HUX ELECTRONICS

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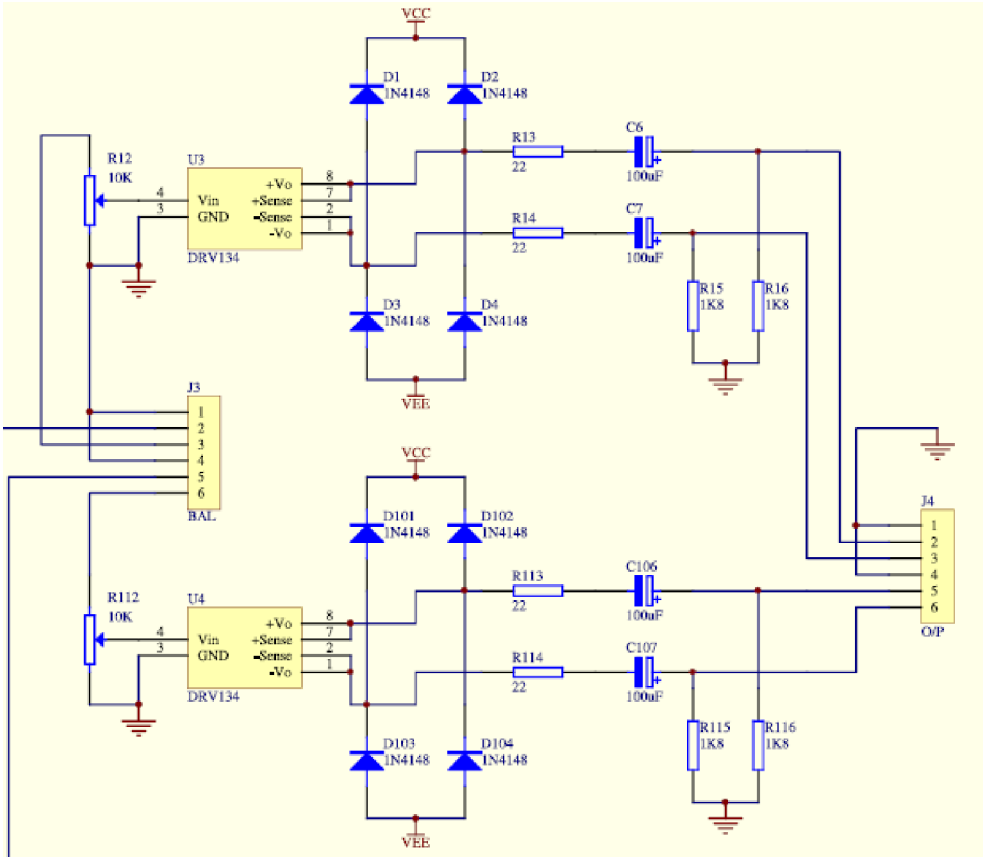
Hux Universal Balancing Amplifier :
Why the output stage cant be damaged by phantom power



The DRV134 balanced line driver and the SSM2142P before it can both be damaged by an external voltage source such as phantom power being shoved up the output. The Hux Universal Balancing amplifier uses several lines of defence to ensure that phantom power can not cause any damage or impede the normal operation of the unit in any way.

The least obvious but most important are the 1.8K ohm resistors to ground post the capacitors, these act with the 6.8K ohm phantom power source resistors (in a 48 volt system) to pull the voltage (at the non ground end of the resistor) down to 10 volts DC. The resistors also load the IC and improve its effective common mode output balance. The 10 volts DC is then blocked by the capacitors. You will note that the +ve side of the capacitors are facing the possible source of trouble, which is the opposite of normal electronics practice (and way more sensible I think). The capacitors have a 25 volt rating and can not be harmed by the residual 10 volts of phantom. Diodes between the IC outputs and the power supply rails are used to ensure that any voltage spikes from the outside world that makes it past the first two lines of defence can not cause the IC outputs to exceed the power supply rails. I have carried out destruction tests and can not fault this type of protection against phantom power issues.