XEN ABx Switch Box

XEN Audio

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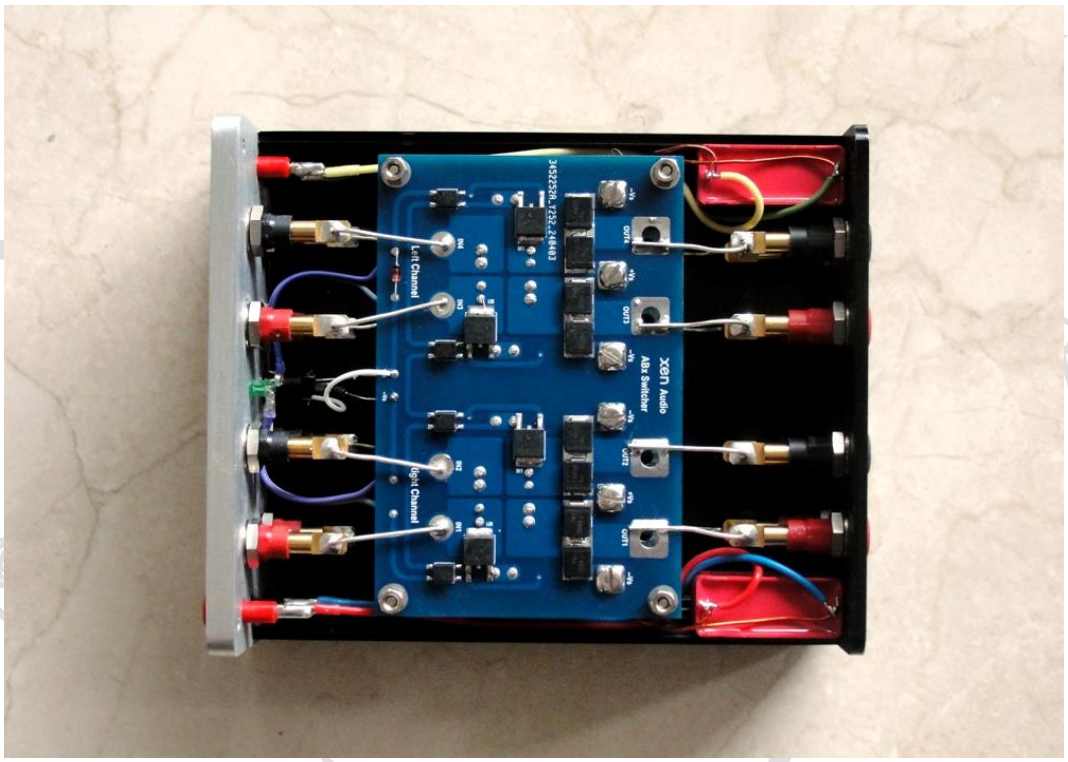
In our recent attempt to compare different versions of the Classic Hiraga Le Monstre, we have the need for an ABx Switch Box to switch two similar but different amplifiers reliably to the same pair of speakers frequently, on the fly, and with very low distortion.

The simplest solution is to use 2x DPDT relays (for stereo); such as Schrack RTE25024, with gold plated contacts. But relay contacts are prone to arcing and oxidation, which in turn affects distortion. An ABx Switch Box is likely to see a lot more switching cycle than a speaker protection relay. So it a MOSFET relay based solution was chosen instead.

A MOSFET relay for speakers can just be a pair of low Rdson MOSFETs driven by a opto-voltaic driver IC. But the output end needs to be clamped between the amplifier rails with "Catch" diodes. Thus, each stereo amp will need to run a total of 6 wires to the Switch Box -- 4 outputs and +/- rails. The -ve outputs are also switched, irrespective of whether the amplifier is single ended or balanced.

In this particular example, our proven low-distortion MOSFET relay circuit is employed. The circuit is not exactly reversible due to that the "catch" diodes must be at the speaker end. For one amp driving 2 speakers, the same boards can be used but inputs / outputs need to be wired differently, using a pair of Y-cables.

The MOSFET drivers are biased with 2x 9V batteries in a remote handset. The bias current is switched between the two stacks of relays with a simple SPDT toggle switch. This makes sure break before make, as the switching is instantaneous.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