 4. How It Works

At first sight this circuit may seem unnecessarily complex, the inputs could easily have been directly into the BUZ71 transistors themselves. However because the BUZ71 is an N channel device, taking the gate high causes it to switch on. This would mean that, when connected to most microcontrollers the switches would all be on at re-set.

A P channel device could have been used but these are more expensive and less easy to obtain. The design therefore uses a PNP transistor to invert the input.

An added advantage of using a transistor is that a LED indicator can be used to indicate when the channel is switched on. Control power is obtained from the microcontroller via pin 5 of K1, this provides the switching current for the PNP transistors and associated LED's.

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